IB BUSINESS MANAGEMENT
50 WORKSHEETS PACK, 2ND EDN

UNIT 3: FINANCE & ACCOUNTS (SL & HL)

Kenneth Tang

Level7 Education

Introduction

This resource aims to support students and teachers in the preparation for Unit 3: Finance and Accounts of the IB Business Management course (first examinations 2024).

This resource pack contains 50 worksheets with practical short answer questions, case studies, revision exercises, and exam skills building with a full set of answers for all worksheets. They are easy to use for quick formative assessments. Students may also find this resource useful in their preparation for end-of-unit (summative) assessments as well as their revision plans during the final countdown to their IB Business Management exams. The worksheets are arranged in syllabus order, but they can be used in any order at any appropriate time. Teachers will also find this resource useful to give students to work on in lieu of your absence for personal and/or professional reasons. Each worksheet is accompanied with fully explained answers, which can be shared with students as appropriate.

About the Author

Kenneth Tang works at an international school in Hong Kong, where he teaches IBDP Business Management and Economics. He is an experienced and qualified teacher under the Education Bureau of Hong Kong SAR Government, Ontario College of Teachers (OCT) in Canada, and has Qualified Teaching Status (QTS) with the Ministry of Education in the United Kingdom. He is an experienced examiner for Business Management and have marked Paper 1 and Paper 2, and moderated the Internal Assessment.

Kenneth has an Executive Masters of Arts (EMA) in International Educational Leadership and Change and a Bachelor of Commerce (B.Com) degree from The Rotman School of Management at the University of Toronto. He obtained his teaching qualification, the Postgraduate Diploma in Education (PGDE), from the University of Hong Kong. He also holds both the IB Certificate and Advanced Certificate in Leadership Practise and Leadership Research.

Prior to his international education career, Kenneth had various experiences in the corporate and commercial field. This included working in the Toronto office of Ernst & Young LLP in Canada, as an audit staff accountant, and completing the Management Trainee program with Citicorp International Limited in Hong Kong.

Kenneth is an IB DP alumnus, having completed this IB Diploma in Hong Kong. As such, he is eager to share his personal IB journey and support students through this challenging curriculum. He also enjoys giving context and relevance of the theoretical concepts taught in the classroom through stories from his work experience in the corporate world. During his spare time, he enjoys following current affairs and strives to bring the news into the classroom setting. Kenneth has also written subject-specific articles for *IB Review*, a student-centered magazine published by Hodder Education. Kenneth was invited as a panelist speaker at the IB Global Conference – Hong Kong in March 2019 and has contributed to the IB's Graduate Voice 2021 series.

Email: kennethkc.tang@gmail.com

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IB BUSINESS MANAGEMENT
50 WORKSHEETS & ANSWERS (2ND EDITION)
UNIT 3: FINANCE & ACCOUNTS

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Worksheet 1
3.1 Introduction to Finance (1)

(a) List **two** reasons why a business needs finance. *[2 marks]*

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(b) Define the term *capital expenditure*. *[2 marks]*

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(c) Define the term *revenue expenditure*. *[2 marks]*

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(d) Given the following examples in the table below, identify whether they are capital or revenue expenditure. *[15 marks]*

	Examples	**Capital expenditure or Revenue expenditure**
1.	Purchase of new MacBook computers for a school.	
2.	Rent payment for the retail shop location.	
3.	Delivery costs to ship finished goods to retailers.	
4.	Research and development cost on the production of new COVID-19 vaccines.	
5.	Purchasing tables and chairs for the new office location.	
6.	A bakery shop purchases flour from its supplier.	
7.	A business purchases an insurance premium for its company car.	
8.	Spending made on refuelling the rental vehicles for a car rental company.	
9.	A publicly held company decides to acquire another company.	
10.	Interest payments on a bank loan.	
11.	Mortgage payment on a building purchased by the business.	
12.	Cost of telephone bills for directors of the company.	
13.	Cost of billboards to promote the launch of a new product.	
14.	Acquiring the copyright for a new textbook launched by a publisher.	
15.	A company purchases a new IT system for the business to improve its efficiency.	

Answers

(a) List **two** reasons why a business needs finance. *[2 marks]*

- To set up a new business
- To maintain the day-to-day operations of a business, e.g., to pay for utilities and the purchase of raw materials/supplies.
- To expand and grow a business, e.g., opening a new branch/store/outlet.
- To develop new products, e.g., through research & development (R&D).

Top tip: The command term "list" is an assessment objective AO1 in the new guide (first examinations 2024). These type of questions can be answered with a simple bullet point.

(b) Define the term *capital expenditure*. *[2 marks]*

Capital expenditure refers to spending made by a business on non-current (fixed) assets, with an intention to use these assets for more than one year. The aim of this spending is for the long-term, such as purchasing equipment to produce goods sold by the business.

Top tip: There is no requirement for a student to provide an example as part of a definition. Examples are not usually credited.

(c) Define the term *revenue expenditure*. *[2 marks]*

Revenue expenditure refers to spending made by a business to support its day-to-day operations. The aim of this spending is to meet short-term obligations, such as paying the wages/salaries.

(d) Given the following examples in the table below, identify whether they are capital or revenue expenditure. *[15 marks]*

	Examples	**Capital expenditure or Revenue expenditure**
1.	Purchase of new MacBook computers for a school.	Capital
2.	Rent payment for the retail shop location.	Revenue
3.	Delivery costs to ship finished goods to retailers.	Revenue
4.	Research and development cost on the production of new COVID-19 vaccines.	Capital
5.	Purchasing tables and chairs for the new office location.	Capital
6.	A bakery shop purchases flour from its supplier.	Revenue
7.	A business purchases an insurance premium for its company car.	Revenue
8.	Spending made on refuelling the rental vehicles for a car rental company.	Revenue
9.	A publicly held company decides to acquire another company.	Capital
10.	Interest payments on a bank loan.	Revenue
11.	Mortgage payment on a building purchased by the business.	Revenue
12.	Cost of telephone bills for directors of the company.	Revenue
13.	Cost of billboards to promote the launch of a new product.	Revenue
14.	Acquiring the copyright for a new textbook launched by a publisher.	Capital
15.	A company purchases a new IT system for the business to improve its efficiency.	Capital

Worksheet 2
3.1 Introduction to Finance (2)

(a) Identify the statement that is the odd one out in each case below. *[4 marks]*

(1) Capital expenditure aims to …

☐ improve the longevity of a current asset.
☐ provide long-term benefits for a business.
☐ add value to a firm's non-current assets.
☐ improve the operational efficiency of a firm.

(2) Revenue expenditure includes …

☐ maintenance costs of equipment and motor vehicles.
☐ the purchase of new capital equipment and motor vehicles.
☐ payment of salaries to the senior management team.
☐ purchasing office supplies for the business.

(3) The following are all reasons for capital expenditure:

☐ To replace non-current assets that are no longer functional.
☐ To increase the production capacity of the organization.
☐ To comply with government-imposed laws on the use of green and sustainable processes and technologies.
☐ To ensure the business can function on a daily basis.

(4) The following statements relate to revenue expenditure:

☐ These spendings are short-term in nature.
☐ It aims to improve the operational efficiency of the business.
☐ It is shown on the statement of profit and loss.
☐ They are recurring.

(b) Explain **one** example of capital expenditure and **one** example of revenue expenditure for a car rental company. *[4 marks]*

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(c) Explain **one** example of capital expenditure and **one** example of revenue expenditure for a food and beverage manufacturer. *[4 marks]*

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Answers

(a) Identify the statement that is the odd one out in each case below. *[4 marks]*

(1) Capital expenditure aims to …
- ☑ improve the longevity of a current asset

Capital expenditure is related to spending on non-current assets, with the aim of purchasing such assets for use of more than one year.

(3) Revenue expenditure includes …
- ☑ the purchase of new capital equipment and motor vehicles

The purchase of capital equipment and motor vehicles relates to capital expenditure, not revenue expenditure (spending made to support the daily operations of a business).

(3) The following are reasons for capital expenditure:
- ☑ To ensure the business can function on a daily basis.

Spendings made to help a business operate on a daily basis are classified as revenue expenditure rather than capital expenditure.

(4) The following statements relate to revenue expenditure:
- ☑ It aims to improve the operational efficiency of the business.

The operational efficiency of a business can be improved when there is capital expenditure on, say, new technologies which allow the business to improve its production efficiency.

(b) Explain **one** example of capital expenditure and **one** example of revenue expenditure for a car rental company. *[4 marks]*

For a car rental company, one example of capital expenditure is the purchase of new cars/vehicles. As the business depends on car rentals, it is important that it has sufficient cars to meet the demands of its customers, especially during peak periods (e.g., holiday seasons). Furthermore, these cars are purchased with the intention of using them for more than a year as they will help the car rental company to generate rental incomes.

One example of revenue expenditure could include the spending made on insurance premiums for these cars. As these cars will be rented out and used by many different users, it is likely that the company will need to insure their cars in order to protect the firm from losses as a result of the misuse of the vehicles by the car renters.

Accept any other relevant examples.

(c) Explain **one** example of capital expenditure and **one** example of revenue expenditure for a food and beverage manufacturer. *[4 marks]*

One example of capital expenditure for a food and beverage manufacturer is the purchase of new production equipment which could improve the operational efficiency of the production process. As profit margins tend to be low for food and beverage manufacturers, it is likely that the manufacturer will need to rely on high sales volumes to improve its profits. Hence, capital expenditure on new production equipment could help achieve this through optimizing the manufacturer's operational efficiency to produce more food and beverage products for sale.

An example of revenue expenditure for a food and beverage manufacturer is the remuneration (wages) paid to its factory workers on the production line. It is likely that many workers will need to be hired to ensure the smooth operation within the factory. This becomes the recurring and day-to-day costs which the food and beverage manufacturer will need to incur in order to maintain its production and daily operations.

Accept any other relevant examples.

Worksheet 3
3.2 Sources of Finance (1)

(a) Define the term *internal sources of finance*. *[2 marks]*

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(b) Define the term *external sources of finance*. *[2 marks]*

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(c) Identify the correct source of finance from the following statements (answer options given below) and identify whether they are short- or long-term sources of finance. *[11 marks]*

Business angels	Loan capital	Personal funds	Share capital
Crowdfunding	Microfinance providers	Retained profit	Trade credit
Leasing	Overdrafts	Sale of assets	

Statements		**Source of finance**	**Short- or Long-term finance**
1.	The business obtains an extension of time to pay back its suppliers, say, from 30 days to 60 days.		
2.	The issuance (selling) of shares to shareholders to raise an additional source of finance.		
3.	Money raised from the sale of non-current assets that are no longer needed by the business.		
4.	The financial surplus that remains after a company pays dividends to its shareholders.		
5.	Obtaining a large amount of money from a financial institution, usually for capital expenditure.		
6.	A service that allows a business to borrow money up to an agreed amount (usually more money than what is deposited in the bank by the business), but with relatively higher interest charges.		
7.	A type of finance that pools the support from a large number of individuals through the use of the Internet and/or social media platforms.		
8.	Rather than paying a large sum of money to purchase a non-current asset (e.g., machinery), the business rents the asset instead.		
9.	A financial service that offers financial assistance to those that are poor and/or on low-incomes.		
10.	The use of the owner's own funds for the business.		
11.	An individual who is extremely wealthy and has the funds to invest in start-up companies that may be considered as too risky to other investors.		

Answers

(a) Define the term *internal sources of finance*. *[2 marks]*

Internal sources of finance refers to funds that are derived from within the business. The amount of money from internal sources of finance is generally limited as they include personal savings from the owner or selling assets that are no longer needed by the business.

(b) Define the term *external sources of finance*. *[2 marks]*

"External sources of finance" refers to finances that are obtained from outside of the business. The amount raised from external sources of finance can vary but are often a lot more than what the firm can derive internally as funds can be raised from individuals, businesses, or financial institutions.

(c) Identify the correct source of finance from the following statements (answer options given below) and identify whether they are short- or long-term sources of finance. *[11 marks]*

Business angels	Loan capital	Personal funds	Share capital
Crowdfunding	Microfinance providers	Retained profit	Trade credit
Leasing	Overdrafts	Sale of assets	

Statements		**Source of finance**	**Short- or Long-term finance**
1.	The business obtains an extension of time to pay back its suppliers, say, from 30 days to 60 days.	Trade credit	Short
2.	The issuance (selling) of shares to shareholders to raise an additional source of finance.	Share capital	Long
3.	Money raised from the sale of non-current assets that are no longer needed by the business.	Sale of assets	Short
4.	The financial surplus that remains after a company pays dividends to its shareholders.	Retained profit	Short
5.	Obtaining a large amount of money from a financial institution, usually for capital expenditure.	Loan capital	Long
6.	A service that allows a business to borrow money up to an agreed amount (usually more money than what is deposited in the bank by the business), but with relatively higher interest charges.	Overdraft	Short
7.	A type of finance that pools the support from a large number of individuals through the use of the Internet and/or social media platforms.	Crowdfunding	Short
8.	Rather than paying a large sum of money to purchase a non-current asset (e.g. machinery), the business rents the asset instead.	Leasing	Short
9.	A financial service that offers financial assistance to those that are poor and/or on low-incomes.	Microfinance provider	Long
10.	The use of the owner's own funds for the business.	Personal funds	Short
11.	An individual who is extremely wealthy and has the funds to invest in start-up companies that may be considered as too risky to other investors.	Business angels	Short/Medium

Worksheet 4
3.2 Sources of Finance (2)

(a) The following are statements of advantages and disadvantages of various sources of finance. Identify each statement as an advantage or a disadvantage **and** identify the relevant source of finance in each case. *[10 marks]*

	Statement	Advantage or Disadvantage?	Source of Finance
1	There are limited funds that can be provided with this source as they come from the owner's own pockets.		
2	By issuing shares through a public stock exchange, this allows the company to raise a greater amount of funds.		
3	Used as a short-term source of finance due to the high interest charges for taking out more money than in the firm's bank account.		
4	This external source of finance can offer a large amount of money for capital expenditure but often has a long application process with financial institution.		
5	The business has no possession of the asset if it uses this source of finance.		
6	This method allows people to gain wide access via the Internet and/or social media platforms to raise funds.		
7	This is the profits from prior years (after taxes deductions as well as dividends distributed to owners), without the need to pay interest rate charges.		
8	The sale of obsolete and unused equipment or machines in order to raise finance without the need to borrow money from external providers.		
9	Investors with an appetite for risky ventures with high growth potential, without any interest rate charges.		
10	This source of finance is especially useful for those who are on low income or do not have access to traditional means of borrowing from commercial banks.		

(b) State whether the following statement is true or false. *[5 marks]*

	Statement	True or False?
1	Microfinance providers are be regarded as unethical as they are making large profit margins on loans given to low-income clients.	
2	Through leasing as a source of finance for non-current assets, the business still incurs the costs of maintaining the assets.	
3	Overdrafts incur high interest rate charges, and the lender can demand repayment of the money owed any time.	
4	Mortgages, which are loans used to purchase commercial properties, is a type of loan capital for businesses.	
5	Share capital is only available to publicly held companies.	

Answers

(a) The following are statements of advantages and disadvantages of various sources of finance. Identify each statement as an advantage or a disadvantage **and** identify the relevant source of finance in each case. *[10 marks]*

	Statement	Advantage or Disadvantage?	Source of Finance
1	There are limited funds that can be provided with this source as they come from the owner's own pockets.	Disadvantage	Personal funds
2	By issuing shares through a public stock exchange, this allows the company to raise a greater amount of funds.	Advantage	Share capital
3	Used as a short-term source of finance due to the high interest charges for taking out more money than in the firm's bank account.	Disadvantage	Overdraft
4	This external source of finance can offer a large amount of money for capital expenditure but often has a long application process with financial institution.	Disadvantage	Loan capital
5	The business has no possession of the asset if it uses this source of finance.	Disadvantage	Leasing
6	This method allows people to gain wide access via the Internet and/or social media platforms to raise funds.	Advantage	Crowdfunding
7	This is the profits from prior years (after taxes deductions as well as dividends distributed to owners), without the need to pay interest rate charges.	Advantage	Retained profit
8	The sale of obsolete and unused equipment or machines in order to raise finance without the need to borrow money from external providers.	Advantage	Sale of assets
9	Investors with an appetite for risky ventures with high growth potential, without any interest rate charges.	Advantage	Business angels
10	This source of finance is especially useful for those who are on low income or do not have access to traditional means of borrowing from commercial banks.	Advantage	Microfinance

(b) State whether the following statement is true or false. *[5 marks]*

	Statement	True or False?
1	Microfinance providers are be regarded as unethical as they are making large profit margins on loans given to low-income clients.	True
2	Through leasing as a source of finance for non-current assets, the business still incurs the costs of maintaining the assets.	False
3	Overdrafts incur high interest rate charges, and the lender can demand repayment of the money owed any time.	True
4	Mortgages, which are loans used to purchase commercial properties, is a type of loan capital for businesses.	True
5	Share capital is only available to publicly held companies.	False

Worksheet 5
3.2 Sources of Finance (3)

(a) Explain **two** factors that may affect an organization's decision on which source of finance to pursue. *[4 marks]*

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(b) Describe **one** source of finance which is *not* advisable for business owners who would like to retain decision-making power and control. *[2 marks]*

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(c) Describe **one** source of finance that is available for a small start-up company with high growth potential. *[2 marks]*

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(d) A business is encountering a cash flow issue and needs to repay its suppliers within the next month. Describe **one** source of finance that is appropriate for this situation. *[2 marks]*

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(e) Outline **one** source of finance that may be affected by economic **or** technological factors within the STEEPLE analysis framework. *[2 marks]*

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Answers

(a) Explain **two** factors that may affect an organization's decision on which source of finance to pursue. *[4 marks]*

One factor may include the purpose of the finance. If the organization decides to pursue capital expenditure, which often requires a large sum of money, short-term sources of finance and internal sources of finance may not be appropriate. By contrast, long-term sources of finance, such as loan capital or leasing, may be more appropriate.

Another factor may be the type of organization, i.e., its size and legal status. A sole trader or partnership may have limited access to sources of finance due to the relatively small size and scale of its operations. However, large businesses, such as publicly held companies or even some privately held companies, may have the ability to access more sources of finance due to their reputation and ability to benefit from economies of scale.

Accept any other relevant factor that is appropriately and accurately explained.

(b) Describe **one** source of finance which is *not* advisable for business owners who would like to retain decision-making power and control. *[2 marks]*

A source of finance that is not advisable for business owners who wish to retain decision-making power is the use of share capital. Through issuing (selling) shares, the company is diluting the control of its business in exchange for capital/funds. If the new shareholders accumulate sufficient shares (e.g., a majority stake in the company), then these shareholders may be able to gain overall control of the business.

(c) Describe **one** source of finance that is available for a small start-up company with high growth potential. *[2 marks]*

One source of finance that a small start-up company with high growth potential may be able to get is through a business angel. Business angels are wealthy individuals who are often looking for business ventures to invest in (especially risky ones with high growth potential). This could allow the start-up company to kick off its business venture without the need to go through the difficult and long application process of applying for bank loans, for example.

(d) A business is encountering a cash flow issue and needs to repay its suppliers within the next month. Describe **one** source of finance that is appropriate for this situation. *[2 marks]*

A possible source of finance for this situation is the use of overdrafts. Overdrafts are a short-term source of finance which allows a business to draw up more than what it has deposited in its bank account, but often at a very high interest rate. As such, this source of finance is flexible and would be the best fit given the urgent need for cash as the business needs to repay its suppliers quickly.

(e) Outline **one** source of finance that may be affected by economic **or** technological factors within the STEEPLE analysis framework. *[2 marks]*

Overdrafts or loan capital – If interest rates change, due to fluctuations in the business cycle, external sources of finance like overdrafts or loan capital will become more expensive for borrowers. This means that the business will have to pay a higher amount of interest on the borrowed money.

Crowdfunding – Changes in technology, like the launch of new social media apps, can impact the accessibility of crowdfunding as a source of finance. Since crowdfunding relies on Internet and social media platforms, these technological changes can affect how easily businesses can raise money through crowdfunding.

Aaron's Games (AG)

Aaron is the lead game designer and owner of a start-up virtual reality gaming company called *Aaron's Games* (*AG*). *AG* has operated for a year already without a finance personnel and Aaron would like to take a look at the direct costs, **indirect costs**, and **revenue streams** since the launch of the company's first game.

Table 1: Fixed and variable cost information for *AG* in 2023

Fixed costs per year	**($'000)**
• Rent	50
• Maintenance	5
• Promotions	3.5
• Insurance premiums	2.5
Variable costs per game	**($)**
• Design materials	20
• Direct labour cost for game designers	100
• Other variable costs	50

(a) Define the term *indirect costs*. *[2 marks]*

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(b) Use the information in **Table 1** to complete the table below. *[4 marks]*

Output (games)	**Total fixed costs ($)**	**Total variable costs ($)**	**Total costs ($)**	**Average costs ($)**
0				
50				
100				
150				
200				
250				

(c) Define the term *revenue streams*. *[2 marks]*

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(d) The average selling price for each video game is $350. Calculate the total revenue earned by *AG* for a total sales volume of 300 games in one week. *[2 marks]*

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Answers

(a) Define the term *indirect costs*. *[2 marks]*

Indirect costs (also known as overheads) refer to costs that are not explicitly related to the production of a particular good or the provision of a service, e.g., rent as the location or premise is associated with all business functions rather than the production/manufacturing of a particular good.

(b) Use the information in **Table 1** to complete the table below. *[4 marks]*

- Total fixed costs = Rent + Maintenance + Promotions + Insurance premiums
  - 50,000 + 5,000 + 3,500 + 2,500 = **$61,000**
- Variable costs per game = 20 + 100 + 50 = **$170**
- As an example, for 50 games:
  - TFC = $61,000 (fixed costs are the same because they do not vary with the level of output)
  - TVC = Variable cost per unit × Quantity sold = $170 × 50 games = $8,500
  - TC = TFC + TVC = $61,000 + $8,500 = **$69,500**

Apply the same method for the remaining levels of output in the table:

Output (games)	Total fixed costs ($)	Total variable costs ($)	Total costs ($)	Average costs ($)
0	61,000	0	61,000	--
50	61,000	8,500	69,500	1,390
100	61,000	17,000	78,000	780
150	61,000	25,500	86,500	576.67
200	61,000	34,000	95,000	475
250	61,000	42,500	103,500	414

Top tip: The question does not ask you to show any working out, so it is fine to just populate the table with the figures. The calculations are provided to show you how the answers were derived.

(c) Define the term *revenue streams*. *[2 marks]*

Revenue streams refer to the various sources in which a business derives its sales from. As a business grows in scale, quite often they will diversify its revenue streams through offering additional goods/services within its existing business model or from other sources.

(d) The average selling price for each video game is $350. Calculate the total revenue earned by *AG* for a total sales volume of 300 games in one week. *[2 marks]*

- Total revenue = (P × Q) – Total Cost
- = ($350 × 500 games) – [$61,000 + ($170 × 300)]
- = $175,000 – $112,000
- = **$63,000**

Top tip: Expressing the correct units of measurement is extremely important with any quantitative question in the Business Management assessments. A correctly calculated answer but without appropriate units of measurement will usually be deducted *1 mark* in the exam.

Troll Toys (TT)

Bryan is the owner of *Troll Toys* (*TT*), established as a sole trader. *TT* is known for the design and manufacturing of "Trolls," which are essentially figurines. *TT* has established its products in a niche and premium collectible toys market and appeals specifically to young adults aged 17 to 27. *TT's* office and small manufacturing facility are both based in the Akihabara district in Tokyo, Japan. *TT* sells its products in US dollars via an e-commerce website. Bryan has collated the following cost and revenue information. Each troll toy is sold for $280.

Table 1: Sales information and shipping (delivery) costs for *TT* by region

	Japan (domestic)	Asia Pacific & Australasia	Europe	North America	Rest of the world
Annual sales volume (number of toys)	25,000	30,550	12,000	40,750	27,400
Shipping (delivery) cost per toy	$10	$25	$35	$40	$45

Table 2: Variable costs per toy and fixed costs

Fixed costs (per year) • Rent of premises (office & small factory) • Marketing and promotions	 $3,500,000 $2,100,500
Variable costs (per toy) • Materials • Direct labour costs (designer and craftsman) • Shipping (delivery) costs	 $50 $70 See Table 1

(a) Calculate the total sales volume for *TT (show all your working)*. *[2 marks]*

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(b) Calculate the total variable costs (TVC) for *TT (show all your working).* *[2 marks]*

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(c) Calculate the total profit or loss for *TT (show all your working).* *[2 marks]*

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(d) Bryan's target profit is $15m. Using the total sales volume that you have calculated in part (a), calculate the price per toy that he must charge. *(Show your working to 2 d.p.).* *[2 marks]*

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Answers

(a) Calculate the total sales volume for *TT (show all your working)*. *[2 marks]*

- Total sales volume = Sum of the annual sales volume by geographical location
- = 25,000 + 30,550 + 12,000 + 40,750 + 27,400
- = 135,700 toys

> ***Top tip:***
> Many students often forget to put the units after performing a simple mathematical calculation. Make sure you don't forget to put the appropriate unit of measurement for your numerical value!

(b) Calculate the total variable costs (TVC) for *TT (show all your working).* *[2 marks]*

- Total variable costs (TVC) = Variable cost per unit × Quantity sold
- = ($50 + $70) × 135,700 + ($10 × 25,000) + ($25 × 30,550) + ($35 × 12,000) + ($40 × 40,750) + ($45 × 27,400)
- = $16,284,000 + $250,000 + $763,750 + $420,000 + $1,630,000 + $1,233,000
- TVC = $20,580,750

(c) Calculate the total profit or loss for *TT (show all your working).* *[2 marks]*

- Total profit (loss) = Total revenue – (Total fixed cost + Total variable cost)
- = (Selling price × Quantity sold) – [Total fixed cost + (Variable cost × Quantity sold)]
- = ($280 × 135,700) – [($3,500,000 + $2,100,500) +$20,580,750]
- = $37,996,000 – $26,181,250
- Total profit = $11,814,750

(d) Bryan's target profit is $15m. Using the total sales volume that you have calculated in part (a), calculate the price per toy that he must charge. *(Show your working to 2 d.p.).* *[2 marks]*

Apply the total profit formula and let "P" represent the selling price per toy that must be charged to achieve the target profit of $15m.

- Target profit = Total revenue – (Total fixed cost + Total variable cost)
- = (Selling price × Quantity sold) – [Total fixed cost + (Variable cost × Quantity sold)]
- $15,000,000 = 135,700P – [($3,500,000 + $2,100,500) + $20,580,750]
- $15,000,000 + 26,181,250 = 135,700P
- $41,181,250 = 135,700P
- P = $303.47

Thus, *TT* must charge a price of $303.47 in order to achieve a target profit of $15m with a sales volume of 135,700 toys.

> ***Top tip:***
> It is important to check which context the case is set in so you can write the appropriate and relevant currency to the calculated figure. In this case, the unit of measurement for price is US dollars ($).

Worksheet 8
3.3 Costs & Revenues (3)

Hon Bros' Sneakers (HBS)

Jason, Dickson, and Anson Hon are brothers who see the resale market of rare sneakers as a potential business venture. They believe the best way to kick start their business without any fixed costs is to set up an e-commerce store. After finishing the IB Diploma Programme, they established an e-commerce store via the use of social media platforms, including Instagram and Facebook. They purchase the most sought-after sneakers once they are released and resell these at a mark-up.

Table 1: Sales information relating to *HBS's* inventory of sneakers (per month in 2023)

Sneakers resold per month	AM1	UB18	AF1-OW	OG-X	The AJs	Easy350
Price (per pair of sneakers)	$800	$1,500	$1,600	$1,200	$900	$1,890
Average number of sneakers resold by *HBS* per month	30	50	20	25	35	20
Mark-up by *HBS*	25%	10%	70%	50%	80%	45%

Table 2: Variable costs per pair of sneakers resold (per month in 2023)

- Purchase cost (cost paid by *HBS* per sneaker): $150
- Shipping cost (cost paid by *HBS* to ship each pair of sneakers to their customers): $30
- Packaging (cost paid by *HBS* to package and protect the shoe box for shipping): $10

After a successful year with its current business model and having established a presence in the high-end sneaker resale market, *HBS* launched its own line of clothing in 2024, under the "Hon Bros" brand. Their unique and unconventional design allowed *HBS* to secure contractual agreements with three international fashion brands, which entitles *HBS* to a 30% royalty fee on all the clothing items sold featuring the "Hon Bros" logo. The following are the forecasted financial information from the three brands:

	Brand A	Brand B	Brand C
Selling price per piece of clothing	$700	$1,500	$1,950
Projected sales volume in 2024	1,700 pieces	2,050 pieces	1,980 pieces

(a) Calculate the variable cost per pair of sneakers resold in 2023. *[1 mark]*

……

(b) Using the information in **Table 1**, complete the following table to determine the selling price (i.e., the "resale price") for each pair of sneakers resold by *HBS*. *[2 marks]*

Sneakers resold per month	AM1	UB18	AF1-OW	OG-X	The AJs	Easy350
Resale price by *HBS*						

(c) Calculate the total revenue from the sale of all the sneakers resold by *HBS* in 2023 *(show all your working)*. *[2 marks]*

……

……

(d) Calculate the total profit from the resale of all the sneakers for *HBS* in 2023 *(show all your working)*. *[2 marks]*

……

……

(e) Calculate the projected total royalty payment for *HBS* in 2024 *(show all your working)*. *[2 marks]*

……

……

Answers

(a) Calculate the variable cost per pair of sneakers resold in 2023. *[1 mark]*

Variable cost per pair of sneakers resold = $150 + $30 + $10 = $190

(b) Using the information in **Table 1**, complete the following table to determine the selling price (i.e., the "resale price") for each pair of sneakers resold by *HBS*. *[2 marks]*

The resale price is determined by adding the value of the mark-up (percentage) to the original retail price of each pair of sneakers.

For example:

The resale price of AM1 sneakers = $800 × 1.25 = $1,000

Sneakers resold per month	AM1	UB18	AF1-OW	OG-X	The AJs	Easy350
Retail price per pair of sneakers	$800	$1500	$1600	$1200	$900	$1890
Mark-up (%) on retail price by *HBS*	25%	10%	70%	50%	80%	45%
Resale price by *HBS*	$1,000	$1,650	$2,720	$1,800	$1,620	$2,740.50

(c) Calculate the total revenue from the sale of all the sneakers resold by *HBS* in 2023 *(show all your working)*. *[2 marks]*

- Total revenue = Sum of price × Quantity for each pair of sneakers sold
- = [($1,000 × 30) + ($1,650 × 50) + ($2,720 × 20) + ($1,800 × 25) + ($1,620 × 35) + ($2,740.50 × 20)] × 12 months
- = ($30,000 + $82,500 + $54,400 + $45,000 + $56,700 + $54,810) × 12 months
- = $3,880,920

(d) Calculate the total profit from the resale of all the sneakers for *HBS* in 2023 *(show all your working)*. *[2 marks]*

- Total profit = Total revenue – (Total fixed cost + Total variable cost)
- = $3,880,920 – [($0 + $190 × 180 sneakers) × 12 months]
- = $3,880,920 – $410,400
- = $3,470,520

(e) Calculate the projected total royalty payment for *HBS* in 2024 *(show all your working)*. *[2 marks]*

- Projected total sales revenue from all three (clothing) brands:
- = ($700 × 1,700) + ($1,500 × 2,050) + ($1,950 × 1,980)
- = $1,190,000 + $3,075,000 + $3,861,000
- = $8,126,000

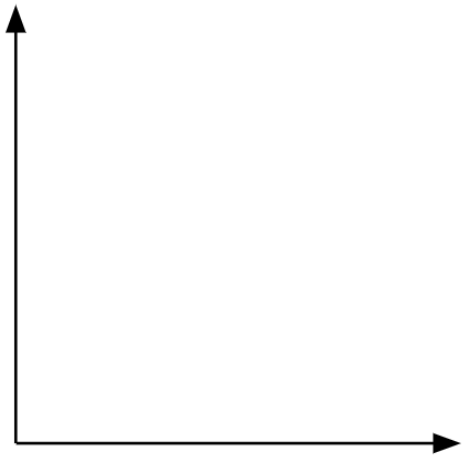
The case study indicates *HBS* is eligible for a royalty fee of 30% on these three retail clothing brands:

- Thus, *HBS's* share of the total revenue (i.e., its royalty payments) is:
- = $8,126,000 × 0.3
- = $2,437,800

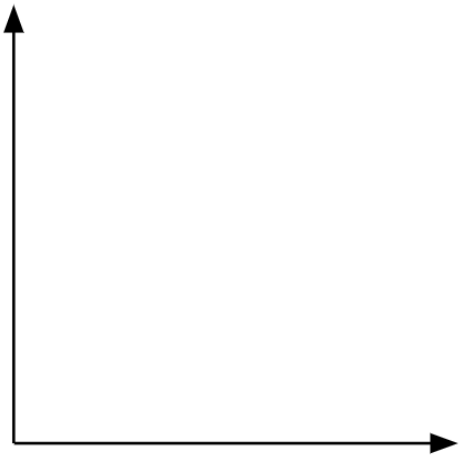
Worksheet 9
3.3 Costs & Revenues (4)

(a) Using the space below, illustrate the difference between fixed costs and variable costs. Ensure your axes are properly labelled. *[4 marks]*

Fixed costs



Variable costs



(b) Using the diagrams above, outline the difference between fixed and variable costs. *[2 marks]*

……

……

(c) Students of Int school of Prague Burešová, define the term *average cost*. *[2 marks]*

……

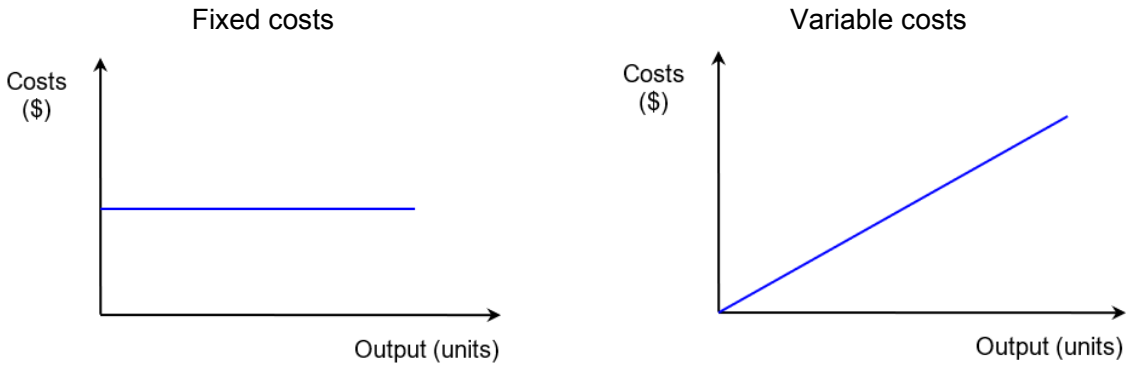
……

(d) Classify the following costs for a furniture manufacturer as fixed, variable, direct, and/or indirect (overhead) costs and provide an outline explanation for each. Note that some costs can be classified in multiple categories. *[2 marks]*

Cost	Fixed costs	Variable costs	Direct costs	Indirect costs	Explanations
Wages of furniture factory workers.					
Repair expense for woodwork machines					
Annual recruitment expense for office workers					
Management salaries					
Rent of the premise					
Electricity bills for the factory					
Packaging cost for the furniture					

Answers

(a) Using the space below, illustrate the difference between fixed costs and variable costs. Ensure your axes are properly labelled. *[4 marks]*



(b) Using the diagrams above, outline the difference between fixed and variable costs. *[2 marks]*

Fixed costs are costs that do not vary with the level of output/production of the business. As shown in the diagram, the fixed costs stay constant at every output level.

Variable costs are costs that do change with the level of output/production of the business. As shown in the diagram, the variable costs increase as greater outputs are produced.

(c) Define the term *average cost*. *[2 marks]*

Average cost refers to the cost per unit of output/production. Hence, it is also known as cost per unit. It is calculated by the formula: Average cost = Total costs / Quantity of output.

(d) Classify the following costs for a furniture manufacturer as fixed, variable, direct, and/or indirect (overhead) costs and provide an outline explanation for each. Note that some costs can be classified in multiple categories. *[2 marks]*

Cost	Fixed costs	Variable costs	Direct costs	Indirect costs	Explanations
Wages of furniture factory workers.		✓	✓		Depends on the number of hours worked by the factory workers.
Repair expense for woodwork machines		✓	✓		Depends on the number of machines that breaks down.
Annual recruitment expense for office workers		✓		✓	Firm budgets a fixed amount for recruitment every year, but this can vary depend on the number of staff who leaves the organization. The cost has no association with the production of the furniture.
Management salaries	✓			✓	Salaries are paid on a monthly basis at a fixed amount. The work of the management is not directly related to the production of the furniture.
Rent of the premise	✓			✓	A fixed amount of rent paid by the firm each month. It is not directly related to the production of the furniture.
Electricity bills for the factory		✓	✓		This depends on the electricity usage and it is needed to produce the furniture (e.g., to operate the machines).
Packaging cost for the furniture		✓	✓		Packaging will depend on how many furniture products are made.

Sewlyn Clothing (SC)

Sewlyn Clothing (*SC*) is a publicly held company, listed on the Singapore stock exchange market. It operates a large chain of clothing retail stores across Singapore and Malaysia, selling clothing primarily for infants and toddlers. *SC's* production plants are based in Bangladesh and Vietnam.

The board of directors at *SC* has announced a total dividend distribution to its shareholders of $2,000,000. Table 1 provides the lates financial information for *SC* for the period ending 30 June.

Table 1: Selected financial information for *SC*

	($'000)
Bank overdrafts	8,000
Borrowings (long-term)	60 000
Cash	2 000
Cost of sales	9 000
Creditors	20 000
Debtors	3 000
Dividends	9 600
Interest	1 500
Overheads	3 000
Property, Plant, Equipment	140 000
Retained earnings	21,000
Sales revenue	47 500
Share capital	36,800
Stock	800
Tax	3 400

(a) List **two** features of a publicly held company. *[2 marks]*

……..

……..

(b) Students of Int school of Prague Burešová, define the term *dividends*. *[2 marks]*

……..

……..

(c) Using a separate piece of paper, construct a fully labelled statement of financial position for *SC* as of 30 June. *[4 marks]*

(d) Using a separate piece of paper, construct a fully labelled statement of profit and loss for SC for the period ending 30 June. *[4 marks]*

Answers

(a) List **two** features of a publicly held company. *[2 marks]*

- Shares in the company can be bought and sold on a public stock exchange / stock market.
- The business must go through a process called 'initial public offering' (IPO) in order to have its shares sold to the general public.
- The final accounts must be disclosed to the public and scrutinized by an external auditor.
- The board of director take responsibility for the success or failure of the company, whilst the senior management team are in charge of the daily operations of the business.

(b) Define the term *dividends*. *[2 marks]*

Dividends refer to an amount of money that is distributed by a limited liability company to its shareholders within a given trading period. The amount of dividends paid to the shareholders depends on the decision of the board of directors.

(c) Using a separate piece of paper, construct a fully labelled statement of financial position for *SC* as of 30 June. *[4 marks]*

Statement of financial position (profit making entity) for *Sewyln Clothing* as at 30 June

Non-current assets	**($'000)**	**($'000)**
Property, Plant, Equipment	140,000	
Total non-current assets		140,000
Current assets		
Cash	2,000	
Debtors	3,000	
Stock	800	
Total current assets		5,800
Total assets		145,800
Current liabilities		
Bank overdraft	8,000	
Creditors	20,000	
Total current liabilities		28,000
Non-current liabilities		
Borrowings (long-term)	60,000	
Total non-current liabilities		60,000
Total liabilities		88,000
NET ASSETS		**57,800**
Equity		
Share capital	36,800	
Retained earnings	21,000	
TOTAL EQUITY		**57,800**

Top Tip: Make sure you understand the difference between the presentation of a for-profit entity and a non-profit entity. Be on the look out in the case to find out whether the business is for-profit or non-profit.

(d) Using a separate piece of paper, construct a fully labelled statement of profit and loss for SC for the period ending 30 June. *[4 marks]*

Statement of profit or loss for *Sewyln Clothing* for the year ended 30 June

	($'000)
Sales revenue	47,500
Cost of sales	(9,000)
Gross profit	38,500
Expenses (Overheads)	(3,000)
Profit before interest and tax	35,500
Interest	(1,500)
Profit before tax	34,000
Tax	(3,400)
Profit for period	30,600
Dividends	9,600
Retained profit	21,000

Top Tip: Ensure you use the appropriate wording when giving the title for the final accounts. Statement of profit and loss should be dated as "for the year ended …", whilst statement of financial position should be dated as "as at …"

Cheesy Pizza Ltd. (CPL)

Cheesy Pizza Ltd. (*CPL*) is a small pizza chain in Hong Kong operated as a privately held company. Table 1 below shows information about *CPL's* revenue and expenses for the year 2023, plus balance sheet items as at 31 December 2024.

Table 1: Select financial information for *CPL* for 2024

Items	**($'000)**
Cash	240.5
Oven	330
Share capital	**X**
Overdraft	50
Equipment	150
Stock	480
Retained earnings	55.2
Short-term loans	40.4
Debtors	125.3
Equity	475.2
Long-term liabilities	550
Loan capital	120
Accumulated depreciation	80
Creditors	130.2

(a) Define the term *creditors*. *[2 marks]*

……

……

(b) State **two** internal sources of finance. *[2 marks]*

……

……

(c) Using information from **Table 1**, calculate the value of *CPL's* share capital (figure X) *(show all your working).* *[2 marks]*

……

……

(d) Using a separate piece of paper, construct a fully labelled statement of financial position for *CPL* as at 31 December 2024. *[4 marks]*

Answers

(a) Define the term *creditors*. *[2 marks]*

Creditors refer to the suppliers that a company has purchased goods and/or services from but has not yet paid for them. Creditors are classified as a current liability on the balance sheet.

(b) State **two** internal sources of finance. *[2 marks]*

- Personal funds (or personal withdrawals)
- Sale/disposal of assets
- Retained profits

(c) Using information from **Table 1**, calculate the value of *CPL's* share capital (figure X) *(show all your working).* *[2 marks]*

- Equity = Share capital + Retained profit
- 475,200 = X + 55,200
- X = $420,000

(d) Using a separate piece of paper, construct a fully labelled statement of financial position for *CPL* as at 31 December 2024. *[4 marks]*

Statement of financial position for Cheesy Pizza Ltd., as at 31 December 2024

Non-current assets	**($)**	**($)**
Oven	330,000	
Equipment	150,000	
Accumulated depreciation	(80,000)	
Non-current assets		**400,000**
Current assets		
Cash	240,500	
Debtors	480,000	
Stock	125,300	
Total current assets		**845,800**
Total assets		**1,245,800**
Current liabilities		
Overdraft	50,000	
Creditors	130,200	
Short-term loans	40,400	
Current liabilities		**220,600**
Non-current liabilities		
Long-term liabilities	550,000	
Non-current liabilities		550,000
Total liabilities		**770,600**
NET ASSETS		**475,200**
Equity		
Share capital	420,000	
Retained earnings	55,200	
TOTAL EQUITY		**475,200**

Bruno's Wholesale Co. (BWC)

Jules Bruno is the CEO of a wholesale company called *Bruno's Wholesale Co.* (*BWC*) which operates as a publicly held company. *BWC* acts as an intermediary between the farmers who produce potatoes and the local supermarket retailers within the city of Lyon in France. *BWC* is planning to expand its current facility and intends to secure a bank loan for this. The bank manager requires Jules to produce the most recent balance sheet as part of the loan application process.

Table 1: Select financial information for *BWC* (figures in Euros €), as on 31 December 2024

Items	**(€)**
Accumulated depreciation	78,200
Borrowings (long-term)	130,000
Cash	150,000
Cost of sales (COS)	352,000
Debtors	330,600
Expenses	122,000
Overdraft	87,800
Property	706,400
Retained profits	289,800
Sales revenue	700,000
Share capital	750,000
Short-term loans	120,300
Stock (inventory)	262,700
Total current assets	**Y**
Trade creditors	150,000

BWC needs to pay corporate tax at a rate of 25%. For the long-term liabilities in **Table 1**, *BWC* pays 6% interest per year.

(a) Identify **two** possible external stakeholders **other than** the bank that may be interested in the final accounts of *BWC*. *[2 marks]*

……

……

(b) Using the information in **Table 1**, calculate the amount of interest that *BWC* needs to pay on its non-current liabilities. *[2 marks]*

……

……

(c) Calculate the profit after interest and tax for *BWC (show all your working).* *[2 marks]*

……

……

(d) Using the information in **Table 1**, calculate the value of **Y** (total current assets). *[2 marks]*

……

(e) On a separate piece of paper, construct a statement of financial position for *BWC* as of 31st December 2024. *[4 marks]*

Answers

(a) Identify **two** possible external stakeholders **other than** the bank that may be interested in the final accounts of *BWC*. *[2 marks]*

Possible external stakeholders other than the bank include:

- Farmers who sell the potatoes or fresh produce to *BWC.*
- The government will be interested in knowing the profits earned by *BWC* which will help reveal the amount of corporate tax that *BWC* owes to the government.
- Local supermarket retailers will be interested in knowing *BWC's* profits and the price they charge to understand whether they are exploiting their customers or abusing their market power.

(b) Using the information in **Table 1**, calculate the amount of interest that *BWC* needs to pay on its non-current liabilities. *[2 marks]*

Interest repayment = 130,000 × 0.06 = **€7,800**

> Top tip: For calculation-based questions, unless you see the words "show all your working", normally you are not expected to show any working out for your response. Simply stating the answer will earn you the full mark. Also, look at the number of marks allocated. If you see *[1 mark]*, then this generally means you don't need to show any working out for your written responses.

(c) Calculate the profit after interest and tax for *BWC (show all your working).* *[2 marks]*

- Profit before interest and tax = Sales revenue – COS – Expenses
- = 700,000 – 352,000 – 122,000
- = €226,000

- Tax = 0.25 × (Profit before interest and tax – Interest)
- = 0.25 × (226,000 – 7,800)
- = €54,550

- Profit after interest and tax
- = Profit before interest and tax – Interest – Tax
- = 226,000 – 7,800 – 54,550
- = **€163,650**

(d) Using the information in **Table 1**, calculate the value of **Y** (total current assets). *[2 marks]*

- Total current assets
- = Cash + Debtors + Stock (Inventory)
- = 150,000 + 330,600 + 262,700
- = **€743,300**

or

- Net current assets = Total current assets – Total current liabilities
- 385,200 = Y – (Creditors + Short-term borrowing + Overdraft)
- 385,200 = Y – (150,000 + 120,300 + 87,800)
- 385,200 + 358,100 = **€743,300**

(e) On a separate piece of paper, construct a statement of financial position for *BWC* as of 31st December 2024. *[4 marks]*

Bruno's Wholesale Co. (BWC)
Statement of financial position as at 31st December 2024

Non-current assets	**($m)**	**($m)**
Property	706,400	
Accumulated depreciation	78,200	
Non-current assets		**784,600**
Current assets		
Cash	150,000	
Debtors	330,600	
Stock (inventory)	262,700	
Current assets		**743,300**
Total assets		**1,527,900**
Current liabilities		
Overdraft	87,800	
Trade creditors	150,000	
Short-term borrowings	120,300	
Current liabilities		**358,100**
Non-current liabilities		
Borrowings - long term	130,000	
Non-current liabilities		130,000
Total liabilities		488,100
Net assets		**1,039,800**
Equity		
Share capital	750,000	
Retained profits	289,800	
Total equity		**1,039,800**

Top tip: Make sure you are fully aware of whether or not the firm in the case study is a *profit-making entity* or a *non-profit making entity* as the two types of organizations have slightly different presentation requirements for both the balance sheet (statement of financial position) and profit & loss account (income statement).

Top tip: When constructing a balance sheet, you are highly encouraged to start this on a new piece of paper. Many students make minor errors or calculation mistakes because they have constructed half of the balance sheet on one side of paper and the other half on another side. Flipping between two sides of the paper will increase your chances of making a mistake.

Watch Me Flex (WMF)

Watch Me Flex (*WMF*) is a watch retailer based in Singapore. It operates as a partnership between three owners, Eric, Nicolas, and Alvin. *WMF* specializes in the distribution of luxury branded watches, such as Rolex, Patek Phillipe, and Audemars Piguet.

WMF has been facing declining sales revenue during the past year. The tax authorities are looking into reviewing *WMF's* final accounts. To prepare for this review, the owners hired a new finance manager to prepare the final accounts.

Table 1: Selected financial information for *WMF* for 2024 (figures in Singaporean dollars)

Items	($)
Cost of sale (COS)	10,500,000
Depreciation	77,200
Equity	**X**
Interest	123,500
Long-term bank loan	970,500
Non-current assets	1,350,500
Promotion expenses	30,780
Rent	155,000
Salaries	**Y**
Sales revenue	12,000,000
Total current assets	2,570,500
Total current liabilities	2,880,780
Total expenses	1,218,400
Utilities	95,320

The corporate tax rate is 25%. *WMF* has issued 5,000 shares. The board of directors announced a distribution of $5 per share for the fiscal year ending on June 30, 2024.

(a) Using the financial information provided in **Table 1**, calculate the value of **X** (equity) for *WMF (show all your working).* *[2 marks]*

……

……

……

(b) Using the financial information in **Table 1**, calculate the value of **Y** (salaries) for *WMF (show all your working).* *[2 marks]*

……

……

……

(c) On a separate piece of paper, construct a statement of profit and loss for *WMF* for the period ending 2024. *[4 marks]*

Answers

(a) Using the financial information provided in **Table 1**, calculate the value of **X** (equity) for *WMF (show all your working).* *[2 marks]*

- Net assets = Equity
- (Total current assets + Non-current assets) – (Total current liabilities + Non-current liabilities) = Share capital + Accumulated retained profits
- (2,570,500 + 1,350,500) – (2,880,780 + 970,500) = X
- X = $69,720

Top tip: Remember to put the correct currency (unit of measurement) for your answer!

(b) Using the financial information in **Table 1**, calculate the value of **Y** (salaries) for *WMF (show all your working).* *[2 marks]*

From Table 1, the total expense figure is given as $1,218,400. Therefore, solve for Y by:

- Total expenses = Utilities + Rent + Promotion + Depreciation + Salaries
- 1,218,400 = 95,320 + 155,000 + 30,780 + 77,200 + Y
- Y = $860,100

(c) On a separate piece of paper, construct a statement of profit and loss for *WMF* for the period ending 2024. *[4 marks]*

Watch Me Flex (WMF)
Statement of profit or loss for the year ended 30 June 2024

	($)
Sales revenue	12,000,000
Cost of sales	10,500,000
Gross profit	**1,500,000**
Expenses:	
Utilities	95,320
Rent	155,000
Promotion	30,780
Depreciation	77,200
Salaries	860,100
Expenses	**1,218,400**
Profit before interest and tax	**281,600**
Interest	(123,500)
Profit before tax	**158,100**
Tax (25%)	(39,525)
Profit for period	**118,575**
Dividends ($5 × 5,000 shares)	**(25,000)**
Retained profit	**93,575**

Top tip: You can lose 1 full mark for simply excluding the heading of the profit and loss account. Don't forget to include the heading!

Truhol's Yacht Club (TYC)

James Truhol is the owner of *Truhol's Yacht Club* (*TYC*). It operates as a privately held company between three friends who all met at high school. *TYC* is looking to acquire a nearby abandoned yacht club. To support the application for a long-term loan, the local bank manager has asked James to submit the final accounts for the period ending 31st December 2024.

Table 1: Financial information for *TYC* (all figures in $)

Items	($)
Accumulated depreciation	2,750,000
Advertising	130,000
Cash	1,050,000
Cost of sales	2,150,000
Creditors	446,000
Debtors	**X**
Depreciation (in 2024)	700,000
Instructor's salaries	530,000
Interest	10% of short-term borrowings
Membership fees	5,000,000
Overdrafts	350,000
Rent	1,500,000
Retained earnings	1,529,000
Share capital	2,175,000
Short-term borrowings	350,000
Total assets	**Y**
Total current assets	2,350,000
Utilities	200,000
Yachts	5,250,000

The Inland Revenue Department (the tax authority) requires businesses that earn a profit before tax of over $2 million to be charged at a tax rate of 16.25%. Profit below this amount is charged at the standard tax rate of 8.25%.

(a) Using the financial information provided above, calculate the value of **X** (debtors) for *TYC* (*show all your working*). *[2 marks]*

……

(b) Using the financial information provided above, calculate the value of **Y** (total assets) for *TYC.* (*show all your working*). *[2 marks]*

……

(c) On a separate piece of paper, construct a statement of profit and loss for *TYC* for the period ending 31st December 2024. *[4 marks]*

(d) On a separate piece of paper, construct a statement of financial position for *TYC* for the period ending 31st December 2024. *[4 marks]*

Answers

(a) Using the financial information provided above, calculate the value of **X** (debtors) for *TYC* (*show all your working*). *[2 marks]*

- Total current assets = Cash + Debtors + Stocks
- $2,350,000 = $1,050,000 + Debtors + 0
- Debtors = $1,300,000

(b) Using the financial information provided above, calculate the value of **Y** (total assets) for *TYC.* (*show all your working*). *[2 marks]*

- Total assets = Non-current assets + Total current assets
- = (Yachts – Accumulated depreciation) + Total current assets
- = ($5,250,000 – $2,750,000) + $2,350,000
- = $4,850,000

(c) On a separate piece of paper, construct a statement of profit and loss for *TYC* for the period ending 31st December 2024. *[4 marks]*

Truhol Yacht Club
Statement of profit or loss for the year ended 31 December 2024

	($m)	
Membership fees	5,000,000	
Cost of sales	(2,150,000)	
Gross profit	2,850,000	
Expenses		
Rent	1,500,000	
Utilities	200,000	
Advertising	130,000	
Instructor salaries	530,000	
Expenses	**2,360,000**	
Profit before interest and tax	**490,000**	
Interest	(35,000)	*Note 1*
Profit before tax	**455,000**	
Tax (at 8.25%)	(37,538)	*Note 2*
Profit for period	**417,463**	

Note 1:
- Interest = 10% of short-term borrowings (as stated in the stimulus material)
- = $350,000 × 0.1 = $35,000

Note 2:
- As the profit before tax is $455,000 (which is less than $2m threshold), the 8.25% profit tax rate is applied. Thus, tax = $455,000 × 0.0825 = $37,538

(d) On a separate piece of paper, construct a statement of financial position for *TYC* for the period ending 31st December 2024. *[4 marks]*

Truhol Yacht Club (TYC)

Statement of financial position as at 31st December 2024

Non-current assets	**($m)**	**($m)**
Yachts	5,250,000	
Accumulated depreciation	(2,750,000)	
Non-current assets		**2,500,000**
Current assets		
Cash	1,050,000	
Debtors	1,300,000	
Current assets		**2,350,000**
Total assets		**4,850,000**
Current liabilities		
Overdraft	350,000	
Trade creditors	446,000	
Short-term borrowings	350,000	
Current liabilities		**1,146,000**
Total liabilities		**1,146,000**
NET ASSETS		**3,704,000**
Equity		
Share capital	2,175,000	
Retained earnings	1,529,000	
TOTAL EQUITY		**3,704,000**

Top tip: Since this question does not contain any information regarding non-current liabilities, there is no need to present or include this in the statement of financial position. It would be meaningless to write "non-current liabilities" as zero when there is no such financial information provided. Therefore, in this case, the current liabilities will be the same as total liabilities.

One Kindness Care (OKC)

One Kindness Care (*OKC*) is a social enterprise that is engaged in the provision of childcare services for underprivileged women who are on low incomes. To fund its operations, *OKC* sells a variety of childcare accessories in variety packs, with an average price of $30 per pack.

Table 1: Selected financial information for 2024

Number of packs sold	750
Direct costs of each pack	$10
Administrative expenses	$5,300
Depreciation expenses	$1,500
Marketing expenses	$2,200
Interest on bank loans	20% of cost of sales

(a) List **two** features of a non-profit social enterprise. *[2 marks]*

……

……

(b) Using the space below, construct a statement of profit and loss for *OKC* for the period ending 31st December 2024 (*show all your working*). *[4 marks]*

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Answers

(a) List **two** features of a non-profit social enterprise. *[2 marks]*

- Any financial surplus made is directly reinvested back into the social enterprise to support its social cause.
- It still operates like a commercial business in the private sector by selling goods/services to earn sales revenues.

(b) Using the space below, construct a statement of profit and loss for *OKC* for the period ending 31st December 2024 (*show all your working*). *[4 marks]*

One Kindness Care (OKC)
Statement of profit or loss for the year ended 31st December 2024

Sales revenue ($30 × 750)	22,500
Cost of sales ($10 × 750)	7,500
Gross surplus	**15,000**
Expenses	
Administration	5,300
Depreciation	1,500
Marketing	2,200
Expenses	**9,000**
Surplus before interest	**6,000**
Interest (0.2 × 7,500)	(1,500)
Surplus for period	**4,500**
Retained surplus	4,500

Top tip: The word “profit” is not used for a non-profit entity. This word is replaced with the term “surplus” instead.

Top tip: It is possible that some non-profit social enterprise will have taxes that they need to pay to the government as they may not be registered as a charity (which exempts them from paying taxes) in their local jurisdictions. To be eligible as a charity depends on the laws and regulations in each country.

Yau & Associates Architects (YAA)

Dickson Yau worked relentlessly to realize his dream to become a professional architect. After graduating from university, Dickson and a few university friends started their own non-profit company called *Yau & Associates Architects* (*YAA)*. The firm offers architectural services and works with property developers to build affordable housing for low-income households. To support their expansion plans, the local bank manager requires *YAA* to present its most recent final accounts for the year ended 31st December 2024. *YAA* pays interest on the loan of $300,000 at 9% per year.

Table 1: Final accounts information for *YAA* (2024)

Items	**($'000)**
Accumulated retained profit (end of 2024)	5,225
Administration	115
Cash	3,000
Cost of sales	1,230
Creditors	890
Debtors	2,450
Electricity	230
Equity	6,125
Long-term liabilities	300
Non-current assets	1,200
Overdraft	215
Rent	345
Sales revenue	3,150
Short-term borrowings	220
Stock	1,100

(a) Outline **one** stakeholder group of *YAA* that may find the statement of financial position (balance sheet) important. *[2 marks]*

……

……

……

(b) Using **Table 1**, calculate the value of net assets for *YAA*. *[2 marks]*

……

……

……

(c) On a separate piece of paper, construct a profit and loss account for *YAA* for the year ending 31st December 2024 based on the figures in **Table 1** and the additional information in the case study *(show all your working)*. *[4 marks]*

Answers

(a) Outline **one** stakeholder group of *YAA* that may find the statement of financial position (balance sheet) important. *[2 marks]*

Possible stakeholders could include:

- The local bank manager may be interested to know *YAA's* financial position in order to assess the firm's ability to pay back loans that it has borrowed.
- Trade creditors / suppliers may be interested to find out if *YAA* has sufficient liquidity to meet its short-term debts.
- Potential shareholders/investors may want to have knowledge of the financial position of *YAA* to enable them to assess whether or not they should invest in the business.

(b) Using **Table 1**, calculate the value of net assets for *YAA*. *[2 marks]*

- Net assets = Non-current assets + Total current assets – Current liabilities – Non-current liabilities
- = $1,200 + $6,550 – $1,325 – $300
- = $6,125 (i.e., $6,125,000)

(c) On a separate piece of paper, construct a profit and loss account for *YAA* for the year ending 31st December 2024 based on the figures in **Table 1** and the additional information in the case study *(show all your working)*. *[4 marks]*

Yau & Associates Architects (YAA)

Statement of profit or loss for the year ended 31st December 2024

	($)
Sales revenue	3,150,000
Cost of sales	1,230,000
Gross surplus	**1,920,000**
Expenses	
Administration	115,000
Electricity	230,000
Rent	345,000
Expenses	**690,000**
Surplus before interest	**1,230,000**
Interest (9% of $300,000)	(27,000)
Surplus for period	**1,203,000**
Retained surplus	1,203,000

Café Bon (CB)

Café Bon (*CB*) is a local restaurant that operates as a for-profit social enterprise. The firm hires workers who are diagnosed with autism and donates 10% of each month's sales revenue to the local Autism Foundation to help support its social objectives and initiatives.

CB wants to broaden its impact through diversification by opening its first clinic to help autistic individuals. To achieve its growth strategy, *CB* is planning to obtain a long-term loan from the local bank. The bank manager has requested *CB* to prepare a projected statement of profit and loss to support its application for the loan. Below is the financial information from the fiscal year ending 31st March 2024, along with the forecasted projections for 2025.

Table 1: Statement of profit and loss information for *CB*

Financial information for Café Bon, for the year ended 31st March, 2024		
Items	**($m)**	**Projections for 2025**
Sales revenue	72	Grow by 10%
Marketing expenses	5	Increase to $8m to advertise for the new clinic
Salaries	12	No change as the clinic will recruit volunteers
Gross surplus	59	
Depreciation expense	8	No change
Interest charges	2	Forecasted to increase by 20% due to the new loan
Retained surplus	8	
Utility bills	7	Increase to $10m due to the new clinic
Rent	15	Increase by an additional $10m due to the new clinic
Cost of sales	**X**	Forecasted to increase by 5%
Tax	3	

Additional information:

- In 2025, the tax authority has offered a 'no tax policy' for registered for-profit social enterprises.

(a) Identify the type of expenditure required for the opening of *CB's* first clinic. *[1 mark]*

……..

(b) Using the financial information provided in **Table 1**, calculate the value of **X** (cost of sales) for *CB* (*show all your working*). *[2 marks]*

……..

……..

(c) On a separate piece of paper, construct a statement of profit and loss for *TYC* for the period ending 31st March 2024. *[4 marks]*

(d) On a separate piece of paper, construct a **projected** statement of profit and loss for *TYC* for the period ending 31st March 2025. *[4 marks]*

Answers

(a) Identify the type of expenditure required for the opening of *CB's* first clinic. *[1 mark]*

Capital expenditure (spending on new property)

(b) Using the financial information provided in **Table 1**, calculate the value of **X** (cost of sales) for *CB* (*show all your working*). *[2 marks]*

- Gross surplus = Sales revenue – Cost of sales
- $59m= $72m – Cost of sales
- Cost of sales = $13m

(c) On a separate piece of paper, construct a statement of profit and loss for *TYC* for the period ending 31st March 2024. *[4 marks]*

Café Bon (CB)

Statement of profit or loss for the year ended 31st March 2024

	($m)
Sales revenue	72
Cost of sales	(13)
Gross surplus	**59**
Expenses	
Rent	15
Salaries	12
Marketing expenses	5
Utility bills	7
Depreciation expense	8
Expenses	**47**
Surplus before interest	**12**
Interest	(2)
Surplus before tax	**10**
Tax	(3)
Surplus for period	**7**
Retained surplus	7

Answers continued on next page...

(d) On a separate piece of paper, construct a **projected** statement of profit and loss for *TYC* for the period ending 31st March 2025. *[4 marks]*

Café Bon (CB)

Projected statement of profit and loss for the year ended 31st March 2025

	($m)	***Working out***
Sales revenue	79.20	= $72m × 1.1
Cost of sales	(13.65)	= $13m × 1.05
Gross surplus	**65.55**	
Expenses		
Rent	25	= $15m + $10m
Salaries	12	No change
Marketing expenses	8	Increases to $8m for the new clinic
Utility bills	10	Increases to $10m for the new clinic
Depreciation expense	8	No change
Expenses	**63**	
Surplus before interest	2.55	
Interest	(2.40)	Increases by 20% due to new loan
Surplus before tax	**0.15**	
Tax	0	Eligible for 'no tax policy'
Surplus for period*	**0.15**	
Retained surplus	0.15	

*Hence, surplus for the period is $150,000.

Les Mills (LM)

Les Mills (*LM*) is a social enterprise operating as a privately held company in Paris, France. *LM* is run by the Garnet family and is in the business of recycling drink cartons and paper packaging. The firm aims to reduce paper waste and to create a more sustainable world for future generations.

Max Garnet, who graduated with a degree in environmental science, recently developed a sustainable education programme and obtained a **copyright** for it. In addition to the donations that *LM* gives to the local IB World Schools in Paris (which amounts to 20% of its annual surplus), Max plans to work with these schools to roll out his programme to increase the awareness of recycling and sustainability priorities.

The company was recently approached by an interested green investor who sees potential in *LM's* business model and is considering investing €10 million. However, the potential investor has asked *LM* to prepare a statement of financial position for his review.

Table 1: Statement of financial position information for *LM*, for the year ending 31st December 2024

Item	(€m)
Accumulated depreciation	3
Bank overdraft	2.75
Cash	2.50
Current liabilities	4.68
Debtors	1.00
Factory	12
Mortgage	6.00
Net assets	2.12
Other short-term loans	0.60
Stock	0.30
Retained earnings	2.12
Total assets	12.80
Trade creditors	1.33

(a) Define the term *copyright*. *[2 marks]*

……

……

(b) Using the data in **Table 1**, explain **one** reason why the equity value for *LM* should be the same value as its net asset. *[2 marks]*

……

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……

(c) On a separate piece of paper, construct a statement of financial position for *LM* for the period ending December 31, 2022. *[4 marks]*

Answers

(a) Define the term *copyright*. *[2 marks]*

Copyright is a type of intangible asset which is a form of legal protection for the works of the registered creator, such as an author, artist, musician, or photographer.

(b) Using the data in **Table 1**, explain **one** reason why the equity value for *LM* should be the same value as its net asset. *[2 marks]*

One reason why the equity value for *LM* should be the same as its net asset in the statement of financial position (balance sheet) for a non-profit entity is because the business does not have any share capital.

Top tip: Sole traders and partnership, as forms of business entities, do not have "share capital" presented in their statement of financial position (balance sheet).

(c) On a separate piece of paper, construct a statement of financial position for *LM* for the period ending December 31, 2022. *[4 marks]*

Les Mills (LM)
Statement of financial position as of 31st December 2024

Non-current assets	**(€m)**	**(€m)**
Factory	12.0	
Accumulated depreciation	(3.0)	
Non-current assets		**9.0**
Current assets		
Cash	2.5	
Debtors	1.0	
Stock	0.3	
Current assets		**3.8**
Total assets		**12.8**
Current liabilities		
Bank overdraft	2.75	
Trade creditors	1.33	
Other short-term loans	0.60	
Current liabilities		**4.68**
Non-current liabilities		
Mortgage	6.00	
Non-current liabilities		**6.00**
Total liabilities		**10.68**
NET ASSETS		**2.12**
Equity		
Retained earnings	2.12	
TOTAL EQUITY		**2.12**

Jo Clinic (JC)

After graduating from her medical degree from Oxford University, Joanne To opened a local clinic, offering psychiatry services in Oxford, UK. *Jo Clinic* (*JC*) is currently a partnership between Joanne To and three additional psychiatrists. *JC* operates as a for-profit social enterprise and is committed to improving the mental health and wellbeing of individuals. Originally from Hong Kong, Joanne To is aware of the diminishing mental health of many of her friends and family members back home as a result of the prolonged quarantine measures and lockdowns brought about by the COVID-19 pandemic.

Joanne To would like to contribute and extend her medical knowledge and expertise in psychiatry by setting up a new clinic in Hong Kong next year. In preparation for this, she will need to prepare the final accounts for a local bank in Hong Kong so that she is able to obtain a long-term loan.

Table 1: Financial information for *JC*, for the period ending 31st December 2024

Item	(£'000)
Accumulated depreciation	**X**
Bank overdraft	22
Borrowings - long term	12
Cash	70
Clinic	500
Current assets	105
Debtors	25
Depreciation expenses	20
Equity	593
Gross surplus	470
Interest	**W**
Medical equipment	300
Non-current assets	550
Promotion expenses	10
Rent	50
Salaries	230
Sales revenue	670
Stock	**Y**
Surplus before tax	144
Surplus for period	115.2
Tax	20% of surplus before tax
Trade creditors	**Z**

(a) State the value of net assets for *JC* as of 31st December 2024. *[1 mark]*

……

(b) On a separate piece of paper, calculate the figures **X, Y**, and **Z** by constructing a statement of financial position for *JC* as of 31st December 2024. *[4 marks]*

(c) On a separate piece of paper, construct a statement of profit and loss for *JC* for the period ending 31st December 2024. *[4 marks]*

Answers

(a) State the value of net assets for *JC* as of 31st December 2024. *[1 mark]*

- The value of net assets should be the same as the value of equity in order for the balance sheet to actually balance.
- Thus, net assets as of 31st December 2024 for *JC* is £593,000

(b) On a separate piece of paper, calculate the figures **X, Y**, and **Z** by constructing a statement of financial position for *JC* as of 31st December 2024. *[4 marks]*

Jo Clinic (JC)
Statement of financial position as of 31st December 2024

Non-current assets	**(£'000)**	**(£'000)**
Clinic	500	
Medical equipment	300	
Accumulated depreciation	X = (250)	
Non-current assets		**550**
Current assets		
Cash	70	
Debtors	25	
Stock	Y = 10	
Current assets		**105**
Total assets		**655**
Current liabilities		
Bank overdraft	22	
Trade creditors	Z = 28	
Current liabilities		**50**
Non-current liabilities		
Borrowings - long term	12	
Non-current liabilities		**12**
Total liabilities		**62**
NET ASSETS		**593**
Equity		
Retained earnings	593	
TOTAL EQUITY		**593**

Figure X calculations:

- Non-current assets = Clinic + Medical equipment – Accumulated depreciation
- £550,000 = £500,000 + £300,000 – Y
- X = £250,000

Figure Y calculations:

- Current assets = Cash + Debtors + Stock
- £105,000 = £70,000 + £25,000 + Z
- Y = £10,000

Figure Z calculations:

- Net assets = (Non-current assets + Current assets) – (Current liabilities + Non-current liabilities)
- £593,000 = (£550,000 + £105,000) – (Current liabilities + £12,000)
- Current liabilities = £50,000
- Thus, £50,000 = £22,000 (bank overdraft) + X (trade creditors)
- Z = £28,000

(c) On a separate piece of paper, construct a statement of profit and loss for *JC* for the period ending 31st December 2024. *[4 marks]*

Jo Clinic
Statement of profit or loss for the year ended 31st December 2024

	(£'000)
Sales revenue	670
Cost of sales	(200)
Gross surplus	470
Expenses	
Rent	50
Salaries	230
Promotion expenses	10
Depreciation expenses	20
Expenses	**310**
Surplus before interest	**160**
Interest	W = 16
Surplus before tax	**144**
Tax	(28.8)
Surplus for period	**115.2**
Retained surplus	115.2

Tax calculation:

- 20% of surplus before tax = £144,000 × 0.2 = £28,800

Top tip: You are expected to list out the specific items under each of the sub-sections in the final accounts. In this case, it include sub-sections like “current assets” and “current liabilities.”

Super-me Fashion (SF)

Super-me Fashion (*SF*) is a clothing manufacturer based in Surabaya, Indonesia. *SF* has purchased two new machines as part of its factory-wide lean production initiative. The finance manager has provided the following financial information pertaining to the machines:

- The first machine was purchased on 1 January 2024.
- The additional machine was purchased on 1 July 2024.
- *SF* paid $125,000 for each machine.
- The anticipated residual value for each machine is $12,000.
- The machines have an expected useful life of 5 years.

(a) State **two** reasons why an asset depreciates in value. *[2 marks]*

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……

(b) Students of Int school of Prague Burešová, define the term *residual value.* *[2 marks]*

……

……

(c) State **two** other terms that are synonymous with *residual value*. *[2 marks]*

……

……

(d) Using the straight-line depreciation method, calculate the annual depreciation expense for the machine purchased on 1 January 2024. *[2 marks]*

……

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(e) For the machine purchased on 1 July 2024, calculate the net book value (NBV) on 31 December 2026 using the straight-line depreciation method (*show all your working*). *[4 marks]*

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Answers

(a) State **two** reasons why an asset depreciates in value. *[2 marks]*

- Wear and tear (usage).
- Obsolescence (outdated).

Both of these terms could be used synonymously with "depreciation" to describe the fall in the value of non-current assets, such as technological products, machinery, equipment, or motor vehicles.

(b) Define the term *residual value.* *[2 marks]*

Residual value refers to the resale value of a non-current asset at the end of its lifespan or useful life. It is uncommon for a non-current asset to have a residual value of zero at the end of its lifespan as there ought to be some value which the asset could be sold for.

(c) State **two** other terms that are synonymous with *residual value*. *[2 marks]*

- Salvage value
- Scrap value

(d) Using the straight-line depreciation method, calculate the annual depreciation expense for the machine purchased on 1 January 2024. *[2 marks]*

- Annual depreciation expense using straight-line method = (Cost of non-current asset – Residual value) / Lifespan
- = ($125,000 – $12,000) / 5 years
- = $22,600 per year
- Thus, the annual depreciation expense for the machine is $22,600.

> Top tip: It is important to show all your working out for 2-mark calculation questions, even if the question does not explicitly ask you to.

(e) For the machine purchased on 1 July 2024, calculate the net book value (NBV) on 31 December 2026 using the straight-line depreciation method (*show all your working*). *[4 marks]*

- Time between the purchase date of the machine (1 Jul 2024) and 31 December 2026 = 2.5 years
- As the cost of the machinery and residual value are the same, the annual depreciation expense is also $28,500.

Year	Working	Depreciation expense	Net book value (NBV)
1/7/2024	--	--	$125,000
1/7/2024 – 31/12/2024	= $22,600 / 2	$11,300	$113,700
1/1/2025 – 31/12/2025	--	$22,600	$91,100
1/1/2025 – 31/12/2026	--	$22,600	$68,500

- Hence, the NBV as on 31 December 2026 is **$68,500**.

Aaron's Entertainment (AE)

Aaron's Entertainment (*AE*) is a South Korean entertainment company. *AE* is in the business of music production and a record label for large Korean pop (Kpop) artists. To remain competitive in the Kpop industry, *AE* has decided to purchase "Rosé," a new music production software with artificial intelligence capabilities. *AE's* accounts are reported in US dollars. *AE* purchased the software on 1 January 2023 at $580,000. Due to fast-changing technology, the expected usefulness of this software is 3 years, and the likely residual value is $250,000. *AE* uses the straight-line method to depreciate all of its non-current assets. The corporate tax rate is 30%.

Table 1: Selected financial information for *AE*, for the year ending 31 December 2023

Items	Amount ($)
Sales turnover	1,250,000
Cost of sales (COS)	428,000
General expenses	388,000
Interest cost	8% of gross profit
Corporate tax expense	30% of profit before tax
Dividends	110,000

Note the above general expenses do not account for the depreciation expense for the new software.

(a) Using the straight-line method of depreciation, calculate the annual depreciation expense (*show all your working*). *[2 marks]*

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(b) On a separate sheet of paper, construct a statement of profit and loss for *AE* for the period ending December 31, 2023 (*show all your working*). *[4 marks]*

Working out ……

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(c) State **one** limitation of using the straight-line method of depreciation for *AE*. *[1 mark]*

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Answers

(a) Using the straight-line method of depreciation, calculate the annual depreciation expense (*show all your working*). *[2 marks]*

- Annual depreciation expense = (Cost of software – Residual value) / Useful life
- = ($580,000 – $250,000) / 3 years
- = $110,000 per year
- Thus, the annual depreciation expense for the software is $110,000.

(b) On a separate sheet of paper, construct a statement of profit and loss for *AE* for the period ending December 31, 2023 (*show all your working*). *[4 marks]*

Aaron's Entertainment (AE)
Statement of profit or loss for the year ended 31 December 2023

	($'000)	
Sales revenue	1,250	
Cost of sales	(428)	
Gross profit	**822**	
Expenses:		
General expenses	388	
Depreciation (for the year 2023)	110	
Expenses	**498**	
Profit before interest and tax	**324**	
Interest	(65.76)	*Note 1*
Profit before tax	**258.24**	
Tax (@30%)	(77.472)	*Note 2*
Profit for period	**180.768**	
Dividends	110	
Retained profit	**70.768**	

- Thus, the retained profit is $70,768

Calculation Note 1:
- Interest = 8% of gross profit
- = $822,000 × 0.08
- = $65,760

Calculation Note 2:
- Tax = 30% of profit before tax
- = $258,240 × 0.3
- = $77,472

(c) State **one** limitation of using the straight-line method of depreciation for *AE*. *[1 mark]*

Possible limitations include:

- It is unrealistic to assume that the value of non-current assets will fall in a linear manner.
- The depreciation expense does not factor in the need for maintenance costs over time.

Sukhdeep Restaurant (SR)

Sukhdeep Restaurant (*SR*) is a privately held company based in Manchester, United Kingdom (UK). The business is owned and operated by the Sukhdeep family, who migrated to the UK twenty years ago. *SR* is very popular in the local community, so the firm is planning to expand. To obtain a loan for the expansion, the local bank has requested the most recent profit and loss account from *SR*.

Statement of profit and loss for *SR*, for the year ended 31 December 2023

	(£)
Sales revenue	585,300
Cost of sales	375,700
Gross profit	**209,600**
Expenses	100,400
Net profit before interest and tax	**109,200**
Interest	15,700
Net profit before tax	**93,500**
Tax (@10%)	9,350
Net profit after interest and tax	**84,150**
Dividends	3,550
Retained profit	**80,600**

In preparing the profit and loss account, the finance manager had forgotten to include the ten new ovens that were purchased on 1 January 2021. The invoice for this purchase showed the following information:

- The cost of each oven is £5,000.
- The ovens have a useful life of five years.

(a) Calculate the annual provision for depreciation of the **ten ovens** using the straight-line method (*show all your working*). *[2 marks]*

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……..

(b) Using your result in **Question (a)**, with the tax rate remaining at 10%, calculate the net profit after interest and tax to include the provision for depreciation (*show all your working*). *[3 marks]*

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(c) You are given a partial statement of financial position for *SR*. Complete the boxes below to account for the ten ovens as of 31 December 2023. *[3 marks]*

	($)
Non-current assets	
Ovens	
Accumulated depreciation	
Non-current assets	

Answers

(a) Calculate the annual provision for depreciation of the **ten ovens** using the straight-line method (*show all your working*). *[2 marks]*

- Annual depreciation expense using straight line method = (Cost of non-current asset) / Lifespan
- = (£5,000 × 10 ovens) / 5 years = £50,000 / 5
- = £10,000 per year
- Thus, the annual depreciation expense for the ten ovens is **£10,000**

(b) Using your result in **Question (a)**, with the tax rate remaining at 10%, calculate the net profit after interest and tax to include the provision for depreciation (*show all your working*). *[3 marks]*

The annual depreciation expense is £10,000 using the straight-line method. Even though the ovens were purchased a year ago, the annual depreciation expense in 2021 is still £10,000. This should be added as an expense item in the profit and loss account as this amount was omitted. Assuming all other figures are the same:

- Profit before tax = Gross profit – Expenses – Annual depreciation amount – Interest
- = 209,600 – 100,400 – 10,000 – 15,700
- = £83,500
- Tax to be paid = £83,500 × 0.10 = £8,350
- Profit after interest and tax = Profit before tax – Tax
- = £83,500 – £8,350
- = **£75,150**

(c) You are given a partial statement of financial position for *SR*. Complete the boxes below to account for the ten ovens as of 31 December 2023. *[3 marks]*

	($)
Non-current assets	
Ovens	50,000
Accumulated depreciation	(30,000)
Non-current assets	**20,000**

Accumulated depreciation calculation (not needed for working, but shown here for illustrative purposes only):

Year	Depreciation expense	Net book value (NBV)
1/1/2021	--	£50,000
1/1/2021 – 31/12/2021	£10,000	£40,000
1/1/2022 – 31/12/2022	£10,000	£30,000
1/1/2023 – 31/12/2023	£10,000	£20,000
Accumulated depreciation (as at 31 December 2023)	£30,000	

Team Honeybadger (TH)

Team Honeybadger (TH) is a Formula 1 racing team that competes annually in various Grand Prix races around the world. *TH's* team principal, Cameron Leung, has recently purchased a new internal combustion engine (ICE) for its Formula 1 race car, which is due for their February 2024 car launch for the 2024 race season.

The new ICE costs $6 million. *TH* has been given the following forecasted information regarding the usage of the newly fitted ICE for the race car:

- The new ICE was purchased on January 1, 2024
- It has a lifespan of 6 years
- The ICE has an expected salvage value of $1.25 million
- Maximum laps that the ICE can take is expected to be 8,500 laps.

Table 1: Forecasted use of the ICE for the Formula 1 race car (in laps)

Year 1 (2024 season)	Year 2 (2025 season)	Year 3 (2026 season)	Year 4 (2027 season)
1,200	1,378	1,420	1,390

(a) Using the units of production method of depreciation, calculate the depreciation expense per lap for *TH* (*show all your working*). *[2 marks]*

……

……

(b) Using your result in **Question (a)** and the units of production method of depreciation, calculate the depreciation expense for *TH* after using the new ICE for the 2024 race season (*show all your working*). *[2 marks]*

……

……

(c) Applying the same method in **Question (b)**, calculate the annual depreciation expense of the new ICE from 2025 to 2027 (*show all your working*). You may find it useful to organize your calculations in a table format. *[6 marks]*

……

……

……

……

……

……

(d) Calculate the net book value (NBV) of the ICE by the end of the 2027 season (year 4) (*show all your working*). *[2 marks]*

……

……

Answers

(a) Using the units of production method of depreciation, calculate the depreciation expense per lap for *TH* (*show all your working*). *[2 marks]*

- Units of production depreciation rate = (Cost of asset – Salvage Value) / Estimated units of production
- = (£6m – £1.25m) / 8,500 laps
- = £558.82 per lap

(b) Using your result in **Question (a)** and the units of production method of depreciation, calculate the depreciation expense for *TH* after using the new ICE for the 2024 race season (*show all your working*). *[2 marks]*

- *TH* forecasts that there will be 1,200 laps in the 2024 race season.
- Depreciation expense (for 2024 race season) = 1,200 laps used × £558.82 per lap
- = £670,582 depreciation expense

(c) Applying the same method in **Question (b)**, calculate the annual depreciation expense of the new ICE from 2025 to 2027 (*show all your working*). You may find it useful to organize your calculations in a table format. *[6 marks]*

	Year 2 (2025 season)	**Year 3 (2026 season)**	**Year 4 (2027 season)**
Units of use (in laps)	1,378	1,420	1,390
Units of production rate	£558.82 per lap		
Depreciation expense	= £558.82 × 1,378 laps = **£770,053.96**	= £558.82 × 1,420 laps = **£793,524.40**	= £558.82 × 1,390 laps = **£776,759.80**

(d) Calculate the net book value (NBV) of the ICE by the end of the 2027 season (year 4) (*show all your working*). *[2 marks]*

Year	**Depreciation expense**	**Net book value (NBV)**
1/1/2024 (purchase date)	--	£6m
Year 1: 2024 season	£670,582	£5,329,418
Year 2: 2025 season	£770,053.96	£4,559,364.04
Year 3: 2026 season	£793,524.40	£3,765,839.64
Year 4: 2027 season	£776,759.80	**£2,989,079.84**

Hence, the NBV of the ICE is £2,989,079.84 by the end of the 2027 season (Year 4).

Marin Wears Co. (MWC)

Marin Wears Co. (*MWC*) is a lifestyle clothing manufacturer with retail shops across California in the United States. The company's CEO, Marin Fortunato, was formerly a fashion model and created her own brand shortly after her rise to fame. Marin has expanded her factory production in the past few years as demand for her clothing line has surged amongst her teenage and young adult target audience (aged 14 to 22). Marin recently purchased two large production machines from different suppliers. The fiscal year for *MWC* ends on 31st December.

Table 1: Details for the two purchased machines

	ML-175	KT-616
Purchase date	January 1, 2021	March 1, 2022
Purchase cost	$3,520,000	$5,500,000
Estimated lifespan	10 years	12 years
Scrap value	$200,000	$425,000
Estimated total production	600,000 units	770,000 units

Table 2: Current and expected outputs from the machines

Machine	2021	2022	2023	2024
ML-175	50,000	76,000	80,000	130,000
KT-616	---	85,000	120,500	170,000

(a) Explain **one** reason why the units of production method of depreciation is more appropriate than the straight-line method of depreciation for *MWC*. *[2 marks]*

……

……

(b) Using the units of production method of depreciation, complete the table below for the ML-175 machine (*show all your working*). *[2 marks]*

	2021	2022	2023	2024
Units of production (units)				
Depreciate rate (per unit)				
Depreciation expense				

(c) Using the units of production method of depreciation, calculate the **accumulated** depreciation expense for the KT-616 machine from 2022 to 2024. *[4 marks]*

……

……

(d) Using your result in **Question (c)**, calculate the net book value (NBV) of the KT-616 machine as of 31st December 2024. *[2 marks]*

……

……

Answers

(a) Explain **one** reason why the units of production method of depreciation is more appropriate than the straight-line method of depreciation for *MWC*. *[2 marks]*

In the case of *MWC*, which operates its own production facility, it is more realistic to use this method because the machines are depreciated based on their usage. As production levels change, depending on the sales forecast and level of demand, it would be rather unrealistic to depreciate the two machines by the same amount every year as this is quite arbitrary. Using the units of production method would allow a more accurate valuation of the two machines (as non-current assets on the statement of financial position or balance sheet).

(b) Using the units of production method of depreciation, complete the table below for the ML-175 machine (*show all your working*). *[2 marks]*

	2021	2022	2023	2024
Units of production (units)	50,000	76,000	80,000	130,000
Depreciate rate (per unit)	= $5.53 per unit produced (see calculations below)			
Depreciation expense	= 50,000 × $5.53 = $276,500	= 76,000 × $5.53 = $420,280	= 80,000 × $5.53 = $442,400	= 130,000 × $5.53 = $718,900

- Units of production rate = (Cost of asset – Salvage Value) / Estimated units of production
- = ($3,520,000 – $200,000) / 600,000 units
- = $5.53 per unit produced

(c) Using the units of production method of depreciation, calculate the **accumulated** depreciation expense for the KT-616 machine from 2022 to 2024. *[4 marks]*

- Units of production rate = (Cost of asset – Salvage Value) / Estimated units of production
- = ($5,500,000 - $425,000) / 770,000 units
- = $6.59 per unit produced

	2021	2022	2023	2024
Units of production (units)	---	85,000	120,500	170,000
Units of production rate	= $6.59 per unit produced (see calculations below)			
Depreciation expense	= $0	= 85,000 × $6.59 = $560,150 × (10/12) = $466,791.67 (Note 1)	= 120,500 × $6.59 = $794,095	= 170,000 × $6.59 = $1,120,300

Note 1:

- The depreciation expense in 2022 is a total of $560,150. However, this is for the entire year, but the machine was only purchased on 1st March 2022. Thus, the annual depreciation expense must be pro-rated to account for its use (which is from 1st March 2022 to 31st December 2022, i.e., a period of 10 months).

- Therefore, the total depreciation expense = $466,791.67 + $794,095 + $1,120,300
- = $2,381,186.67

(d) Using your result in **Question (c)**, calculate the net book value (NBV) of the KT-616 machine as of 31st December 2024. *[2 marks]*

- Question (c) showed that accumulated depreciation (from 1st March 2022 to 31st December 2024) = $2,381,186.67
- The NBV as of 31st December 2023 = $5,500,000 – $2,381,186.67
- = $3,118,813.33

Damien Car Rentals (DCR)

Damien Car Rentals (*DCR*) is a high-end car rental company based in Chicago, USA. *DCR* is known for its quality and safety record. Damien Rodriguez, the CEO, has decided to add 40 new electric sedan vehicles to *DCR's* current fleet as its main client base has shifted from millennials to Generation Z, who are more concerned with the impacts of climate change. Each electric sedan car costs $110,000 and has a residual value of $25,000. *DCR* forecasts that the entire new electric sedan car fleet will have a lifespan of 5 years, with a total mileage of 1,450,000 miles (also see Table 1). *DCR* signed a purchase agreement with its electric sedan provider on 1st March 2023.

Table 1: Details of mileage and related information for the electric sedan cars

Year	Expected mileage for the entire electric sedan fleet (in miles)	
	Optimistic projection	***Conservative projection***
2023	375,200	210,500
2024	410,800	320,000
2025	370,750	250,780
2026	307,900	305,170
2027	405,700	364,000

(a) Calculate the total cost of purchasing the entire electric sedan fleet for *DCR*. *[2 marks]*

……

……

(b) Using the units of production method of depreciation, calculate the depreciation rate per unit (*show all your working*). *[2 marks]*

……

……

(c) Calculate the total depreciation expense from 2023 to 2027 using the optimistic projections in **Table 1** (*show all your working).* *[2 marks]*

……

……

(d) Calculate the total depreciation expense from 2023 to 2027 using the conservative projections in **Table 1** (*show all your working).* *[2 marks]*

……

……

(e) Calculate and complete the following non-current assets section of *DCR's* statement of financial position as of 31st December 2025. *[2 marks]*

Non-current assets	**Optimistic projection ($)**	**Conservative projection ($)**
Fleet of electric sedan cars (40 cars)		
Accumulated depreciation		
Non-current assets		

Answers

(a) Calculate the total cost of purchasing the entire electric sedan fleet for *DCR*. *[2 marks]*

- Total purchase cost = $110,000 × 40 electric sedan cars = **$4,400,000**

(b) Using the units of production method of depreciation, calculate the depreciation rate per unit (*show all your working*). *[2 marks]*

- Units of production rate = (Cost of asset – Salvage Value) / Estimated units of production
- = [($4,400,000 – $25,000) × 40 cars)] / 1,450,000 miles = $2.34 per miles used

(c) Calculate the total depreciation expense from 2023 to 2027 using the optimistic projections in **Table 1** (*show all your working).* *[2 marks]*

	2023	2024	2025	2026	2027
Units of production (in miles)	375,200	410,800	370,750	307,900	405,700
Units of production depreciation rate	$2.34 per miles used (from **question 3**)				
Depreciation expense (annual)	375,200 × 2.34 = $877,968*	410,800 × 2.34 = $961,272	370,750 × 2.34 = $867,555	307,900 × 2.34 = $720,486	405,700 × 2.34 = $949,338

*Since the cars were purchased on March 1, 2023, that means they were only used between 1st March 2023 to 31st December 2023 (10 months). Thus, the 2023 annual depreciation expense of $877,968 must be pro-rated for the duration of use to reflect more accurately the depreciation expense for that year, i.e., $877,968 × (10/12) = $731,640.

- Total depreciation expense (accumulated depreciation based on optimistic projection)
- = $731,640 + $961,272 + $867,555 + $720,486 + $949,338 = **$4,230,291**

(d) Calculate the total depreciation expense from 2023 to 2027 using the conservative projections in **Table 1** (*show all your working).* *[2 marks]*

	2023	2024	2025	2026	2027
Units of production (in miles)	210,500	320,000	250,780	305,170	364,000
Units of production rate	$2.34 per miles used (from **question 3**)				
Depreciation expense (annual)	210,500 × 2.34 = $492,570**	320,000 × 2.34 = $748,800	250,780 × 2.34 = $586,825	305,170 × 2.34 = $714,098	364,000 × 2.34 = $851,760

**The 2023 annual depreciation expense of $492,570 must be pro-rated for the duration of use (as the cars were bought on 1st March 2023). This is calculated as $492,570 × (10/12) = $410,475.

- Total depreciation expense (accumulated depreciation based on conservative projection):
- = $410,475 + $748,800 + $586,825 + $714,098 + $851,760 = **$3,311,958**

(e) Calculate and complete the following non-current assets section of *DCR's* statement of financial position as of 31st December 2025. *[2 marks]*

Non-current assets	**Optimistic projection ($)**	**Conservative projection ($)**
Fleet of electric sedan cars (40 cars)	4,400,000	4,400,000
Accumulated depreciation	(4,230,291)	(3,311,958)
Non-current assets	**169,709**	**1,088,042**

Chim, Loh, & Partners Law Firm (CLPL)

Chim, Loh, & Partners Law Firm (*CLPL*) is a regional law firm based in Hong Kong with a wide scope of legal services, ranging from litigation, dispute resolution, capital markets, tax laws, and intellectual property. Their expertise is in Chinese law, which is considered a niche product in the current legal industry. The two lead partners, Jenkin Chim and James Loh, are assessing the feasibility of opening a new office in London, UK. They see market potential to grow their business as more European companies want to work with Chinese companies but do not have the expertise in Chinese law.

Before approaching their bank, the partners need to conduct a ratio analysis of their current profitability position. Selected financial information from *CLPL's* profit and loss account and balance sheet for 2023 and 2024 are shown below (all figures in $ millions):

	2023	**2024**
Fees and billings charged to clients	1,380	1,040
Costs of client services rendered	720	810
Expenses	345	**Y**
Profit before interest and tax	**X**	150
Cash	245	200
Debtors	500	470
Trade creditors	350	330
Short-term loans	40	20

(a) Calculate the total current assets for *CLPL* in 2024 (*show all your working*). *[2 marks]*

……

(b) Calculate the total current liabilities for *CLPL* in 2023. (*show all your working*). *[2 marks]*

……

(c) Using the information from the table, calculate the figures **X and Y**. *[2 marks]*

……

(d) Calculate the change in the gross profit margin from 2023 to 2024. *[2 marks]*

……

……

(e) Calculate the change in the profit margin from 2023 to 2024. *[2 marks]*

……

……

(f) Using the quantitative information in the table and your answers in part (d) **and** (e) above, comment on *CLPL*'s profitability in 2022. *[2 marks]*

……

……

Answers

(a) Calculate the total current assets for *CLPL* in 2024 (*show all your working*). *[2 marks]*

- Total current assets = Cash + Debtors + Stock
- Total current assets = $200m + $470m + $0 = $670m

(b) Calculate the total current liabilities for *CLPL* in 2023. (*show all your working*). *[2 marks]*

- Total current liabilities = Trade creditors + Short-term loans
- Total current liabilities = $350m + $40m = $390m

(c) Using the information from the table, calculate the figures **X and Y**. *[2 marks]*

- Profit before interest and tax = Fees and billings charged to clients – Costs of client services rendered – Expenses
- = $1,380m – $720m – $345m
- X = $315m

- Profit before interest and tax = Fees and billings charged to clients – Costs of client services rendered – Expenses
- $150m = $1,040m – $810m – Expenses
- Expenses (Y) = $150m + $810m – $1,040m
- Y = $80m

(d) Calculate the change in the gross profit margin from 2023 to 2024. *[2 marks]*

- Gross profit margin (GPM) = (Gross profit / Sales revenue) × 100
- GPM for 2023 = [(1,380m – 720m) / 1,380m] × 100 = 47.83%
- GPM for 2024 = [(1,040m – 810m) / 1,040m] × 100 = 22.12%
- Change in GPM = fallen by 25.71%

(e) Calculate the change in the profit margin from 2023 to 2024. *[2 marks]*

- Profit margin = (Profit before interest and tax / Sales revenue) × 100
- Profit margin for 2023 = ($315m / $1,380m) × 100 = 22.83%
- Profit margin for 2024 = ($150m / $1,040m) × 100 = 14.42%
- Change in profit margin = fall by 8.41%

(f) Using the quantitative information in the table and your answers in part (d) **and** (e) above, comment on *CLPL*'s profitability in 2022. *[2 marks]*

- From the calculations, the GPM for *CLPL* has fallen by 25.71% whilst its profit margin has fallen by 8.41% between 2023 and 2024. This signifies falling profitability for the law firm.
- Generally, a higher GPM and profit margin are favourable for a business and would suggest greater growth prospects for *CLPL.*
- Although *CLPL* is still experiencing positive figures for gross profit as well as profit before interest and tax, the fall in the GPM ratio is significant, which suggests *CLPL* is not very effective in controlling costs relating to the legal services that the firm provides to its clients.
- The fall in the profit margin also suggests that *CLPL* is not effective in controlling its operational costs (expenses). Thus, *CLPL's* focus should be to manage the indirect costs related to the provision of its legal services prior to pursuing growth opportunities by opening a new office in London.

Kaneshige Properties (KP)

Shun Kaneshige is a real estate specialist trading as *Kaneshige Properties* (*KP*). As the managing director of *KP*, Shun manages a portfolio of properties across Bangkok, Thailand. The stocks (inventory) that *KP* holds are the properties within the company's real estate portfolio.

KP is planning to open its first overseas office in Singapore due to the strong upswing in the property market. To support its expansion, the local bank in Singapore is asking *KP* to provide a ratio analysis of its liquidity and profitability to complement the final accounts that will be submitted for review. The finance director at *KP* has provided the following information for 2024:

Current ratio	2.80
Acid-test (quick) ratio	**X**
Total current liabilities	$160m
Debtors	**Y**
Expenses	$500m
Total current asset	$392m

Sales revenue	$1,750m
Stock (inventory)	$190m
Profit before interest and tax	$570m
Cash	$100m
Capital employed	$800m

The industry benchmark for the current ratio and acid-test (quick) ratio are between 1.5 to 2 and 1.0 respectively.

(a) Calculate the value of debtors (**Y**) for *KP* in 2024 (*show all your working*). *[2 marks]*

……

(b) Calculate the acid-test (quick) ratio (**X**) for *KP* in 2024 (*show all your working*). *[2 marks]*

……

(c) Comment on *KP's* current ratio in 2024. *[2 marks]*

……

……

(d) Calculate the gross profit margin (GPM) for *KP* in 2024 (*show all your working*). *[2 marks]*

……

……

(e) Calculate the profit margin for *KP* in 2024. *[2 marks]*

……

……

(f) Calculate the return on capital employed (ROCE) for *KP* in 2024. *[2 marks]*

……

(g) Describe what the figure for *KP's* return on capital (ROCE) in 2024 shows. *[2 marks]*

……

……

Answers

(a) Calculate the value of debtors (**Y**) for *KP* in 2024 (*show all your working*). *[2 marks]*

- Current assets = Cash + Debtors + Stock (inventory)
- $392m = $100m + Y + $190m
- Y = $102m

(b) Calculate the acid-test (quick) ratio (**X**) for *KP* in 2024 (*show all your working*). *[2 marks]*

- Acid-test (quick) ratio = (Current assets – Stock) / Current liabilities
- Acid-test (quick) ratio = (Cash + Debtors) / Current liabilities
- = ($100m + $102m) / $160m
- = $202m / $160m
- = 1.26

(c) Comment on *KP's* current ratio in 2024. *[2 marks]*

The current ratio measures the liquidity of a business by comparing its total current assets to its total current liabilities. *KP's* current ratio is 2.8, which is well above the industry standard of 1.5 to 2.0, suggesting that *KP* has sufficient liquid assets to pay off its current liabilities within the next 12 months. However, having too much liquidity may suggest that *KP* is not being very effective with its liquid assets in generating income for the real estate firm.

(d) Calculate the gross profit margin (GPM) for *KP* in 2024 (*show all your working*). *[2 marks]*

- Since the gross profit figure is not given, but students are given the expenses figure and the profit before interest and tax figure, this means they can work backwards to calculate the gross profit figure:
- Profit before interest and tax = Gross profit – Expenses
- $570m = X – $500m
- X = $1,070m

- Gross profit margin (GPM) for 2024 = (Gross profit / Total sales revenue) × 100
- = ($1,070m / $1,750m) × 100
- = 61.14%

(e) Calculate the profit margin for *KP* in 2024. *[2 marks]*

- Profit margin for 2019 = (Profit before interest and tax / Total sales revenue) × 100
- = ($570m / $1,750m) × 100
- = 32.57%

(f) Calculate the return on capital employed (ROCE) for *KP* in 2024. *[2 marks]*

- Return on capital employed (ROCE) = (Profit before interest and tax / Capital employed) × 100
- = ($570m / $800m) × 100
- = 71.25%

(g) Describe what the figure for *KP's* return on capital (ROCE) in 2024 shows. *[2 marks]*

The ROCE figure measures how efficient *KP* has used its resources in relation to the size of the real estate firm (measured by the value of its capital employed) to bring about financial returns and therefore, profits for the business. In this case, for every $100 invested in *KP,* the firm earns $71.25 in profit before interest and tax. In general, the higher the ROCE, the better it is for the business.

Tammer Kitchenware (TK)

Tammer Kitchenware (*TK*) is an exclusive distributor of the brand "KitchenForce". *TK* stocks the products in its warehouse. With *TK's* strong relationship with suppliers of KitchenForce, the business often receives discounts on its bulk purchases. This enables *TK* to price its products competitively. Adrian Danisova, the finance manager at *TK*, has provided the following financial information.

Table 1: Financial information from *TK's* statement of financial position (2023 and 2024)

	2023	2024
Cash	$30,000	**W**
Short-term loan (debt)	$20,000	$24,650
Stock (inventory)	$33,500	$28,700
Debtor	$21,500	$25,000
Trade creditor	$29,750	$31,000
Current ratio	**X**	1.48
Acid test (quick) ratio	**Z**	**Y**

Table 2: Financial information from *TK's* statement of profit and loss (2023 and 2024)

	2023	Changes for 2024 (based on 2023 figures)
Sales revenue	**A**	Increased by 5%
Cost of sales	$75,000	Decreased by 10%
Gross profit	$145,000	
Depreciation	$15,650	Increased by $5,100
Advertising	$10,000	No change
Rent	$80,000	No change

(a) Calculate the current ratio for *TK* in 2023 (**X**) (*show all your working*). *[2 marks]*

……

(b) Calculate the acid-test (quick) ratio for *TK* in 2023 (**Z**) (*show all your working*). *[2 marks]*

……

(c) Calculate the amount of cash (**W**) for *TK* in 2024 (*show all your working*). *[2 marks]*

……

(d) Calculate the acid-test (quick) ratio for *TK* in 2024 (**Y**) (*show all your working*). *[2 marks]*

……

(e) Calculate the sales revenue figure (**A**) for *TK* in 2024. *[2 marks]*

……

(f) Calculate the gross profit margin for *TK* in 2023 (*show all your working*). *[2 marks]*

……

(g) Calculate the profit margin for *TK* in 2024 (*show all your working*). *[2 marks]*

……

Answers

(a) Calculate the current ratio for *TK* in 2023 (**X**) (*show all your working*). *[2 marks]*

- Current ratio = Current assets / Current liabilities
- = ($30,000 + $21,500 + $33,500) / ($29,750 + $20,000)
- = 1.71

(b) Calculate the acid-test (quick) ratio for *TK* in 2023 (**Z**) (*show all your working*). *[2 marks]*

- Acid-test (quick) ratio = (Current assets – Stock) / Current liabilities
- Acid-test (quick) ratio = (Cash + Debtors) / Current liabilities
- = ($30,000 + $21,500) / ($29,750 + $20,000)
- = $18,000 / $49,750
- = 1.04

(c) Calculate the amount of cash (**W**) for *TK* in 2024 (*show all your working*). *[2 marks]*

- Current ratio = Current assets / Current liabilities
- 1.48 = (W + $25,000 + $28,700) / ($31,000 + $24,650)
- W = 1.48 × ($55,650 – $25,000 – $28,700)
- W = $28,662

(d) Calculate the acid-test (quick) ratio for *TK* in 2024 (**Y**) (*show all your working*). *[2 marks]*

- Acid-test (quick) ratio = (Current assets – Stock) / Current liabilities
- = ($28,662 + $25,000) / ($31,000 + $24,650)
- = $53,662 / $55,650
- = 0.96

(e) Calculate the sales revenue figure (**A**) for *TK* in 2024. *[2 marks]*

- Sales revenue – Cost of sales = Gross profit
- A – $75,000 = $145,000
- A = $220,000

(f) Calculate the gross profit margin for *TK* in 2023 (*show all your working*). *[2 marks]*

- Gross profit margin (GPM) = (Gross profit / Total sales revenue) × 100
- = ($145,000 / $220,000) × 100
- = 65.91%

(g) Calculate the profit margin for *TK* in 2024 (*show all your working*). *[2 marks]*

- First calculate the changes for 2024
- Sales revenue = $220,000 × 1.05 = $231,000
- COS = $75,000 × 0.9 = $67,500
- Gross profit = $231,000 – $67,500 = $163,500
- Depreciation = $15,650 + $5,100 = $20,750
- Profit before interest and tax = ($163,500 – $20,750 – $10,000 – $80,000)
- = $52,750
- Profit margin = (Profit before interest and tax / Total sales revenue) × 100
- = ($52,750 / $231,000) × 100
- = 22.84%

Kiara's Construction Ltd. (KCL)

Kiara's Construction Ltd. (*KCL*) is a property construction company based in Los Angeles, California in the USA. Kiara Kuczynski, as the CEO, has managed to acquire a new plot of land with redevelopment rights for the company's first luxury boutique apartment in downtown Los Angeles. To support this property development, *KCL* will need to obtain long-term borrowing. To support the application, she is preparing a ratio analysis for the bank manager.

Table 1: Liquidity and profitability ratios for *KCL* from 2023 to 2024

	2023	2024	Industry average
Profit margin (%)	17	14	16
Gross profit margin (%)	10	25	20
Current ratio	1.7	1.1	1.8
Acid test (quick) ratio	0.9	1.3	1
Return on capital employed (%)	56	**X**	45

At the end of 2024, *KCL's* profit before interest and tax was $19,570,000, non-current liabilities were $27,550,000, and equity was $28,364,200.

(a) Calculate the return on capital employed in 2024 (**figure X)** (*show all your working*). *[2 marks]*

……

(b) Calculate the change in both liquidity ratios and all three profitability ratios for *KCL.* *[5 marks]*

……

……

……

(c) Outline what the change in the profit margin for *KCL* from 2023 to 2024 shows. *[2 marks]*

……

……

(d) Outline what the change in the current ratio for *KCL* from 2023 to 2024 shows. *[2 marks]*

……

……

(e) Explain **one** problem for a *KCL* of holding too many current assets. *[2 marks]*

……

……

(f) Suggest **one** way in which *KCL* can improve its return on capital employed (ROCE). *[2 marks]*

……

……

Answers

(a) Calculate the return on capital employed in 2024 (**figure X)** (*show all your working*). *[2 marks]*

- ROCE = (Profit before interest and tax / Capital employed) × 100
- Capital employed = Non-current liabilities + Equity
- = [$19,750,000 / ($27,550,000 + $28,364,200) × 100 = 35%

(b) Calculate the change in both liquidity ratios and all three profitability ratios for *KCL*. *[5 marks]*

	2023	2024	Change (Δ)	Industry average
Profit margin (%)	17	14	- 3%	16
Gross profit margin (%)	10	25	+ 15%	20
Current ratio	1.7	1.1	- 0.6	1.8
Acid test (quick) ratio	0.9	1.3	+ 0.4	1
Return on capital employed (%)	56	35	- 21%	45

(c) Outline what the change in the profit margin for *KCL* from 2023 to 2024 shows. *[2 marks]*

Profit margin is a profitability ratio that measures a firm's profit before taxes and interest as a proportion of its sales revenue. It reflects the firm's ability to manage its costs and earn profits from its sales. *KCL*'s profit margin fell by 3% from 2023 to 2024, suggesting that for every $100 of sales revenue, the firm makes only $14 in profit before interest and tax. As the industry average is 16%, *KCL's* profit margin has fallen below the industry benchmark.

(d) Outline what the change in the current ratio for *KCL* from 2023 to 2024 shows. *[2 marks]*

The current ratio is a profitability ratio that measures a firm's liquidity, i.e., the ability to cover current liabilities with the firm's current assets. For *KCL*, this has worsened by 0.6, suggesting that it has fewer current assets to cover its current liabilities. With a current ratio of 1.1 in 2024, this means for every $1 of current liabilities, *KCL* has $1.1 of current assets to meet its short-term obligations. Whilst the common benchmark for this ratio is 1.5, *KCL's* current ratio is way below the industry average of 1.8, suggesting that the firm could run into liquidity problems in the near future.

(e) Explain **one** problem for a *KCL* of holding too many current assets. *[2 marks]*

Problems of holding too many current assets (comprised of cash, debtors, and stock), include:

- *KCL* may not be using its cash productively as this could be invested more profitably elsewhere for some positive financial returns.
- Having too many debtors would suggest that *KCL* has given too much credit and/or extended the credit period for too long to its customers. If the firm's debtors default on their payments, this could seriously impact *KCL's* cash flow and profitability.
- Holding too much stock (inventories such as construction materials) could lead to increased storage costs. As a property construction company, *KCL's* stock would also include the properties that are being sold. The longer *KCL* holds onto these properties, the more it is exposed to the risks of change in the business cycle which could reduce property prices.

(f) Suggest **one** way in which *KCL* can improve its return on capital employed (ROCE). *[2 marks]*

Possible ways for *KCL* to improve its return on capital employed include:

- Increasing the selling price of the properties in its portfolio. This could improve *KCL's* profit before interest and tax, which ultimately improves its ROCE ratio. However, this could lead to backlash from price sensitive customers and see *KCL* as profiteering.
- Reduce cost of sales (COS). This will require *KCL* having to reduce its direct costs to construct its properties, which could be challenging if suppliers are unwilling to provide the construction materials to build new properties at a lower price.

DK Cosmetics (DKC)

DK Cosmetics (*DKC*) is a cosmetics manufacturer that specializes in the production of shower, hand, body, and soap products using organic and non-animal tested ingredients. As *DKC's* customers are more concerned about the products they use and their impact on the environment, its production capacity is now at its maximum. A new production facility is planned, but a large bank loan must first be obtained. The local bank manager has asked *DKC* to provide a complete set of final accounts along with a ratio analysis for the past two years of operations. Some of the financial information for 2024 is shown below:

- The opening stock is $120,000 and closing stock is $160,000 in 2024.
- Sales revenue for the year was $1,100,000, and the gross profit was $490,000.
- The industry standard for credit payments is 40 to 50 days, with *DKC's* debtors valued at $150,000 and its trade creditors valued at $167,000.
- *DKC's* capital employed was $2,060,000, share capital was $460,000, accumulated retained profit was $800,000 at the end of 2024.

Table 1 – Partial efficiency ratio analysis, for *DKC (2023)*

Stock turnover ratio (times)	2.61 times
Debtor days ratio (days)	44.71 days
Creditor days ratio (days)	104.84 days
Gearing ratio (%)	22.56%

(a) Calculate the average stock for *DKC* in 2024 (*show all your working*). *[2 marks]*

……

(b) Calculate the stock turnover ratio (in times) for *DKC* in 2024 (*show all your working*). *[2 marks]*

……

(c) Calculate the debtor days ratio for *DKC* in 2024 (*show all your working*).

……

……

(d) Comment on the change in the debtor days ratio between 2023 and 2024. *[2 marks]*

……

……

(e) Calculate the gearing ratio for *DKC* in 2024 (*show all your working*). *[2 marks]*

……

……

(f) Calculate the creditor days ratio for *DKC* in 2024. *[2 marks]*

……

……

Answers

(a) Calculate the average stock for *DKC* in 2024 (*show all your working*). *[2 marks]*

- Average stock for 2024 = (Opening stock + Closing stock) / 2
- = ($120,000 + $160,000) / 2
- = $140,000

(b) Calculate the stock turnover ratio (in times) for *DKC* in 2024 (*show all your working*). *[2 marks]*

- Cost of sales = Sales revenue – Gross profit = $1,100,000 – $490,000 = $610,000
- Stock turnover ratio (in times) for 2020 = (Cost of sales / Average stock)
- = $610,000 / $140,000
- = 4.36 times

(c) Calculate the debtor days ratio for *DKC* in 2024 (*show all your working*).

- Debtor days ratio = Debtors / (Total sales revenue) × 365
- = ($150,000 / $1,100,000) × 365
- = 49.77 days

(d) Comment on the change in the debtor days ratio between 2023 and 2024. *[2 marks]*

This ratio measures the number of days it takes *DKC* to collect debts owed by its debtors. The debtor days ratio for *DKC* has increased by just over 5 days. Since the industry standard is 40 to 50 days, with a debtor days ratio of 49.77 days in 2024, the ratio has worsened meaning that *DKC* may have been weak with its credit control.

(e) Calculate the gearing ratio for *DKC* in 2024 (*show all your working*). *[2 marks]*

- Capital employed = Loan capital (X) + Share capital + Accumulated retained profit
- $2,060,000 = X + $460,000 + $800,000
- X = $800,000
- Gearing ratio = (Loan capital / Capital employed) × 100
- = ($800,000 / $2,060,000) × 100
- = 38.83% (which is a significant improvement from 2023)

(f) Calculate the creditor days ratio for *DKC* in 2024. *[2 marks]*

- Creditor days ratio for 2022 = (Creditors / COGS) × 365
- = ($167,000 / $610,000) × 365
- = 99.93 days
- This means *DKC* is paying its debts almost 5 days early that previously in 2023, but still taking far longer than the standard 40 – 50 days trade credit period.

Sharp Sail Ltd. (SSL)

Sharp Sail Ltd. (*SSL*) is a manufacturer of medium-sized sails, which the company sells through its own outlets. The company operates as a privately held company and is owned by the Sharp family. The Chief Executive Officer (CEO), Samantha, was trained as a professional sailor. After she retired from her professional sailing career, she took on the role as the CEO of *SSL*.

Samantha wants to develop the business further by opening a sailing training centre. To support this, she needs to secure a bank loan of $2 million. Samantha also needs to assess the efficiency of *SSL*. the Chief Finance Officer (CFO) has provided the following financial information.

	2023	2024
Debtor days ratio	59.84 days	49.55 days
Sales revenue	$19.52m	$22.10m
Gross profit	$5.62m	$4.92m
Cash	$8m	$10.5m
Debtors	$3.2m	$3m
Average stock (inventory)	$2.85m	$1.89m
Trade creditors	$2.8m	$2.2m
Short-term loans (debts)	3.1	2.9

(a) Calculate the stock turnover ratio for *SSL* (days) in 2023 (*show all your working*). *[2 marks]*

……

(b) Calculate the stock turnover ratio for *SSL* (times) in 2023 (*show all your working*). *[2 marks]*

……

(c) Calculate the change in stock turnover ratio for *SSL* (in days) (*show your working*). *[2 marks]*

……

(d) Comment on the change in the debtor days ratio for *SSL*. *[2 marks]*

……

……

(e) Calculate the creditor days ratio for *SSL* in 2023. *[2 marks]*

……

(f) Calculate the change in the creditor days ratio for *SSL* (*show all your working*). *[2 marks]*

……

……

(g) Comment on your findings in Question (f) from above. *[2 marks]*

……

……

Answers

(a) Calculate the stock turnover ratio for *SSL* (days) in 2023 (*show all your working*). *[2 marks]*

- Cost of sales = Sales revenue – Gross profit = $19.52m – $5.62m = $13.9m
- Stock turnover ratio (in days) = (Average stock / Cost of sales) × 365
- = ($2.85m / $13.9m) × 365
- = 74.84 (or 75) days

(b) Calculate the stock turnover ratio for *SSL* (times) in 2023 (*show all your working*). *[2 marks]*

- Stock turnover ratio (in times) = Cost of sales / Average stock
- = $13.9m / $2.85m
- = 4.88 times

Top tip: When calculating stock turnover ratios, ensure that you state the correct units for the figure – either the number of times (per year) or number of days.

(c) Calculate the change in stock turnover ratio for *SSL* (in days) (*show your working*). *[2 marks]*

- Cost of sales = Sales revenue – Gross profit = $22.1m – $4.92m = $17.18m
- Stock turnover ratio (in days) for 2020 = (Average stock / Cost of sales) × 365
- = ($1.89m / $17.18m) × 365
- = 40.15 days
- Change = 40.15 days – 74.84 days = fallen by 34.69 (or 35) days

(d) Comment on the change in the debtor days ratio for *SSL*. *[2 marks]*

The debtor days ratio for *SSL* improved by 10.29 days from 2023 to 2024. This ratio measures the number of days it takes *SSL* to collect its debts (owed by their debtors), i.e., it now takes *SSL* less time (by around 11 days shorter) to collect the money it is owed by its debtors.

(e) Calculate the creditor days ratio for *SSL* in 2023. *[2 marks]*

- Creditor days ratio = (Creditors / Cost of sales) × 365
- = ($2.8m / $13.9m) × 365
- = 73.53 (or 74) days

(f) Calculate the change in the creditor days ratio for *SSL* (*show all your working*). *[2 marks]*

- Creditor days ratio = (Creditors / Cost of sales) × 365
- = ($2.2m / $17.18m) × 365
- = 46.74 (or 47) days
- Change = 73.53 days – 46.74 days = fallen by 26.79 (or 27) days

(g) Comment on your findings in Question (f) from above. *[2 marks]*

As the creditor days ratio has fallen quite significantly, this suggests that the ratio has worsened for *SSL* because the company has less time to pay back its suppliers, which can have a negative impact on its own cash flow (liquidity) position.

Siuboy Consultancy Co. (SCC)

Siuboy Consultancy Co. (*SCC*) provides consultancy services to business organizations on public relations, corporate affairs, and crisis management solutions. *SCC* also sells a wide collection of corporate communication books.

Since its establishment, *SCC* has been highly efficient in its operations. However, this has changed recently so the owners would like to investigate the efficiency of his company by conducting a ratio analysis based on the financial data below.

Table 1: Financial information for *SCC*

	2023	2024
Capital employed	112,500	147,000
Closing stock	$22,000	$44,000
Cost of sales	50,300	80,700
Debtors	25,000	**A**
Loan capital	50,500	75,000
Opening stock	$34,000	$22,000
Sales revenue	150,500	105,000
Share capital	22,000	22,000

Table 2: Partial ratio analysis for *SCC*

	2023	2024
Stock turnover ratio (in days)	**W**	149.26 days
Debtor days ratio (in days)	**X**	100.81 days
Gearing ratio (in %)	**Y**	**Z**

(a) Calculate the average stock for *SCC* in 2024 (*show all your working*). *[2 marks]*

……

(b) Calculate the value of stock turnover ratio (in days) (**W**) for *SCC* in 2023 (*show all your working*). *[2 marks]*

……

(c) Calculate the value of debtors (**A**) for *SCC* in 2024 (*show all your working*). *[2 marks]*

……

(d) Calculate the debtor days ratio (**X**) for *SCC* in 2023 (*show all your working*). *[2 marks]*

……

(e) Calculate the gearing ratio in 2023 (**Y**) **and** 2024 (**Z**) (*show all your working*). *[2 marks]*

……

(f) Comment on the change in *SCC's* gearing ratio from 2023 to 2024. *[2 marks]*

……

……

Answers

(a) Calculate the average stock for *SCC* in 2024 (*show all your working*). *[2 marks]*

- Average stock = (Opening stock + Closing stock) / 2
- = ($22,000 + $44,000) / 2
- = $33,000

(b) Calculate the value of stock turnover ratio (in days) (**W**) for *SCC* in 2023 (*show all your working*). *[2 marks]*

- Average stock = (Opening stock + Closing stock) / 2
- = ($34,000 + $22,000) / 2
- = $28,000

- Stock turnover ratio (in days) = (Average stock / Cost of sales) × 365
- = ($28,000 / $50,300) × 365
- = 203.18 days (or 204 days)

(c) Calculate the value of debtors (**A**) for *SCC* in 2024 (*show all your working*). *[2 marks]*

- Debtor days ratio is given as 100.81 days. Applying the debtor days ratio formula gives:

- 100.81 days = (Debtors / Total sales revenue) × 365
- 100.81 = (A / $105,000) × 365
- 100.81 × $105,000 = 365A
- (100.81 × $105,000) / 365 = A
- A = $29,000.14 (or $29,000)

(d) Calculate the debtor days ratio (**X**) for *SCC* in 2023 (*show all your working*). *[2 marks]*

- Debtor days ratio = (Debtors / Total sales revenue) × 365
- = ($25,000 / $150,500) × 365
- = 60.63 days (or 61 days)

(e) Calculate the gearing ratio for *SCC* in 2023 (**Y**) **and** 2024 (**Z**) (*show all your working*). *[2 marks]*

- Gearing ratio = (Loan capital / Capital employed) 100

- Y = Gearing ratio for 2023 = ($50,500 / $112,500) × 100 = 44.89%
- Z = Gearing ratio for 2024 = ($75,000 / $147,000) × 100 = 51.02%

(f) Comment on the change in *SCC's* gearing ratio from 2023 to 2024. *[2 marks]*

The gearing ratio has increased by 6.13%. This ratio measures the amount of capital at *SCC* that is financed by long-term loans or non-current liabilities. In general, a gearing ratio of more than 50% is considered highly geared. Given *SSC's* gearing ratio in 2024 has just gone above 50%, this indicates that *SSC* is now highly geared. Thus, this suggests any hikes in interest rates could harm *SSC's* liquidity position as the firm will need to pay a lot more interest payments for the loans the company has taken out.

Worksheet 33
3.6 Efficiency Ratio Analysis (HL) (4)

(a) Define the term *efficiency ratio*. *[2 marks]*

……

……

(b) State the benchmark for each of the following efficiency ratios. *[5 marks]*

(i) Stock turnover ratio (in times) ……....

(ii) Stock turnover ratio (in days) ……....

(iii) Debtor days ratios ……....

(iv) Creditor days ratios ……....

(v) Gearing ratio ……....

(c) Given the following situations and stock turnover ratios, comment on whether or not the ratio is realistic.

(i) A small wet market stall selling fresh vegetables has a stock turnover ratio (in times) of 2.5 times. *[2 marks]*

……

……

(ii) Tiffany & Co., a high-end luxury jewellery maker and retailer, has a stock turnover ratio (in days) of 0.35 days. *[2 marks]*

……

……

(iii) Netflix, an online streaming service provider, has a stock turnover (in times) of 180 times a year. *[2 marks]*

……

……

(d) Comment on a company's gearing ratio of 90%. *[2 marks]*

……

……

(e) Explain **one** stakeholder group that might be interested in the gearing ratio of a firm. *[2 marks]*

……

……

Answers

(a) Define the term *efficiency ratio*. *[2 marks]*

Efficiency ratio refers to the ability of a business to utilize its resources to bring about a financial return. This includes the stock turnover ratio, debtor days ratio, creditor days ratio, and gearing ratio.

(b) State the benchmark for each of the following efficiency ratios. *[5 marks]*

(i) Stock turnover ratio (in times) The higher the ratio the better, as it means that the business is able to sell all of its inventory (or stock) very quickly.

(ii) Stock turnover ratio (in days) The lower the ratio the better, as it means that the business takes less time to sell all of its inventory (or stock).

(iii) Debtor days ratios The lower the ratio the better, as it means the business takes fewer days to collect the money it is owed from debtors.

(iv) Creditor days ratios The higher the ratio the better, as it means that the business has more time to pay its current liabilities to suppliers and trade creditors.

(v) Gearing ratio The normal benchmark is no more than 50%, as it suggests that for every $100 of capital employed, $50 of this comes from money the firm has borrowed (e.g., loan capital and other forms of non-current liabilities).

(c) Given the following situations and stock turnover ratios, comment on whether or not the ratio is realistic.

(i) A small wet market stall selling fresh vegetables has a stock turnover ratio (in times) of 2.5 times. *[2 marks]*

This is not realistic. A wet market stall should expect to sell vegetables every day in high volumes, so the stock turnover (in times) should be higher.

(ii) Tiffany & Co., a high-end luxury jewellery maker and retailer, has a stock turnover ratio (in days) of 0.35 days. *[2 marks]*

This is not realistic. It is unlikely that a premium jewellery maker/retailer will be able to sell expensive jewellery in less than a day. We would expect that the stock turnover (in days) will be higher as it realistically takes a longer time for an expensive jeweller to sell its products.

(iii) Netflix, an online streaming service provider, has a stock turnover (in times) of 180 times a year. *[2 marks]*

This is also not realistic. This is a rather unique situation as online streaming service providers like Netflix or Disney+ do not really hold any inventory or stock (they don't sell a physical product). Instead, Netflix sells a service). In this context, the stock turnover ratios is not really a relevant financial ratio for analysis.

(d) Comment on a company's gearing ratio of 90%. *[2 marks]*

A company with a gearing ratio of 90% is considered to be very highly geared. This means for every $100 of capital employed, $90 of this comes from non-current liabilites, such as long-term bank loans. The business is therefore more vulnerable to changes in interest rates because when the interest rate is increased, the firm will need to incur higher monthly interest repayments on the significant value of its non-current liabilites (funds that it has borrowed).

(e) Explain **one** stakeholder group that might be interested in the gearing ratio of a firm. *[2 marks]*

Possible stakeholder groups could include:

- Shareholders and potential Investors – Knowing the gearing ratio helps these stakeholders to assess the level of risk of the business. A business with a high gearing ratio suggests that the business will need to repay the bank first (interest payment) before it has any funds left to pay to its shareholders (dividends) or used for reinvestment in the business (retained profits or earnings).

- Creditors – Trade creditors may be worried if a business is highly geared, as the firm night not have money left over to pay the money owed to them. There is the risk that the business may default on the money owed to suppliers and other creditors if the geraing ratio is high (because the business will need to pay back the bank first for the non-current liabilites (long-term borrowing).

Kutie Pie *(KP)*

The owner of *Kutie Pie* (*KP*), Kutie Park, plans to open her first outlet in the tourist district of Myeongdong in Seoul, South Korea, as a sole proprietorship. She will use her personal funds of 3 million South Korean won (₩) (around US$2,230) to start the business. To encourage more entrepreneurs, the South Korean government is offering a one-time grant of ₩4 million (US$2,975). To be eligible, Kutie Park will need to prepare a detailed cash-flow forecast. She anticipates the average selling price of her pies will be ₩5,000 (US$3.75) each.

Kutie Park has forecasted the following financial information for the first four months of operation, starting from January 2024.

Sales	
Quantity of pies sold	• First two months = 30,000 pies per month • Next two months = 45,000 pies per month
Payment methods	• 80% of the sales will be paid in cash • 20% of the sales will be paid on credit, with *KP* receiving the cash in the following month

Costs (cash payments)	
Rent	• ₩150 million, payable every other month starting in January
Kutie's salary	• None for the first two months, ₩1 million thereafter
Ingredients	• ₩2.2 million per month
Advertising	• ₩1.5 million per month
Utilities	• 25% of monthly total sales revenue

(a) State **one** appropriate external source of finance for *KP* other than a grant. *[1 mark]*

……

(b) Explain **one** difference between cash flow and profit for a business like *KP*. *[4 marks]*

……

……

……

……

……

……

(c) On a separate sheet of paper, prepare a fully labelled cash-flow forecast for *KP* from January to April 2024. *[6 marks]*

(d) Comment on the cash flow forecast for *KP*. *[2 marks]*

……

……

……

Answers

(a) State **one** appropriate external source of finance for *KP* other than a grant. *[1 mark]*

Accept any of the following:

- Bank overdrafts
- Short-term bank loans
- Loans from family and/or friends (as this is for a sole trader).

(b) Explain **one** difference between cash flow and profit for a business like *KP*. *[4 marks]*

Cash flow refers to the movement of physical cash within and out of the business during a given period of time. *Profit* refers to the difference between sales revenue and the total costs to operate a business. A business is able to earn a profit irrespective of whether physical cash is received from its customers as profits can be recorded on an accrual basis. For example, a business is able to earn a profit for both credit and cash sales made. However, a cash inflow can only be recorded when the business is able to sell its goods and services on cash basis.

(c) On a separate sheet of paper, prepare a fully labelled cash-flow forecast for *KP* from January to April 2024. *[6 marks]*

Kutie Pie *(KP)* Cash flow forecast (January to April 2024)

(South Korean Wons, ₩)	Jan	Feb	Mar	Apr
Opening balance	3,000,000	(64,200,000)	44,600,000	43,650,000
Cash inflows				
Grant	4,000,000	0	0	0
Cash sales	120,000,000	120,000,000	180,000,000	180,000,000
Credit sales	0	30,000,000	30,000,000	45,000,000
Total cash inflows	**124,000,000**	**150,000,000**	**210,000,000**	**225,000,000**
Cash outflows				
Rent	150,000,000		150,000,000	
Kutie's salary	0	0	1,000,000	1,000,000
Ingredients	2,200,000	2,200,000	2,200,000	2,200,000
Advertising	1,500,000	1,500,000	1,500,000	1,500,000
Utilities	37,500,000	37,500,000	56,250,000	56,250,000
Total cash outflows	**191,200,000**	**41,200,000**	**210,950,000**	**60,950,000**
Net cash flow	(67,200,000)	108,800,000	(950,000)	164,050,000
Closing balance	(64,200,000)	44,600,000	43,650,000	207,700,000

(d) Comment on the cash flow forecast for *KP*. *[2 marks]*

The cash flow for *KP* looks disappointing during its first month (with a negative closing balance of ₩64.2m). However, this is not unexpected for a new business given it will be *KP's* first month of operation. The cash flow forecast covers the first four months of trading and in the subsequent months, sales are expected to increase, allowing *KP* to generate positive net cash flows with positive closing balances. Overall, the situation looks optimistic for *KP's* business so long as the financial forecasts are realistic.

Jenny's Vegan Restaurant (JVR)

Jenny's Vegan Restaurant (*JVR*) was opened by Jenny de Ferranti, who has a talent for culinary arts, specifically with vegetarian-based recipes. Based in Vancouver, Canada, and riding on the fact that Vancouverites puts a heavy emphasis on high living standards and work-life balance, Jenny believes there is a huge market potential for vegan-based restaurants. She started *JVR* on 1 January 2024 using $100,000 from her personal funds.

Whilst Jenny is a talented chef, she also studied finance and accounting at university. As such, Jenny wants to make sure her new business is on track to success and decided to construct a six-month cash flow forecast.

JVR's sales come from three revenue streams: dine-in sales, take-out sales, and sales made through a strategic alliance with a local mobile application (app) delivery company called "Deliverfood". The agreement with Deliverfood stipulates that *JVR* will receive 60% of the sales made via the Deliverfood app.

Forecasted sales information (figures in Canadian dollars $) from 1 January 2024

	Jan	Feb	Mar	Apr
Dine-in sales	40,000	42,300	45,000	41,000
Take-out sales	32,000	35,000	40,000	37,000
Deliverfood app sales	20,000	27,000	30,000	32,000

- *JVR* buys its ingredients from local farmers every month. The average cost of purchasing the ingredient is $70,000 but Jenny was able to obtain a monthly 10% discount.
- The rent for the restaurant is $30,000 per month. However, the lease on the current rental contract is due on March 31, 2024. The landlord has already informed Jenny that the new rent starting from 1 April 2024 will increase by 40%.
- Labour costs for the restaurant amount to $15,000 per month.
- *JVR* mainly uses social media marketing but also advertises in local newspapers on a monthly basis. This costs the business $3,000 per month.

(a) Students of Int school of Prague Burešová, define the term *revenue streams*. *[2 marks]*

……

……

……

……

(b) State the formula to calculate the *net cash flow*. *[1 mark]*

……

(c) On a separate piece of paper and using the information presented above, prepare a monthly cash flow forecast for *JVR* for the first four months of operation. *[6 marks]*

Answers

(a) Define the term *revenue streams*. *[2 marks]*

Revenue streams are the various channels by which a business can earn sales revenues from the goods or services that are sold. A firm could have multiple revenue streams as they grow and to diversify the risk of having revenue coming from only one product.

(b) State the formula to calculate the *net cash flow*. *[1 mark]*

Net cash flow = Cash inflows – Cash outflows per time period.

(c) On a separate piece of paper and using the information presented above, prepare a monthly cash flow forecast for *JVR* for the first four months of operation. *[6 marks]*

Jenny's Vegan Restaurant (JVR) cash flow forecast (Jan to Jun 2023)

(Canadian dollars $)	Jan	Feb	Mar	Apr
Opening balance	**100,000**	**73,000**	**55,500**	**47,500**
Cash inflows				
Dine-in sales	40,000	42,300	45,000	41,000
Take-out sales	32,000	35,000	40,000	37,000
Deliverfood app sales*	12,000	16,200	18,000	19,200
Total cash inflows	**84,000**	**93,500**	**103,000**	**97,200**
Cash outflows				
Cost of ingredients#	63,000	63,000	63,000	63,000
Rent	30,000	30,000	30,000	42,000
Labour costs	15,000	15,000	15,000	15,000
Advertising	3,000	3,000	3,000	3,000
Total cash outflows	**111,000**	**111,000**	**111,000**	**123,000**
Net cash flow	**(27,000)**	**(17,500)**	**(8,000)**	**(25,800)**
Closing balance	**73,000**	**55,500**	**47,500**	**21,700**

*Calculations:
Deliverfood app sales (*JVR* has a 60% share of the revenues made on Deliverfood app sales)

	Jan	Feb	Mar	Apr	May	Jun
Deliverfood app sales	20,000 × 0.6	27,000 × 0.6	30,000 × 0.6	32,000 × 0.6	34,000 × 0.6	33,000 × 0.6
JVR's portion	12,000	16,200	18,000	19,200	20,400	19,800

#Cost of ingredients:
= $70,000 × 0.9 (10% discount)
= $63,000

Top tip:
Make use of parenthesis or brackets "( )" to indicate that a number is negative in a cash flow forecast.

Laud Music Shop (LMS)

Nicole Mahida established *Laud Music Shop (LMS)*, selling a wide genre of music compact discs (CDs) and vinyl. However, with innovation and technological advancements such as music streaming websites and mobile applications, the once lucrative business of music CDs and vinyl has been severely disrupted.

Six years ago, Nicole transformed her business to sell new and used musical instruments. With 15 years of experience in the retail and music business, Nicole has developed a strong customer base ranging from individual amateur musicians to local orchestras and music departments at local schools.

To help support her application for a bank loan, she is required to create a cash flow forecast for the next four months, beginning from 1 June 2024.

Forecasted sales information (figures in US dollars $) from 1 June 2024

	Cash sales ($)	Credit sales ($)
June	30,000	11,700
July	32,000	18,000
August	37,500	14,000
September	28,000	13,800

	Amount ($)	Notes
Rent	8,000	Increases by 2% each subsequent month, starting in June
Utility bills	2,500	Payable every other month starting in July
Salaries per worker	2,000	*LMS* hired two salespeople in 2024
Advertising	**Y**	10% of monthly total cash inflow

Additional information:

- The credit sales in any given month are paid fully in cash in the following month. In May 2024, a credit sale of $10,500 was made. In June 2024, a credit sale of $11,700 was made.
- Nicole notes the cost to purchase the musical instruments is 35% of total monthly sales revenue.
- The government provides a rent subsidy of $1,500 per month in 2024 for all businesses within the music and performing arts industry to encourage its citizens to engage in musical activities.
- The closing balance on 31 May 2024 was $5,500.

(a) State the opening balance on 1 June 2024 for *LMS*. *[1 mark]*

……..

(b) Identify the amount of credit sales that *LMS* expects to collect in June 2024. *[1 mark]*

……..

(c) Using the above information, calculate the advertising cost (**figure Y**) in June 2024 for *LMS* (*show all your working*). *[2 marks]*

……..

(d) On a separate piece of paper, prepare a fully labelled cash flow forecast for *LMS* from June to September 2024 with the information presented above. *[6 marks]*

Answers

(a) State the opening balance on 1 June 2024 for *LMS*. *[1 mark]*

The closing balance of the previous month represents the opening of the current month. Thus, the closing balance on 31 May 2024 becomes the opening balance on 1 June 2024, i.e., $5,500.

(b) Identify the amount of credit sales that *LMS* expects to collect in June 2024. *[1 mark]*

The credit sales from the previous month (May) will be collected in the month of June 2024. As there is a credit sale of $10,500 in May 2024, *LMS* could expect to collect $10,500 in June 2024.

> Top tip: An explanation is not required for the above questions as the command terms are "state" and "identify." The explanations shown above are for illustrative purposes only. You will be rewarded full marks if you simply answer $5,500 and $10,500 respectively.

(c) Using the above information, calculate the advertising cost (**figure Y**) in June 2024 for *LMS* (*show all your working*). *[2 marks]*

The monthly advertising cost is 10% of monthly total cash inflow; so for June 2024:

- Total cash inflow in June 2024
- = Cash sales ($30,000) + Credit sales ($10,500) + Government rent subsidy ($1,500)
- = $42,000
- Thus, the monthly advertising cost in June 2024 = $42,000 × 0.1 = $4,200

(d) On a separate piece of paper, prepare a fully labelled cash flow forecast for *LMS* from June to September 2024 with the information presented above. *[6 marks]*

Laud Music Shop (LMS), cash flow forecast (June to September 2024)

(Canadian dollars $)	Jun	Jul	Aug	Sept
Opening balance	**5,500.00**	**16,705.00**	**25,225.00**	**46,176.80**
Cash inflows				
Cash sales	30,000.00	32,000.00	37,500.00	28,000.00
Credit sales	10,500.00	11,700.00	18,000.00	14,000.00
Rent subsidy	1,500.00	1,500.00	1,500.00	1,500.00
Total cash inflows	**42,000.00**	**45,200.00**	**57,000.00**	**43,500.00**
Cash outflows				
Purchases (see below)	14,595.00	17,500.00	18,025.00	14,630.00
Rent	8,000.00	8,160.00	8,323.20	8,489.66
Utilities		2,500.00		2,500.00
Advertising	4,000.00	4,000.00	4,000.00	4,000.00
Total cash outflows	**30,795.00**	**36,680.00**	**36,048.20**	**33,969.66**
Net cash flow	**11,205.00**	**8,520.00**	**20,951.80**	**9,530.34**
Closing balance	**16,705.00**	**25,225.00**	**46,176.80**	**55,707.14**

Calculations for purchases:

Month	Cash sales	Credit sales	Total sales	Purchase cost (35%)
June	30,000	11,700	41,700	= 41,700 x 0.35 = 14,595
July	32,000	18,000	50,000	= 50,000 x 0.35 = 17,500
August	37,500	14,000	51,500	= 51,500 x 0.35 = 18,025
September	28,000	13,800	41,800	= 41,800 x 0.35 = 14,630

Natalie's Patisserie *(NP)*

Natalie Danisova owns and manages a small boutique patisserie called *Natalie's Patisserie* (*NP*) in Paris, France. *NP* has strong brand loyalty within the local area as customers return to Natalie's patisserie for her signature cupcakes, offered in both vegan and non-vegan flavours. Her cupcakes have an average selling price of €8.50. Natalie wants to prepare a cash flow forecast to gain a better understanding of her **liquidity position**. The following are the forecasted costs and revenue information for the first five months of the year.

Forecasted sales (in Euros €)

	January	February	March	April
Number of days *NP* is opened	27 days	24 days	27 days	26 days
Number of cupcakes sold	5,000	6,500	7,750	8,000

Forecasted cash outflows:

- The cost of ingredients is 10% of the monthly sales revenue.
- The rent of the patisserie is currently €10,500.
- The lease contract for the patisserie is due to expire and the landlord has already informed Natalie that the rent will increase by 10% starting in March for 12 months.
- Electricity and water costs amount to €3,200 per month.
- Packaging costs for the cupcakes are 5% of the monthly sales revenue.
- The shop floor staff are paid hourly, and bakers are paid a monthly salary.
- On average, shop floor staff work for 10 hours a day.

Staffing information (per month):

	Shop floor staff	Bakers
Payment method	Wages	Salary
Number of staff	2	3
Payment amount	€22.70 per hour	€1,620 per month

Other financial information:

- A tax refund from the previous tax year, totalling €2,300, will be paid in two equal installments in January and March
- The opening balance on 1 January is €7,500.

(a) Describe the meaning of a firm's "liquidity position". *[2 marks]*

……

……

(b) Suppose *NP* decides to purchase a new oven for its shop in June. Explain **one** impact of this investment decision on *NP's* cash flow. *[2 marks]*

……

……

(c) On a separate sheet of paper and using the information above, prepare a fully labelled cash-flow forecast for *NP* from January to May. *[6 marks]*

Answers

(a) Describe the meaning of a firm's "liquidity position". *[2 marks]*

A firm's liquidity position refers to its ability to meet its short-term financial obligations with its available liquid assets, i.e., cash at the bank, debtors, and stocks (inventories). It is a measure of how easily a business can convert its assets into cash to cover its immediate liabilities.

(b) Suppose *NP* decides to purchase a new oven for its shop in June. Explain **one** impact of this investment decision on *NP's* cash flow. *[2 marks]*

Purchasing a new oven is considered as an investment (capital expenditure) on a non-current asset for *NP*. As this is likely to be a one-off expenditure (e.g., *NP* does not purchase a new oven on a regular basis), *NP* will experience a more significant cash outflow in the month of June compared to other months. This is likely to bring the closing balance to a lower amount or even negative figure/balance during the month of purchase.

(c) On a separate sheet of paper and using the information above, prepare a fully labelled cash-flow forecast for *NP* from January to May. *[6 marks]*

Cash flow forecast for *Natalie Patisserie (NP),* January to May 20XX

(Euros, €)	Jan	Feb	Mar	Apr
Opening balance	**5,500.00**	**16,705.00**	**25,225.00**	**46,176.80**
Cash inflows				
Sales revenue	42,500	55,250	65,875	68,000
Tax refund	1,150	---	1,150	---
Total cash inflows	**43,650**	**55,250**	**67,025**	**68,000**
Cash outflows				
Cost of ingredients	4,250.00	5,525.00	6,587.50	6,800.00
Rent	10,500.00	10,500.00	11,550.00	11,550.00
Electricity and water	3,200.00	3,200.00	3,200.00	3,200.00
Wages (shopfloor staff)	12,258.00	10,896.00	12,258.00	11,804.00
Salaries (bakers)	4,860.00	4,860.00	4,860.00	4,860.00
Packaging cost	2,125.00	2,762.50	3,293.75	3,400.00
Total cash outflows	**37,193.00**	**37,743.50**	**41,749.25**	**41,614.00**
Net cash flow	**6,457.00**	**17,506.50**	**25,275.75**	**26,386.00**
Closing balance	**13,957.00**	**31,463.50**	**56,739.25**	**83,125.25**

Roach Country Club *(RCC)*

The *Roach Country Club* (*RCC*) was opened by a multi-millionaire and golf player, Bryan Roach. Located in the suburbs of Brisbane, Australia, Bryan liaises with other businesses to hold regional and national golf tournaments at *RCC*. Bryan was recently able to secure a contract with a local golf competition organizer, *Golf Rocks* (*GR*), to allow professional golf players to practise at *RCC* for free. In return, *GR* would provide sponsorship worth $400,000 paid in equal cash installments from September to October 2024. Club membership fees at *RCC* will rise for the period July to October 2024, as shown below:

	Jul	Aug	Sept	Oct
Club membership fee	$200,000	$230,000	$320,000	$350,000

RCC's merchandise sales are projected to increase by 5% month on month. The sales revenue from merchandise in July 2024 was $150,000. Bryan started preparing the cash flow forecast from July to Dec 2024, but had only completed the cash outflow section for July and August as shown below. The opening balance in July 2024 was $105,000. Bryan also provided additional information below on changes to the forecasted cash outflow items from September to December 2024.

Cash outflow	July	August	Notes on changes to cash outflow figures from September to December 2024
Rent	250,000	250,000	Rent remains the same
Marketing	15,000	15,000	Increases by $5,000 every month
Administration	20,000	20,000	Increases by 20% each month, starting in August
Staff salaries	90,000	90,000	In September 2024, *RCC* plans to hire 2 additional staff, each with a salary of $3,000 per month
Maintenance	8,000	8,000	*RCC* plans to buy new equipment, which will double the maintenance cost starting from September 2024
Equipment	13,000	13,000	Increases to $30,000 per month and stays the same
Total outflow	**396,000**	**396,000**	

(a) Distinguish between the terms opening balance and closing balance. *[2 marks]*

……..

……..

……..

(b) Calculate the monthly cash installment provided by *GR* to *RCC* beginning from September 2024 (*show all your working*). *[2 marks]*

……..

……..

(c) Calculate the additional cash outflow as a result of *RCC* hiring 2 additional staff (*no working required*). *[1 mark]*

……..

(d) Use a separate piece of paper to prepare a monthly cash flow forecast for *RCC*, from July to October 2024 by using the information presented above. *[6 marks]*

Answers

(a) Distinguish between the terms opening balance and closing balance. *[2 marks]*

The opening balance refers to the cash that a business has at the *beginning* of any month in the year. By contrast, the closing balance represents the cash that the business has at the *end* of any trading month in the year. These two figures are used to calculate the net cash flow in the same corresponding month.

(b) Calculate the monthly cash installment provided by *GR* to *RCC* beginning from September 2024 (*show all your working*). *[2 marks]*

Since *GR* will provide *RCC* with a sponsorship deal as a lump-sum amount of $400,000 paid in equal cash installments from September to December 2024 (4 months), the monthly cash installment received by *RCC* will be $100,000 (i.e., $400,000 / 4 months). This is classified as a cash inflow for *RCC* when constructing the cash flow forecast.

(c) Calculate the additional cash outflow as a result of *RCC* hiring 2 additional staff (*no working required*). *[1 mark]*

Each staff member will be paid a salary of $3,000 per month and there are two additional staff who are going to be hired, so the additional cash outflow = $6,000 per month.

(d) Use a separate piece of paper to prepare a monthly cash flow forecast for *RCC*, from July to October 2024 by using the information presented above. *[6 marks]*

Cash flow forecast for Roach Country Club, (July to Oct 2024)

(Australian dollars $)	Jul	Aug	Sept	Oct
Opening balance	**105,000**	**59,000**	**50,500**	**199,875**
Cash inflows				
Club membership fee	200,000	230,000	320,000	350,000
Sponsorship			100,000	100,000
Merchandise*	150,000	157,500	165,375	173,644
Total cash inflows	**350,000**	**387,500**	**585,375**	**623,644**
Cash outflows				
Rent	250,000	250,000	250,000	250,000
Marketing	15,000	15,000	20,000	25,000
Administration	20,000	20,000	24,000	28,800
Staff salaries	90,000	90,000	96,000	96,000
Maintenance	8,000	8,000	16,000	16,000
Equipment	13,000	13,000	30,000	30,000
Total cash outflows	**396,000**	**396,000**	**436,000**	**445,800**
Net cash flow	**(46,000)**	**(8,500)**	**149,375**	**177,844**
Closing balance	**59,000**	**50,500**	**199,875**	**377,719**

*Merchandise (5% from the previous month, with merchandise sales revenue in July 2024 at $150,000)

	Jul	Aug	Sept	Oct
Merchandise	$150,000	$150,000 × 1.05	$157,500 × 1.05	$165,375 × 1.05
After 5% increase	---	$157,500	$165,375	$173,644

Caleb's Accessories (CA)

Caleb's Accessories (CA) is a men's accessories and jewellery brand that operates as a partnership between three partners, Caleb, Matthew, and Chris. *CA* was established in January 2023. The partners are seeking a bank loan to launch their new accessory line. In preparation for this, Caleb, the finance partner, has prepared a cash flow forecast for the first four months of 2024.

Cash flow forecast for *CA*, for the period January to April 2024

(figures in $)	Jan	Feb	Mar	Apr
Opening balance	**2,000**	**2,170**	**2,820**	**X**
Cash inflows				
Cash sales	600	600	600	600
Credit sales (Note 1)	---	1,000	1,000	1,000
Total cash inflows	**1,000**	**1,600**	**1,600**	**1,600**
Cash outflows				
Rent (Note 2)			9,000	
Partners' drawings	400	400	400	400
Utilities	150	150	150	150
Interest payment	30	30	30	30
Promotion	200	200	200	200
Labour cost	50	50	50	50
Raw material cost		120		120
Total cash outflows	**830**	**950**	**9,830**	**950**
Net cash flow	**170**	**650**	**(8,230)**	**650**
Closing balance	**2,170**	**2,820**	**(5,410)**	**Y**

Notes:
1. *CA*'s credit sale accounts for 62.5% of its total sales revenue per month.
2. *CA* rents its current premises and has been paying its quarterly rents on time.

(a) Complete the cash flow forecast by calculating **figures X and Y**. *[2 marks]*

……

(b) Comment on the cash flow for *CA* for the period January to April 2024. *[2 marks]*

……

……

(c) Explain **one** difference between cash sales and credit sales. *[2 marks]*

……

……

(d) Explain **two** possible ways to improve *CA*'s cash flow position. *[4 marks]*

……

……

……

……

Worksheet 39
3.7 Cash Flow (6)

Answers

(a) Complete the cash flow forecast by calculating **figures X and Y**. *[2 marks]*

- Figure X (the opening balance for April) is the same as the ending/closing balance from the previous month (March). Thus, Figure X = ($5,410), i.e., a negative opening balance of $5,410.
- Figure Y (the closing balance for April) = Opening balance (April) + (Total cash inflows – Total cash outflows)
- = -$5,410 + ($1,600 – $950)
- = ($4,760), i.e., a negative closing balance of $4,760.

(b) Comment on the cash flow for *CA* for the period January to April 2024. *[2 marks]*

The cash flow forecast indicates a deteriorating trend in *CA's* cash flow position with a negative closing balance at the end of April 2024. Despite positive closing balances in January and February, the overall trend of *CA's* cash flow is worsening, particularly in March, where the net cash flow is a staggering negative outflow of $8,230. This is mainly due to a large cash outflow for the quarterly rent payment of $9,000. This is concerning given that *CA* has already been in operation for one year (since January 2023).

(c) Explain **one** difference between cash sales and credit sales. *[2 marks]*

One difference between cash and credit sales is that the former refers to the receipt of cash from the sale of goods/services at the time the transaction occurs. By contrast, a credit sale refers to the accrual of sales revenue for the sale of goods/services. With a credit sale, the business does not receive the physical cash at the time of transaction; rather it receives the cash after a certain period (usually 30 to 60 days) from when the transaction occurred.

(d) Explain **two** possible ways to improve *CA*'s cash flow position. *[4 marks]*

Possible ways to improve *CA's* cash flow position could include:

- Method 1 = improve cash inflows
- Methods 2, 3, and 4 = reduce cash outflows

Method	Evidence (reason)	Explanation
1. Tighter credit control	• CA's credit sales account for 62.5% of its monthly sales revenue, which is relatively high.	• By tightening credit control, this encourages *CA's* customers to pay sooner, which helps the firm to improve its cash flow position.
2. Renegotiate rent	• The current rent payment of $9,000 in March is a significant cash outflow for *CA* in a single month.	• Given that *CA* has a good payment record/history with the landlord, it may be possible to renegotiate the payment of rents in equal installments. This would mean the cash outflow per month will be $3,000 rather than a single lump-sum payment of $9,000 in March which has significantly drained *CA's* net cash flow.
3. Limit or reduce partners' drawings	• The current partners' drawings (withdrawal of cash) accounts for the second largest cash outflow for *CA*.	• By limiting each partner's drawings, this could reduce the cash outflow for the *CA*, allowing the firm to preserve the much-needed cash. *CA* will also need sufficient cash as it is planning to launch a new product line, hence it would be sensible for the partners to reduce their drawings to maintain the sustainability of the business.
4. Negotiate with suppliers for preferential trade credit terms	• Currently, *CA* pays its suppliers for raw materials every other month. • This amount represents the third largest outflow for *CA*.	• By negotiating with suppliers for preferential credit terms, this could allow *CA* to spread its payments over a longer period of time. • The success of this will depend on the relationship that *CA* has with its suppliers.

Chunny's Fitness Club (CFC)

Chunny's Fitness Club (CFC) is a health and fitness company founded by Chunny. Currently, he operates four fitness centres in Toronto, Canada. A recent report indicated that with property prices in the Greater Toronto Area, many working professionals are moving to Calgary, Alberta where the cost of living is lower. Chunny sees prospective market growth in Calgary and is considering pursuing a market development strategy by opening his first fitness centre in Calgary. The estimated annual cost of the new fitness centre includes rent ($150,000), salaries ($120,000), and miscellaneous items ($70,000). *CFC* wants to appeal to customers by installing new virtual reality (VR) fitness equipment in the new centre. There are two machines that *CFC* is considering purchasing for this purpose:

Table 1: Cost information for the two VR machines

	Machine 1: PumpIt	**Machine 2: BeastMode**
Cost	$500,000	$570,000
Maintenance cost	$12,500 every two years, starting in the first year	$13,200 every two years, starting in the first year

Table 2: Estimated annual revenue per year (in $'000)

Year	**PumpIt**	**BeastMode**
1	430	480
2	570	590
3	640	690
4	785	730

(a) Calculate the total net returns for *CFC* from *PumpIt* (show all your working). *[2 marks]*

……

……

(b) Calculate the total net returns for *CFC* from *BeastMode* (show all your working). *[2 marks]*

……

……

(c) Calculate the payback period of *PumpIt* and *BeastMode* (show all your working). *[4 marks]*

……

……

……

(d) Using your results in part (a) and (b), calculate the average rate of return (ARR) of *PumpIt* and *BeastMode* (show all your working). *[4 marks]*

……

……

……

Answers

(a) Calculate the total net returns for *CFC* from *PumpIt* (show all your working). *[2 marks]*

Year	Projected cash flow ($)	Annual cost ($)	Maintenance cost ($)	Annual net cash flow ($)
1	430,000	340,000	12,500	77,500
2	570,000	340,000	---	230,000
3	640,000	340,000	12,500	287,500
4	785,000	340,000	---	445,000

Thus, the total net returns = 77,500 + 230,000 + 287,500 + 445,000 = **$1,040,000**

(b) Calculate the total net returns for *CFC* from *BeastMode* (show all your working). *[2 marks]*

Year	Projected cash flow ($)	Annual cost ($)	Maintenance cost ($)	Annual net cash flow ($)
1	480,000	340,000	13,200	126,800
2	590,000	340,000	---	250,000
3	690,000	340,000	13,200	336,800
4	730,000	340,000	---	390,000

Thus, the total net returns = 126,800 + 250,000 + 336,800 + 390,000 = **$1,103,600**

(c) Calculate the payback period of *PumpIt* and *BeastMode* (show all your working). *[4 marks]*

	PumpIt		*BeastMode*	
Year	Annual cash inflow ($)	Cumulative cash inflow ($)	Annual cash inflow ($)	Cumulative cash inflow ($)
1	77,500	77,500	126,800	126,800
2	230,000	307,500	250,000	376,800
3	287,500	595,000	336,800	713,600
4	445,000	1,040,000	390,000	1,103,600

	PumpIt	*BeastMode*
Cost remaining to cover	= 500,000 – 307,500 = $192,500	= 570,000 – 376,800 = $193,200
Number of months	= 192,500 / (287,500 / 12) = 8.03 months	= 193,200 / (336,800 / 12) = 6.99 months

- Payback period (PumpIt) = 2 years and 8.03 (or 8) months; accept 2 years and 9 months
- Payback period (BeastMode) = 2 years and 6.99 (or 7) months

(d) Using your results in part (a) and (b), calculate the average rate of return (ARR) of *PumpIt* and *BeastMode* (show all your working). *[4 marks]*

- ARR_{PumpIt} = [(Total returns – Capital cost) / Years of use] / Capital cost × 100
- = [(1,040,000 – 500,000) / 4] / 500,000 × 100
- = (135,000 / 500,000) × 100
- = **27%**

- $ARR_{BeastMode}$ = [(Total returns – Capital cost) / Years of use] / Capital cost × 100
- = [(1,103,600 – 570,000) / 4] / 570,000 × 100
- = (133,400 / 570,000) × 100
- = **23.40%** (2 decimal places)

Freyre Fries *(FF)*

Freyre Fries (*FF*) is a snack shop, opened by Maxime Freyre in the city of Toulouse, France. *FF* specializes in a variety of French snacks, such as macarons, crepes, croissants, and baguettes. As part of its primary research, *FF* recently found the following from a focus group:

- Customers have complained about long queues at *FF.*
- The quality of the French fries has been deteriorating. One customer commented "the fries are getting more and more soggy during my repeat purchases".

To address these problems, Maxime has decided to upgrade the frying machines. After conducting extensive research, he shortlisted two possible frying machines that *FF* could purchase.

Frying Machine 1: Fast Fryer
- Cost €75,000
- Annual repair cost of €1,500

Frying Machine 2: Quick Fry
- Cost €88,000
- Bi-annual repair cost of €1,200, starting in Year 1

Table 1: Estimated annual return (total revenue) per year for each machine (in €)

	Year 1	Year 2	Year 3	Year 4	Year 5
Fast Fryer	21,500	21,500	21,500	21,500	21,500
Quick Fry	26,200	28,500	34,450	35,000	39,000

(a) Define the term *investment appraisal*. *[2 marks]*

……

……

(b) Using the above information, calculate the **total** net return from investing in the Fast Fryer (*show all your working*). *[2 marks]*

……

……

(c) Using your result from **part (b)**, calculate the payback period of the Fast Fryer machine for *FF* (*show all your working*). *[2 marks]*

……

……

(d) Using the above costs information, calculate the payback period for the Quick Fry machine for *FF* (*show all your working*). *[2 marks]*

……

……

(e) Using the above information, calculate the average rate of return (ARR) of the Quick Fry machine for *FF* (*show all your working*). *[2 marks]*

……

……

Answers

(a) Define the term *investment appraisal*. *[2 marks]*

Investment appraisal refers to a quantitative technique used to assess the profitability of an investment project. There are three types of investment appraisal methods, namely payback period, average rate of return, and net present value (NPV).

(b) Using the above information, calculate the **total** net return from investing in the Fast Fryer (*show all your working*). *[2 marks]*

Year	Projected cash flow (€)	Repair cost (€)	Annual net cash flow (€)
1	21,500	1,500	20,000
2	21,500	1,500	20,000
3	21,500	1,500	20,000
4	21,500	1,500	20,000
5	21,500	1,500	20,000

Thus, the total net returns = (€20,000 × 5) = €100,000

(c) Using your result from **part (b)**, calculate the payback period of the Fast Fryer machine for *FF* (*show all your working*). *[2 marks]*

- Since the annual net cash flow is identical, the following formula can be used to calculate the payback period:
- Payback period (PBP) = Initial investment cost / Annual cash flow from investment
- = €75,000 / €20,000
- = 3.75 years = 3 years and 9 months.

(d) Using the above costs information, calculate the payback period for the Quick Fry machine for *FF* (*show all your working*). *[2 marks]*

Year	Projected cash flow (€)	Repair cost (€)	Annual net cash flow (€)	Cumulative cash inflow (€)
1	26,200	1,200	25,000	25,000
2	28,500	---	28,500	53,500
3	34,450	1,200	33,250	86,750
4	35,000	---	35,000	121,750
5	39,000	1,200	37,800	159,550

- Cost remaining to cover in Year 4 = €88,000 – €86,750 = €1,250
- Number of months = €1,250 / (€35,000 / 12) = 0.4286 months
- Thus, the PBP for one Quick Fry machine is 3 years and 0.43 months (or 3 years and 1 month).

(e) Using the above information, calculate the average rate of return (ARR) of the Quick Fry machine for *FF* (*show all your working*). *[2 marks]*

- ARR (%) = [(Total returns – Capital cost) / Years of use] / Capital cost × 100
- = [(159,550 – 88,000) / 5] / 88,000 × 100
- = (14,310 / 88,000) × 100
- = 16.26%

Andrew's Anime Book Shop (AAB)

Andrew Kwong is an electronics engineer but also an avid anime artist. Whilst working as a full-time engineer, Andrew continued to pursue his dream as an anime artist during his spare time. Three years ago, with his personal savings and a bank loan, he opened *Andrew's Anime Bookshop* (*AAB*).

A unique selling point (USP) of *AAB* is that the anime books are printed and bounded in the bookshop *after* customers view the digital sample of the anime book. However, Andrew would now like to replace the printing machine. After conducting some research, he is deciding between the following two machines.

Machine A costs $450,000 **Machine B** costs $520,000

Table 1: Estimated annual net cash flow from each machine (in $)

Year	Machine A	Machine B
1	70,000	120,000
2	95,000	135,000
3	105,500	140,500
4	130,000	150,800
5	205,500	145,700

(a) Other than personal savings, state **two** other internal sources of finance for *AAB*. *[2 marks]*

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(b) Using **Table 1**, calculate the payback period for Machine A (*show all your working*). *[2 marks]*

……

……

(c) Using **Table 1**, calculate the payback period for Machine B (*show all your working*). *[2 marks]*

……

……

(d) Using **Table 1**, calculate the average rate of return (ARR) for Machine A (*show all your working*). *[2 marks]*

……

……

(e) Using **Table 1**, calculate the average rate of return (ARR) for Machine B (*show all your working*). *[2 marks]*

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……

Answers

(a) Other than personal savings, state **two** other internal sources of finance for *AAB*. *[2 marks]*

Other possible internal sources of finance could include:
- Sale or disposal of unused non-current assets.
- Retained profit (from the previous fiscal year) – this is possible given *AAB* has already been trading for the past 3 years.

(b) Using **Table 1**, calculate the payback period for Machine A (*show all your working*). *[2 marks]*

Year	Annual cash inflow ($)	Cumulative cash inflow ($)
1	70,000	70,000
2	95,000	165,000
3	105,500	270,500
4	130,000	400,500
5	205,500	606,000

- Costs to cover (shortfall) = Cost of investment – Cumulative cash flow (as at end of Year 4)
- = $450,000 – $400,500
- = $49,500
- Number of months = Cost remaining to cover / (Annual cash inflow in Year 5 ÷ 12 months)
- = $49,500 / ($205,500 / 12)
- = 2.89 months
- Hence, the PBP for Machine A = 4 years and 2.89 months (or 4 year and 3 months).

(c) Using **Table 1**, calculate the payback period for Machine B (*show all your working*). *[2 marks]*

Year	Annual cash inflow ($)	Cumulative cash inflow ($)
1	120,000	120,000
2	135,000	255,000
3	140,500	395,500
4	150,800	546,300
5	145,700	692,000

- Costs to cover = Cost of investment – Cumulative cash flow (as at end of Year 3)
- = $520,000 – $395,500
- = $124,500
- Number of months = Cost remaining to cover / (Annual cash inflow in year 5 ÷ 12 months)
- = $124,500 / ($150,800 / 12)
- = 9.91 months
- Hence, the PBP for Machine B = 3 years and 9.91 months (or 3 years and 10 months).

(d) Using **Table 1**, calculate the average rate of return (ARR) for Machine A (*show all your working*). *[2 marks]*

- ARR = [(Total returns – Capital cost) / Years of use] ÷ Capital cost × 100
- = [($606,000 – $450,000) / 5] ÷ $450,000 × 100
- = ($31,200 / $450,000) × 100
- = 6.93% (2 decimal places).

(e) Using **Table 1**, calculate the average rate of return (ARR) for Machine B (*show all your working*). *[2 marks]*

- ARR = [(Total returns – Capital cost) / Years of use] ÷ Capital cost × 100
- = [($692,000 – $520,000) / 5] ÷ $520,000 × 100
- = ($34,400 / $520,000) × 100
- = 6.62% (2 decimal places)

Chan-san Ramen Bar (CRB)

Chan-san Ramen Bar (*CRB*) is a new restaurant in Toronto, Canada. Opened by Clifford Chan, this Japanese noodle dish restaurant specializes in tonkotsu broth ramen. *CRB* has reached capacity in its current location with an average of 1-hour wait time on any typical day.

Clifford wants to free up some of the current space used in his kitchen to make the noodles and install bar tables allowing customers to eat in "tachinomi style" (a Japanese term for standing bars). The restaurant will still make noodles in-house, but by using a specialized ramen noodle making machine. Clifford is deciding between two different machines to invest in.

Table 1: Cost and expected net cash flows for the ramen noodle machines (in Canadian $)

Information	Machine 1	Machine 2
Cost of machine	$320,000	$380,000
Set-up costs	$5,000	$3,500
Maintenance costs (per year)	$1,000 (increasing by 5% per year)	$800 (increasing by 8% per year)

Year	Machine 1	Machine 2	Discount Factor (10%)
1	80,500	105,000	0.9091
2	105,600	110,000	0.8264
3	110,000	130,000	0.7513
4	125,500	145,800	0.6830
5	138,000	149,000	0.6909

(a) Describe the meaning of *discounted cash flows*. *[2 marks]*

……

……

(b) State **two** key pieces of information needed when applying the net present value technique in an investment appraisal. *[2 marks]*

……

(c) Using **Table 1** and the discount factors provided, calculate the net present value (NPV) for Machine 1 (*show all your working*). *[2 marks]*

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(d) Calculate the net present value (NPV) for Machine 2 (*show all your working*). *[2 marks]*

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(e) Based on quantitative grounds, identify which machine *CRB* should invest in. *[1 mark]*

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Answers

(a) Describe the meaning of *discounted cash flows*. *[2 marks]*

Discounted cash flows can be described as the amount of money received by a business in the future after considering the time value of money. The process of time value of money brings the future estimated cash flow to the value in the present day by applying a discount rate/factor.

(b) State **two** key pieces of information needed when applying the net present value technique in an investment appraisal. *[2 marks]*

Two key pieces of information are needed:

- A discount rate (or discount factor) expressed as a percentage figure.
- The expected number of years for the project or investment.

(c) Using **Table 1** and the discount factors provided, calculate the net present value (NPV) for Machine 1 (*show all your working*). *[2 marks]*

Year	Projected cash flow ($)	Set-up costs ($)	Maintenance cost ($)	Annual net cash flow ($)	Discount factor	Present value ($)
1	80,500	5,000	1,000.00	74,500.00	0.9091	67,727.95
2	105,600	---	1,050.00	104,550.00	0.8264	86,400.12
3	110,000	---	1,102.50	108,897.50	0.7513	81,814.69
4	125,500	---	1,157.63	124,342.37	0.6830	84,925.84
5	138,000	---	1,215.51	136,784.49	0.6909	94,504.41
						415,373.01

- NPV (Machine 1) = Sum of PV – Initial cost of investment
- = $415,373.01 – $320,000
- = $95,373.01

(d) Calculate the net present value (NPV) for Machine 2 (*show all your working*). *[2 marks]*

Year	Projected cash flow ($)	Set-up costs ($)	Maintenance cost ($)	Annual net cash flow ($)	Discount factor	Present value ($)
1	105,000	3,500	800.00	100,700.00	0.9091	91,546.37
2	110,000		864.00	109,136.00	0.8264	90,189.99
3	130,000		933.12	129,066.88	0.7513	96,967.95
4	145,800		1,007.77	144,792.23	0.6830	98,893.09
5	149,000		1,088.39	147,911.61	0.6909	102,192.13
						479,789.53

- NPV (Machine 2) = Sum of PV – Initial cost of investment
- = $479,789.53 – $380,000
- = $99,789.53

(e) Based on quantitative grounds, identify which machine *CRB* should invest in. *[1 mark]*

Since the NPV for Machine 2 ($479,789.53) is greater than the NPV for Machine ($415,373.01) *CRB* should invest in Machine 2. This is because the NPV for Machine 2 exceeds that of Machine B by $4,406.52.

Top tip: When asked to identify which project the business should pursue, there is no need to show the calculations or to explain the reasoning; these have been included above for illustrative purposes.

Jacky's Art Studio (JAS)

Jacky Lam is a renowned artist based in New York. He has won international prizes and competitions for his artwork, which features his unique style of depicting ideas in life. Jacky's talent and fame allowed him to set up *Jacky's Art Studio* (*JAS*), attracting like-minded artists who want to attend Jacky's master classes.

With Jacky's master classes growing in popularity, he is considering running additional classes as more art students from abroad travel to New York during the Christmas and summer holidays to attend his classes. However, Jacky is restricted by the capacity of having only one paint mixer machine, so the number of classes that he can run is also limited. He is considering whether to invest in a new paint mixer, which will allow him to take on additional students at his art studio.

Table 1: Costs and expected cash flows for paint mixer machines (in US dollars)

Year	Paint mixer 1 ($) Cost = 500,000	Paint mixer 2 ($) Cost = 650,000	Discount factor (6%)	Discount factor (8%)
1	90,500	105,500	0.9434	0.9259
2	103,400	155,000	0.8900	0.8573
3	136,500	178,500	0.8396	0.7938
4	140,000	180,700	0.7921	0.7350
5	152,200	199,000	0.7473	0.6806

(a) Using **Table 1**, calculate the net present value (NPV) of Paint mixer 1 by using a discount factor of 6%. *[2 marks]*

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(b) Using **Table 1**, calculate the NPV of Paint mixer 1 by using a discount factor of 8%. *[2 marks]*

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(c) From your calculations in **part (a)** and **(b)**, state the discount factor that Jacky should choose. *[1 mark]*

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(d) Using **Table 1**, calculate the NPV of Paint mixer 2 by using a discount factor of 6%. *[2 marks]*

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(e) Explain **two** advantages of using the NPV method of investment appraisal. *[4 marks]*

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Answers

(a) Using **Table 1**, calculate the net present value (NPV) of Paint mixer 1 by using a discount factor of 6%. *[2 marks]*

Year	Projected cash flow ($)	Discount factor	Present value ($)
1	90,500	0.9434	85,377.70
2	103,400	0.8900	92,026.00
3	136,500	0.8396	114,605.40
4	140,000	0.7921	110,894.00
5	152,200	0.7473	113,739.06

NPV (Paint mixer 1) = Sum of PV – Initial cost of investment = $516,642.16 – $500,000 = **$16,642.16**

(b) Using **Table 1**, calculate the NPV of Paint mixer 1 by using a discount factor of 8%. *[2 marks]*

Year	Projected cash flow ($)	Discount factor	Present value ($)
1	90,500	0.9259	83,793.95
2	103,400	0.8573	88,644.82
3	136,500	0.7938	108,353.70
4	140,000	0.735	102,900.00
5	152,200	0.6806	103,587.32

NPV (Paint mixer 1) = Sum of PV – Initial cost of investment = $487,279.79 – $500,000 = **($12,720.21)**

(c) From your calculations in **part (a)** and **(b)**, state the discount factor that Jacky should choose.

By using a discount factor of 6%, the paint mixer machine will yield a positive NPV figure of $16,642.16 whilst a discount factor of 8% will yield a negative NPV figure. Hence, Jacky should choose 6% as the discount factor if there is an intention of purchase a paint mixer.

(d) Using **Table 1**, calculate the NPV of Paint mixer 2 by using a discount factor of 6%. *[2 marks]*

Year	Projected cash flow ($)	Discount factor	Present value ($)
1	105,500	0.9434	99,528.70
2	155,000	0.8900	137,950.00
3	178,500	0.8396	149,868.60
4	180,700	0.7921	143,132.47
5	199,000	0.7473	148,712.70

NPV (Paint mixer 2) = Sum of PV – Initial cost of investment = $679,192.47 – $650,000 = **$29,192.47**

(e) Explain **two** advantages of using the NPV method of investment appraisal. *[4 marks]*

Possible advantages include:

- It considers the future net cash flows (earnings) expressed in today's value, which is more relevant for comparisons between different investment projects.
- It discounts the future value of net cash flows, which is more accurate than payback period and average rate of return (ARR) as those methods do not consider of the time value of money. After all, money tends to lose its value over time.
- It allows for easy and objective comparisons between projects by considering the absolute and real value of the projected future earnings of each option/project under consideration.

Teddy's Place (TP)

Teddy's Place (*TP*) is a manufacturer and retailer based in Malaysia that sells stuffed teddies and animals (plush toys). Founded by Nicholas Man, *TP's* mission statement is *"Commitment to building long lasting memories for children."*

TP uses franchising to expand its network of retail shops outside of Malaysia. The firm forecasts an increase in demand across its franchised retailers but is currently limited by the productive capacity of its factory in Penang. As such, *TP* is considering the following investment options to increase the firm's productive capacity. For both machines, there is a mandatory annual inspection cost of 2,500 Malaysian ringgits (around US$530). The scrap value represents the estimated value of each machine after the projected useful life of 4 years. *TP* uses a 10% discount factor.

Table 1: Cost and revenue data, in Malaysian ringgit ('000 MYR)

Year	Machine A Cost = 200	Machine B Cost = 235	Discount factor (10%)
1	30	25	0.9091
2	55	57	0.8264
3	78	95	0.7513
4	92	135	0.6830
Scrap value	40	35	

(a) Students of Int school of Prague Burešová, outline the meaning of term *scrap value*. *[2 marks]*

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(b) Using **Table 1**, calculate the net present value (NPV) for Machine A. *[2 marks]*

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(c) Using **Table 1**, calculate the net present value (NPV) for Machine B. *[2 marks]*

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(d) Using the NPV figures calculated in **part (b)** and **part (c)**, identify which machine *TP* should invest in so as to increase its productive capacity. *[1 mark]*

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(e) Outline **two** disadvantages of using the NPV method of investment appraisal. *[4 marks]*

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Answers

(a) Outline the meaning of term *scrap value*. *[2 marks]*

Also known as the **residual value**, this term refers to the net value or net worth of a physical asset when it reaches the end of its useful life, i.e., when the asset is deemed no longer usable for production purposes.

(b) Using **Table 1**, calculate the net present value (NPV) for Machine A. *[2 marks]*

Year	Projected cash flow (MYR)	Annual inspection cost (MYR)	Net cash flow (MYR)	Discount factor	Present value (MYR)
1	30,000	2,500	27,500	0.9091	25,000.25
2	55,000	2,500	52,500	0.8264	43,386.00
3	78,000	2,500	75,500	0.7513	56,723.15
4	92,000	2,500	89,500	0.6830	61,128.50
Scrap	40,000	---	40,000	0.6830	27,320.00

NPV (Machine A) = Sum of PV – Initial cost of investment = 213,557.90 – 200,000 = **MYR 13,557.90**

Top tip: When discounting the scrap (residual) value, you must use the same discount factor from the final year of the useful life of the asset, i.e., Year 4 in this case.

(c) Using **Table 1**, calculate the net present value (NPV) for Machine B. *[2 marks]*

Year	Projected cash flow (MYR)	Annual inspection cost (MYR)	Net cash flow (MYR)	Discount factor	Present value (MYR)
1	25,000	2,500	22,500	0.9091	20,454.75
2	57,000	2,500	54,500	0.8264	45,038.80
3	95,000	2,500	92,500	0.7513	69,495.25
4	135,000	2,500	132,500	0.6830	90,497.50
Scrap	35,000	---	35,000	0.6830	23,905.00

NPV (Machine B) = Sum of PV – Initial cost of investment = 249.391.30 – 235,000 = **MYR 14,391.30**

(d) Using the NPV figures calculated in **part (b)** and **part (c)**, identify which machine *TP* should invest in so as to increase its productive capacity. *[1 mark]*

TP should invest in Machine B as the NPV figure (MYR 14,391.30) is positive and higher than the NPV figure of Machine A at MYR 13,557.90 (although only by a small margin of MYR 833.40 or around USD175).

(e) Outline **two** disadvantages of using the NPV method of investment appraisal. *[4 marks]*

Possible disadvantages of using the NPV method of investment appraisal include:

- The discount factor could be affected by changes in inflation and/or interest rates in the future; thus, it is very difficult for *TP* to determine an accurate discount factor over the next 4 years.
- The projected cash flows are based on estimates and do not take into account any possible changes in the external environment, such as changes in the demand for plush toys.
- It can be rather tedious to calculate, yet the forecasted figures may not even materialise in the future.

Las Vegas Grand Prix (LVGP)

The Fédération Internationale de l'Automobile (FIA), which is the governing body of motor sports around the world, announced in early 2022 that the Las Vegas Grand Prix (*LVGP*) would make its return in the Formula 1 (F1) race season in 2023 for the first time since the 1980s. Apart from Austin and Miami, this will be the third Grand Prix to take place in the United States.

The *LVGP* is a street circuit where professional motorists race at night, including the opportunity to race along part of the famous Las Vegas Strip, which comprises of renowned landmarks, casinos, and hotels at a staggering speed of 212 mph within a 3.8-mile track. To ensure the circuit was ready for the race in November 2023, authorities began investment and construction for the 3.8-mile race track. *Liberty Media* (*LM*), which is F1's owner, recently purchased a $240 million plot of land to build a pit lane, pit building, and a paddock complex in preparation for the race.

The cost and revenue data for this investment, which was estimated to have a lifespan of 3 years, are shown in the table below.

Table 1: Cost and revenue data for the *LVGP* upgrade, in millions of US dollars.

Year	Land	Pit Lane	Pit Building	Paddock Complex	Discount factor (8%)
Cost ($m)	240	250	210	300	---
2023	300	100	252	177	0.9259
2024	180	80	358	153	0.8573
2025	125	50	210	130	0.7938

Other annual costs:

- An annual $10m for repairs and maintenance for the pit lane.
- Set-up costs totalling $2m for the pit building and paddock complex for the first season.

(a) Calculate the net forecasted returns from the pit lane, pit building, and paddock complex (*show all your working*). *[6 marks]*

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(b) Calculate the net present value (NPV) for the entire *LVGP* upgrade. *[4 marks]*

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(c) Comment on your net present value result from **Question (b)**. *[2 marks]*

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Answers

Sources: https://www.f1lasvegasgp.com/ and https://racingnews365.com/ f1-pays-huge-fee-for-real-estate-as-new-grand-prix-plans-ramp-up

(a) Calculate the net forecasted returns from the pit lane, pit building, and paddock complex (*show all your working*). *[6 marks]*

Pit Lane (figures in $m):

Year	Est. return	Annual repair cost	Set-up cost	Net return
2023	100	(10)	(2)	88
2024	80	(10)	---	70
2024	50	(10)	---	40

Pit Building (figures in $m):

Year	Est. return	Annual repair cost	Set-up cost	Net return
2023	252	(10)	(2)	240
2024	358	(10)	---	348
2024	210	(10)	---	200

Paddock Complex (figures in $m):

Year	Est. return	Annual repair cost	Set-up cost	Net return
2023	177	(10)	(2)	165
2024	153	(10)	---	143
2024	130	(10)	---	120

(b) Calculate the net present value (NPV) for the entire *LVGP* upgrade. *[4 marks]*

Year	Land	Pit Lane	Pit Building	Paddock Complex	Total	Discount factor	Present Value
2023	300	88	240	165	793	0.9259	734.24
2024	180	70	348	143	741	0.8573	635.26
2025	125	40	200	120	485	0.7938	384.99
						Total PV	1,754.49

- Sum of the costs = $240m + $250m + $210m + $300m = $1,000m
- NPV for the Las Vegas Grand Prix upgrade = Sum of PV – Initial cost of investment
- = $1,754.49m – $1,000m
- **= $754.49m**

(c) Comment on your net present value result from **Question (b)**. *[2 marks]*

The LVGP upgrade is a profitable investment for *Liberty Media (LM)* as the NPV is a positive figure. After discounting the future cash flows and taking the initial cost of investment into account, the NPV is +$754.49m.

Eu-Genius Academy (EGA)

Eu-Genius Academy (*EGA*) is a small private all-girls academy in Beijing, China. The academy is authorized to run the International Baccalaureate (IB) Diploma Programme (DP) and Middle Years Programme (MYP). *EGA* prides itself on academic excellence and students' well-being. In the past four years, the graduating cohort achieved a staggering mean average point score of 40 points for the DP. Likewise, the girls at *EGA* have won gold at many inter-school sporting competitions.

Eugenia Pan, the principal, gives each head of department the autonomy to oversee their own budgets. In addition to a fixed payment made by all parents for general tuition, departments set their own prices for each course offered. The following data show the actual and budgeted figures for the Science and Humanities departments for the past 12 months. All figures are expressed in yuan (¥).

	Science		Humanities	
	Budgeted	**Actual**	**Budgeted**	**Actual**
Course fees	60,000	65,000	55,350	54,350
Salaries (teachers)	52,000	56,000	50,000	53,000
Course textbooks	7,300	7,000	6,500	6,300
Course materials	8,000	7,600	7,000	7,100
Allocated overheads	4,500	4,750	4,000	4,000

(a) Identify **two** roles of cost and profit centres. *[2 marks]*

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(b) Describe the meaning of a favourable revenue variance. *[2 marks]*

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(c) Explain **one** reason why budgets are important for *EGA* in its decision-making. *[2 marks]*

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(d) Complete the following table by calculating the variances at *EGA*. Identify whether each of the variances is favourable or adverse. *[10 marks]*

Variance (¥) for humanities department		**Variance (¥) for science department**	
Course fees		Course fees	
Salaries (teachers)		Salaries (teachers)	
Course textbooks		Course textbooks	
Course materials		Course materials	
Allocated overheads		Allocated overheads	

Answers

(a) Identify **two** roles of cost and profit centres. *[2 marks]*

Possible roles of cost and profit centres (two of the following would be sufficient):

- Accountability of managers (or heads of department) for their costs and/or revenues.
- Financial monitoring and control.
- Improve decision-making as the managers are empowered to make their own decisions.
- Motivating managers as they are empowered with their own departmental budgets.

(b) Describe the meaning of a favourable revenue variance. *[2 marks]*

A favourable revenue variance refers to when the actual level of a firm's sales revenue is higher than the planned or budgeted amount. A favourable variance is financially good for the business as this means it is receiving more than what it had anticipated to receive.

(c) Explain **one** reason why budgets are important for *EGA* in its decision-making. *[2 marks]*

One reason why budgets are important for decision-making at *EGA* is that they help the academy's principal with resource allocation (particularly the firm's financial resources). By comparing the forecasted and actual spendings for each department, Eugenia can identify which one will need more resources and the reasons why. For example, the science department might need more financial resources to purchase lab equipment and supplies for experiments whilst the humanities department might only need additional financial resources to purchase new teaching and learning resources when a new IB syllabus/guide is released (e.g., new course textbooks would have been required by the humanities department as a result of the new DP Business Management course, first exam 2024).

Other possible reasons that could be explained include:

- Measuring financial performance – to make comparisons between each of the academy's faculties/departments based on their ability to manage their respective budgets.
- Accountability – to ensure the heads of department are accountable for the targets set at the beginning of the school year and to ensure they do not overspend.

(d) Complete the following table by calculating the variances at *EGA*. Identify whether each of the variances is favourable or adverse. *[10 marks]*

Variance (¥) for humanities department		**Variance (¥) for science department**	
Course fees	= 54,350 – 55,350 = ¥1,000 adverse	Course fees	= 65,000 – 60,000 = ¥5,000 favourable
Salaries (teachers)	= 53,000 – 50,000 = ¥3,000 adverse	Salaries (teachers)	= 56,000 – 52,000 = ¥4,000 adverse
Course textbooks	= 6,300 – 6,500 = ¥200 favourable	Course textbooks	= 7,000 – 7,300 = ¥300 favourable
Course materials	= 7,100 – 7,000 = ¥100 adverse	Course materials	= 7,600 – 8,000 = ¥400 favourable
Allocated overheads	= 4,000 – 4,000 = 0	Allocated overheads	= 4,750 – 4,500 = ¥250 adverse

On Fire Clothing Ltd. *(OFC)*

On Fire Clothing Ltd. (*OFC*) is a privately held company and specializes in the distribution of South Korean-style clothing. *OFC* operates a warehouse that is run as a cost centre. This is used to store the stock (inventory) of the clothing sourced from South Korea. The company also has a retail shop that is operated as a profit centre to distribute the clothing products.

Table 1: Budget and variance calculations for *OFC's* retail shop

	Budget ($)	Actual ($)	Variance ($)
Sales revenue	195,000	205,000	10,000 favourable
Cost of sales	49,250	**W**	7,750 adverse
Wages and salaries	**X**	55,000	3,500 favourable
Marketing expenses	10,000	15,500	**Y**
Rent	35,000	35,000	None
Utilities	4,500	**Z**	700 adverse

Table 2: Budget and variance calculations for *OFC's* warehouse

	Budget	Actual	Variance
Direct labour cost ($)	70,500	70,000	$500
Stock (inventory)	30,000 units	31,000 units	1,000 units favourable

(a) Students of Int sch of Prague Burešová, state the formula used to calculate variances. *[1 mark]*

……

(b) Using **Table 1**, calculate the value of **Figure W**. (*Show all your working*). *[2 marks]*

……

(c) Using **Table 1**, calculate the value of **Figure X**. (*Show all your working*). *[2 marks]*

……

(d) Using **Table 1**, calculate the value of **Figure Y**. (*Show all your working*). *[2 marks]*

……

(e) Using **Table 1**, calculate the value of **Figure Z**. (*Show all your working*). *[2 marks]*

……

(f) Using **Table 2**, explain whether the variance of $500 for direct labour is favourable or adverse. *[2 marks]*

……

……

Answers

(a) State the formula used to calculate variances. *[1 mark]*

Variance = Actual figure – Budgeted figure

(b) Using **Table 1**, calculate the value of **Figure W**. (*Show all your working*). *[2 marks]*

Variable	Budget ($)	Actual ($)	Variance ($)
Cost of sales	49,250	W = 49,250 + 7,750 W = $57,000	7,750 adverse

Hence, W = $57,000

(c) Using **Table 1**, calculate the value of **Figure X**. (*Show all your working*). *[2 marks]*

Variable	Budget ($)	Actual ($)	Variance ($)
Wages and salaries	58,500	X = 58,500 – 3,500 X = $55,000	3,500 favourable

Hence, X = $55,000

(d) Using **Table 1**, calculate the value of **Figure Y**. (*Show all your working*). *[2 marks]*

Variable	Budget ($)	Actual ($)	Variance ($)
Wages and salaries	10,000	15,500	Y = 10,000 – 15,500 Y = $5,500 adverse

Hence, Y = $5,500

(e) Using **Table 1**, calculate the value of **Figure Z**. (*Show all your working*). *[2 marks]*

Variable	Budget ($)	Actual ($)	Variance ($)
Utilities	4,500	Z = 4,500 + 700 Z = $5,200	700 adverse

Hence, Z = $5,200

(f) Using **Table 2**, explain whether the variance of $500 for direct labour is favourable or adverse. *[2 marks]*

Variable	Budget ($)	Actual ($)	Variance ($)
Direct labour cost	70,500	70,000	500

Direct labour cost is a cost variance, i.e., if the actual amount is more than the budgeted amount, then the variance is adverse.

In this case, the actual amount ($70,000) is less than the budgeted amount (70,500). Hence, the firm's direct labour cost has a favourable variance of $500.

Margaret Broadway Theatre *(MBT)*

Margaret Broadway Theatre (*MBT*) offers a 5-star venue for theatrical performances in London, UK. After graduating from a renowned performing arts school in New York, Margaret Brownsword started her career in the Broadway scene in New York, working in a variety of different roles including taking on management roles of Broadway shows.

A year ago, Margaret ventured to London, another global hub for musicals and theatrical performances, where she set up *MBT*. It is now the end of the first year, so Margaret would like to complete some analysis of the budgets she had created when she first opened the theatre.

Table 1: Budgeted and actual figures for *MBT* (all figures in British pounds £)

	Budgeted (£)	Actual (£)
Ticket sales revenue	58,750	49,500
Costume purchases	5,700	5,900
Utility bills	14,350	14,400
Salaries for performers	48,000	50,000
Total variable costs	12,000	**Y**
Other expenses	20,000	22,000
Profit	**X**	13,000

(a) Explain **one** reason why budgeting can be useful for *MBT*. *[2 marks]*

……

……

……

(b) Complete the following table by calculating the variance for each of the variables and identify whether the variance is favourable or adverse. *[4 marks]*

Variable	Budget (£)	Actual (£)	Variance (£)
Ticket sales revenue	58,750	49,500	
Costume purchases	5,700	5,900	
Utility bills	14,350	14,400	
Salaries for performers	48,000	50,000	

(c) Using **Table 1**, calculate the budgeted figure for profit (**Figure X**) and the actual figure for total variable costs (**Figure Y**). *[2 marks]*

……

(d) Using **Table 1** and your results from **Question (c)** above, calculate the variance for profit and identify whether the variance is favourable or adverse. *[2 marks]*

……

……

Answers

(a) Explain **one** reason why budgeting can be useful for *MBT*. *[2 marks]*

- Budgeting can be useful for *MBT* because the process provides a financial plan for the future when Margaret needs to decide whether to allocate her resources to grow her theatre business, for example.
- Budgeting also puts those who are responsible for the budget accountable for the resources allocated to them and how to use them effectively in order to meet the objectives of the business.

(b) Complete the following table by calculating the variance for each of the variables and identify whether the variance is favourable or adverse. *[4 marks]*

Variable	Budgeted (£)	Actual (£)	Variance (£)
Ticket sales revenue	58,750	49,500	= 49,500 – 58,750 = £9,250 adverse
Costume purchases	5,700	5,900	= 5,900 – 5,700 = £200 adverse
Utility bills	14,350	14,400	= 14,400 – 14,350 = £50 adverse
Salaries for performers	48,000	50,000	= 50,000 – 48,000 = £2,000 adverse

(c) Using **Table 1**, calculate the budgeted figure for profit (**Figure X**) and the actual figure for total variable costs (**Figure Y**). *[2 marks]*

- Figure X
- Profit = Sales revenue – (Total fixed costs + Total variable costs)
- = £58,750 – (£20,000 + £12,000)
- = **£26,750***

- Figure Y
- Profit = Sales revenue – (Total fixed costs + Total variable costs)
- £13,000 = £49,500 – (Y + £22,000)
- Y = **£14,500**

(d) Using **Table 1** and your results from **Question (c)** above, calculate the variance for profit and identify whether the variance is favourable or adverse. *[2 marks]*

Variable	Budgeted (£)	Actual (£)	Variance (£)
Profit	26,750*	13,000	= 13,000 – 26,750 = **£13,750 adverse**

Zee's Spinner (ZS)

Zee's Spinner (*ZS*) is a spinning studio, which offers a range of spinning classes. The company's customers range from high school students, young professional adults, and retired couples. Each of the four departments at *ZS* is responsible for their own budget and are run as either cost centres or profit centres.

Department	Type of centre
Coach & training	Profit centre
Sales & marketing	Profit centre
Facilities management	Cost centre
Administration (including human resources and finance)	Cost centre

An extract from the budget for the Coach & training department is shown below. All figures are in $'000.

Item	Budgeted ($'000)	Actual ($'000)
Coach's salary	450	480
Training revenue	530	510
Material costs	230	190
Allocated overheads	310	300

(a) Define the term *budgeting*. *[2 marks]*

……

……

……

(b) State **one** feature of a profit centre. *[1 mark]*

……

(c) State **one** difference between a profit centre and a cost centre. *[1 mark]*

……

(d) Complete the following table by calculating the variance for each of the variables in the Coach & training department at *ZS*, identifying whether they are adverse or favourable. *[4 marks]*

Variable	Budgeted ($'000)	Actual ($'000)	Variance ($'000)
Coach's salary	450	480	
Training revenue	530	510	
Material costs	230	190	
Allocated overheads	310	300	

Answers

(a) Define the term *budgeting*. *[2 marks]*

Budgeting is the process of financial planning for a business, whereby managers plan for various costs and revenues in order to achieve the organization's objectives, be they the overall objectives of the business or departmental objectives that align with the organization's objectives. Budgeting is an ongoing process, usually created and reviewed for one full year.

(b) State **one** feature of a profit centre. *[1 mark]*

A profit centre could be a department, division, or a function of a business that is responsible and held accountable for the generation of revenues and management of its costs.

(c) State **one** difference between a profit centre and a cost centre. *[1 mark]*

One difference is that a cost centre only generates costs and does not strive to earn a profit, whereas a profit centre aims to generate profits and incurs costs as well as earns revenues.

(d) Complete the following table by calculating the variance for each of the variables in the Coach & training department at *ZS*, identifying whether they are adverse or favourable. *[4 marks]*

Item	Budgeted ($'000)	Actual ($'000)	Variance ($'000)
Coach's salary	450	480	= 480 – 450 = 30 adverse
Training revenue	530	510	= 510 – 530 = 20 adverse
Allocated overheads	310	300	= 300 – 310 = 10 favourable
Material costs	230	190	= 190 – 230 = 40 favourable

Working out:

- For the coach's salary, *ZS* had budgeted to spend $450,000 but actually spent $480,000. This means that the firm spent $30,000 *more* than what was budgeted (planned). Thus, there is an adverse variance of $30,000 for the coach's salary.
- For training revenue, *ZS* budgeted (planned) to receive $530,000 but actually only received $510,000. In reality, this means that the firm received $20,000 *less* than what was budgeted. Thus, there is an adverse variance of $20,000 in training revenue for *ZS*.
- For the allocated overheads, *ZS* budgeted (planned) $310,000 to the Coach & training department of *ZS,* but actually allocated $300,000. This means that the department was allocated $10,000 *less* in overhead costs than what was budgeted. Hence, there is a favourable variance of $10,000.
- For the material costs, *ZS* budgeted (planned) to spend $230,000 but actually only spent $190,000. This is significantly less in reality than what was planned, by $40,000. Hence, the department has a favourable variance of $40,000 for material costs.

Top tip: When determining whether a variance is favourable or adverse, always ask yourself if the variable is a revenue/profit variance or a cost variance. Then, ask yourself whether the business spent or received less or more than it had budgeted (planned).