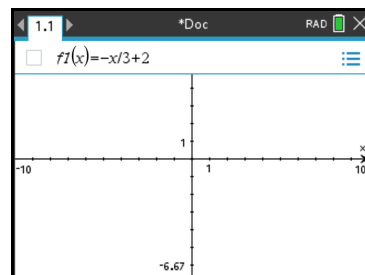


## CHAPTER 1 - GRAPHING LINEAR FUNCTIONS

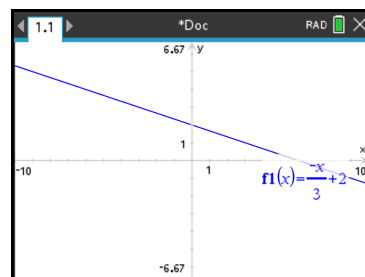
### TI-*n*spire

To draw the graph of a linear function such as  $y = -\frac{1}{3}x + 2$ , press **ctrl** **doc ▼** (+ page), then select **2 Add Graphs** to open the Graphs application.

Enter  $-\frac{1}{3}x + 2$  into **f1(x)**.



Press **enter** to draw the graph.



## CHAPTER 1 - SOLVING SIMULTANEOUS EQUATIONS

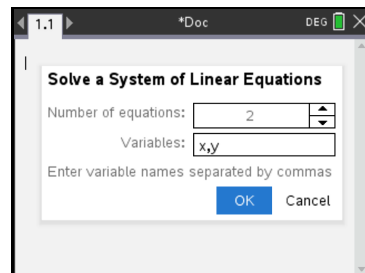
### TI-nspire

To solve the system  $\begin{cases} y = x - 3 \\ 2x + 3y = 16 \end{cases}$  using technology, first write the system in the form  $\begin{cases} -x + y = -3 \\ 2x + 3y = 16 \end{cases}$ .

Press **ctrl** **doc** **▼** (+ **page**), and select **1 Add Calculator** to open the Calculator application.

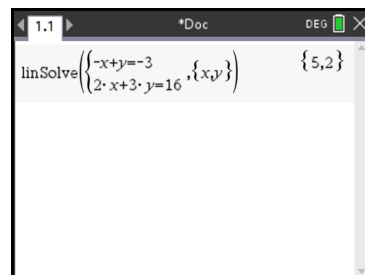
Press **menu**, select **3 Algebra**, **2 Solve System of Linear Equations...**

Set up the screen as shown, and press **enter**.



Enter the equations as shown, press **enter**, and the values  $x$  and  $y$  will be returned.

So,  $x = 5$  and  $y = 2$ .



## CHAPTER 3 - CALCULATING EXPONENTS

### TI-*n*spire

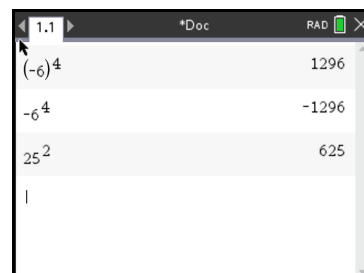
The TI-*n*spire has an exponent key that looks like  $\wedge$ . We type the base first, press the exponent key, then enter the index. We use the bracket keys  $($  and  $)$  when we raise a negative number to a power.

For example, to evaluate  $(-6)^4$  we type  $($   $(-)$  6  $)$   $\wedge$  4 **enter**.

If we typed  $(-)$  6  $\wedge$  4 **enter** the calculator would think we meant  $-6^4$ .

Numbers can be squared on the TI-*n*spire using the special key  $x^2$ .

For example, to evaluate  $25^2$  we type 25  $x^2$  **enter**.



$(-6)^4$	1296
$-6^4$	-1296
$25^2$	625

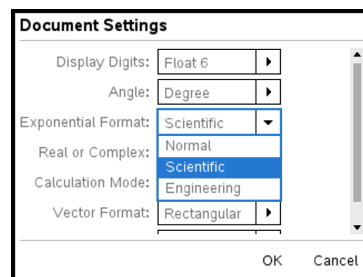
## CHAPTER 3 - SCIENTIFIC NOTATION

### TI-nspire

Press **ctrl** **doc** ( + page ), then select **1 Add Calculator** to open the Calculator application.

To set the format of your calculator to scientific, press **on**, select **5 Settings...**, then **2 Document Settings...**. Set the **Exponential Format:** drop-box to **Scientific**. Press **enter** when you are done.

Select **4 Current** to return to the Calculator application.

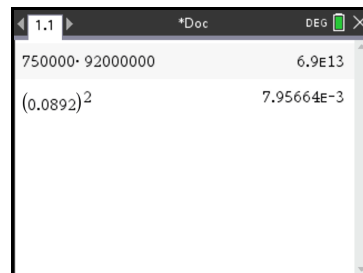


To evaluate  $750\,000 \times 92\,000\,000$ , press 750 000 **×** 92 000 000 **ctrl** **enter**.

**Note:** The result is  $6.9 \times 10^{13}$  (your calculator writes  $\times 10^{\square}$  as **E**).

We enter values in scientific notation using the EE function, which is accessed by pressing **EE**.

To find  $(8.92 \times 10^{-2})^2$ , press **(** 8.92 **EE** **(-)** 2 **)** **x<sup>2</sup>** **enter**.



## CHAPTER 4 - SOLVING POLYNOMIAL EQUATIONS

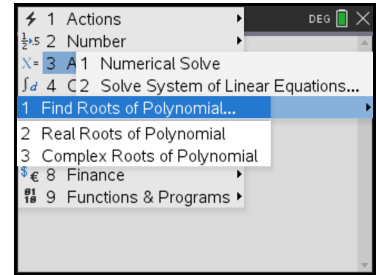
### TI-nspire

To solve the quadratic equation  $2x^2 + 4x = 7$ , we rearrange to get  $2x^2 + 4x - 7 = 0$ .

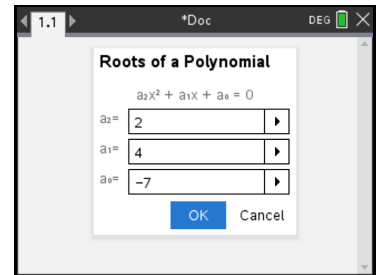
Press **ctrl** **doc** ( + **page**), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **3 Algebra**, select **3 Polynomial Tools**, then select **1 Find Roots of Polynomial...**

Press **enter** to select polynomial degree 2.

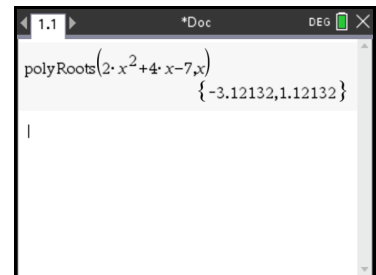


Set up the screen as shown, then move down to **OK** and press **enter**.



Press **enter** again to solve the equation.

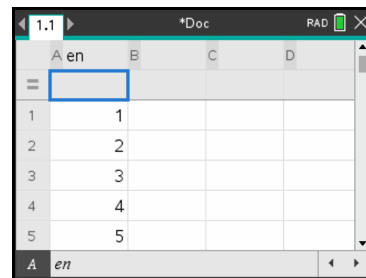
So,  $x \approx -3.12$  or  $x \approx 1.12$ .



## CHAPTER 5 - GENERATING SEQUENCES

### TI-nspire

To find the first five terms of the sequence represented by  $\{3n\}$ , enter the numbers 1, 2, 3, 4, 5 into list **A** and give the list a name such as **en**.

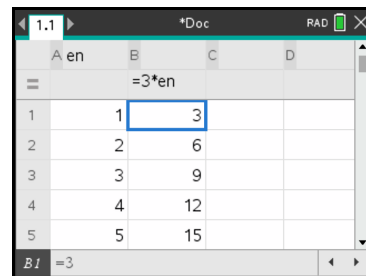


The TI-nspire calculator screen shows a table with four columns labeled A, B, C, and D. The first column, A, is named 'en' and contains the values 1, 2, 3, 4, and 5. The other columns are empty. The status bar at the bottom shows 'A en'.

	A en	B	C	D
1	1			
2	2			
3	3			
4	4			
5	5			

Move the cursor to the second row of list **B** and press 3  $\times$  **E** **N** **enter**.

So, the first five terms of the sequence are 3, 6, 9, 12, 15.



The TI-nspire calculator screen shows the same table as before, but now list B contains the values 3, 6, 9, 12, and 15. The formula bar at the top shows '=3\*en'. The status bar at the bottom shows 'B 1 =3'.

	A en	B	C	D
1	1	3		
2	2	6		
3	3	9		
4	4	12		
5	5	15		

## CHAPTER 5 - GEOMETRIC SEQUENCES

### TI-nspire

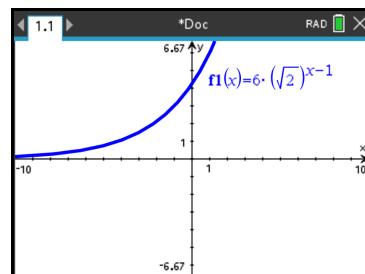
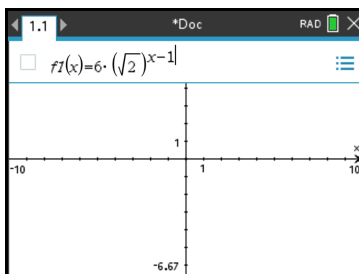
Find the first term of the sequence  $6, 6\sqrt{2}, 12, 12\sqrt{2}, \dots$  which exceeds 1400.

The sequence is geometric with  $u_1 = 6$  and  $r = \sqrt{2}$

$$\therefore u_n = 6 \times (\sqrt{2})^{n-1}$$

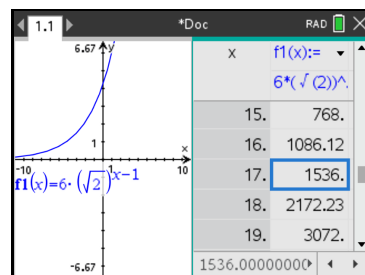
We need to find  $n$  such that  $u_n > 1400$ .

Press **ctrl** **doc** (+ **page**), then select **2 Add Graphs** to open the Graphs application. Enter the formula for  $u_n$  into **f1(x)** as shown alongside, and press **enter**.



Press **ctrl** **T** to view a table of values for  $u_n$ , then scroll down to the first term that exceeds 1400.

The first term to exceed 1400 is  $u_{17} = 1536$ .



## CHAPTER 5 - TVM SOLVER

### TI-*nspire*

Sally invests \$15 000 in an account that pays 4.25% p.a. compounded monthly. To find the value of Sally's investment after 5 years, press **ctrl** **doc ▼** (+ **page**), then select **1 Add Calculator** to open the calculator application.

Press **menu**, select **8 Finance**, then select **1 Finance Solver...**

Set up the screen as shown.

Finance Solver	
N:	60
I(%):	4.25
PV:	-15000
Pmt:	0.
FV:	0.
PpY:	12

Set Annuity, PmtAt

Finance Solver	
PV:	-15000
Pmt:	0.
FV:	0.
PpY:	12
CpY:	12
PmtAt:	END

Set Annuity, PmtAt

Move the cursor to **FV**, and press **enter** to display the future value of the investment.

So, the value of the investment after 5 years is  $\approx$  \$18 544.53.

Finance Solver	
PV:	-15000
Pmt:	0.
FV:	18544.5284811
PpY:	12
CpY:	12
PmtAt:	END

Finance Solver info stored into  
tvm.n, tvm.i, tvm.pv, tvm.pmt, ...



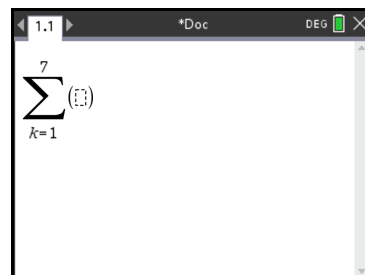
## CHAPTER 5 - SIGMA NOTATION

### TI-nspire

To evaluate  $\sum_{k=1}^7 (k + 1)$ , press **ctrl** **doc ▾** (+ **page**), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **4 Calculus**, then select **3 Sum**.

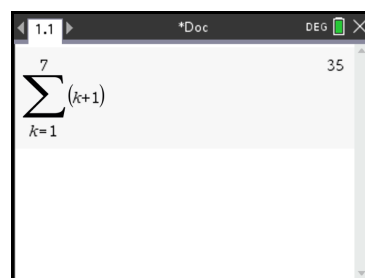
First enter the limits of the sum by pressing **K** **▶** 1 **▲** **▲** 7.



Then enter the formula in the brackets by pressing **▶** **K** **+** 1.

Press **enter** to evaluate the sum.

So,  $\sum_{k=1}^7 (k + 1) = 35$ .



## CHAPTER 5 - EVALUATING SERIES

### TI-*n*spire

We can write the series  $4 + 7 + 10 + \dots$  to 50 terms as  $\sum_{k=1}^{50} (3k + 1)$ .

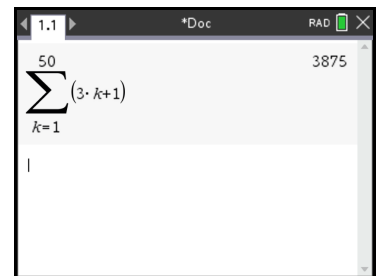
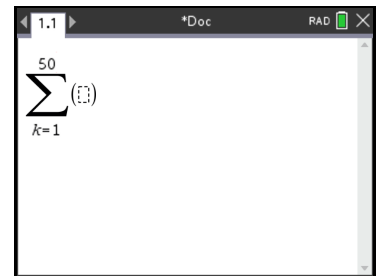
To evaluate  $\sum_{k=1}^{50} (3k + 1)$ , press **menu**, select **4 Calculus**, then select **3 Sum**.

First enter the limits of the sum by pressing **K** **▶** 1 **▲** **▲** 50.

Then enter the formula in the brackets by pressing **▶** 3 **K** **+** 1.

Press **enter** to evaluate the sum.

So,  $\sum_{k=1}^{50} (3k + 1) = 3875$ .




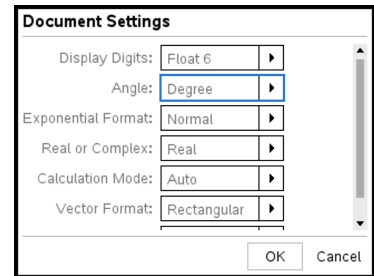
## CHAPTER 7 - TRIGONOMETRIC RATIOS




### TI-*n*spire

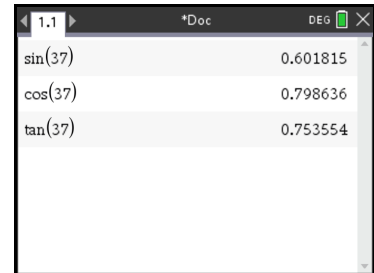
To check that your calculator is in DEGREE mode, press , select **5 Settings...**, then **2 Document Settings...**.

Check that **Angle:** is set to **Degree**.

Press  when you are done.







To find the trigonometric ratios of the angle  $37^\circ$ , press , then tap **sin**, **cos**, or **tan**. Then press  $37$   .



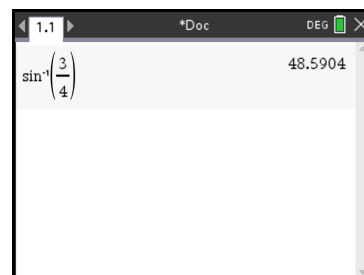
## CHAPTER 7 - INVERSE TRIGONOMETRIC RATIOS

### TI-*n*spire

If  $\sin \theta = \frac{3}{4}$ , then  $\theta = \sin^{-1}(\frac{3}{4})$ .

To find  $\sin^{-1}(\frac{3}{4})$ , press , tap  $\sin^{-1}$ , then press 3  4  .

So,  $\theta \approx 48.6^\circ$ .



## CHAPTER 8 - CONVERTING DEGREES INTO MINUTES AND SECONDS

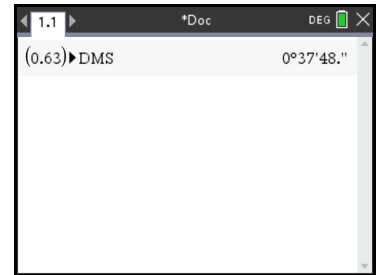
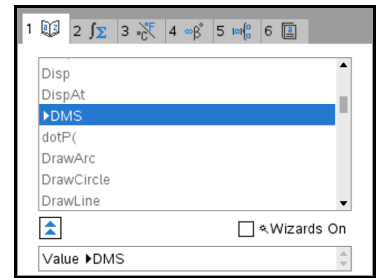
### TI-*n*spire

To convert  $0.63^\circ$  into minutes and seconds, begin in the Calculator application.

Press 0.63  1, select ► **DMS**, then press .

So,  $0.63^\circ$  is equivalent to 37 minutes and 48 seconds.






**Note:** Your calculator must be set to DEGREE mode.




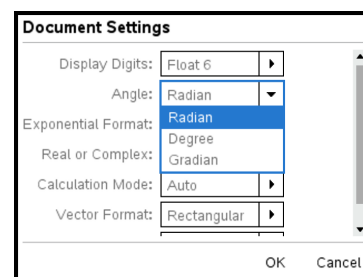
## CHAPTER 8 - DEGREES AND RADIAN

### TI-nspire

To change between degree and radian mode from the home screen, select **5 Settings...**, then select **2 Document Settings...**.

Press  to scroll down to the **Angle** drop-box. Press , use  and  to select **Radian** or **Degree**, and press .

Press  again to save your settings.



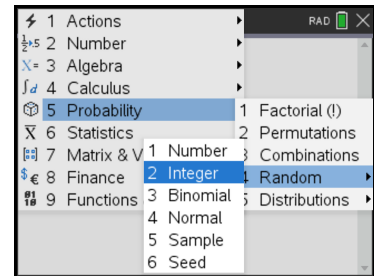
## CHAPTER 12 - GENERATING RANDOM NUMBERS

### TI-nspire

To generate three random integers between 1 and 30 (inclusive), press **ctrl** **doc** **▼** (+ **page**), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **5 Probability**, **4 Random**, then select **2 Integer**.

Press 1 **,** 30 **,** 3 **)** **enter**.



## CHAPTER 13 - FINDING THE MEASURES OF CENTRE

### TI-*nspire*

To find the mean, median and mode of 3, 4, 4, 9, 8, 8, 6, 4, 7, 9, 1, 3, 5, 3, 5, 9, 8, 6, 3, 7, 1, start by entering the data into list **A**, and name the list **data**.

	A	B	C	D
1	3			
2	4			
3	4			
4	9			
5	8			

A data

Press **ctrl** **doc** (+ **page**), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, select **1 Stat Calculations**, then select **1 One-Variable Statistics**.

Press **enter** to choose 1 list. Select **data** from the **X1 List:** drop-box, and press **enter**.

**One-Variable Statistics**

X1 List: **data**

Frequency List: 1

Category List:

Include Categories:

OK Cancel

So, the mean  $\approx 5.38$ , and the median = 5.

**Note:** There is no built-in function to calculate the mode in this calculator model.

OneVar data,1: stat.results	
"Title"	"One-Variable Statistics"
" $\bar{x}$ "	5.38095
" $\Sigma x$ "	113.
" $\Sigma x^2$ "	741.
" $s_x := s_{n-1}x$ "	2.5783
" $\sigma_x := \sigma_{n-1}x$ "	2.51616
"n"	21.
"MinX"	1.
"Q <sub>1</sub> X"	3.

" $s_x := s_{n-1}x$ "	2.5783
" $\sigma_x := \sigma_{n-1}x$ "	2.51616
"n"	21.
"MinX"	1.
"Q <sub>1</sub> X"	3.
"MedianX"	5.
"Q <sub>3</sub> X"	8.
"MaxX"	9.
" $SSX := \Sigma(x - \bar{x})^2$ "	132.952



## CHAPTER 13 - MEASURES OF CENTRE FROM A FREQUENCY TABLE

### TI-nspire

Find the measures of centre for the data in the table alongside.

Data	Frequency
1	4
2	11
3	18
4	13
5	7
6	2

To obtain the measures of centre, enter the data values into list **A**, and the frequency values into list **B**. Give list **A** the name **data**, and list **B** the name **freq**.

	A data	B freq	C	D
1	1	4		
2	2	11		
3	3	18		
4	4	13		
5	5	7		

Press **ctrl** **doc** (+ page), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, **1 Stat Calculations**, then select **1 One-Variable Statistics**.

Press **enter** to choose 1 list. Select **data** from the **X1 List:** drop-box, and **freq** from the **Frequency List:** drop-box, then press **enter**.

One-Variable Statistics

X1 List: data

Frequency List: freq

Category List:

Include Categories:

OK Cancel

So, the mean  $\approx 3.25$ , and the median = 3.

OneVar data,freq: stat.results	
"Title"	"One-Variable Statistics"
" $\bar{x}$ "	3.25455
" $\Sigma x$ "	179.
" $\Sigma x^2$ "	665.
" $s_x := s_{n-1}x$ "	1.23556
" $\sigma_x := \sigma_{n-1}x$ "	1.22427
"n"	55.
"MinX"	1.
"Q <sub>1</sub> X"	2.
"MedianX"	3.
"Q <sub>3</sub> X"	4.
"MaxX"	6.
"SSX := $\Sigma(x - \bar{x})^2$ "	82.4364

OneVar data,freq: stat.results	
"SX := $s_{n-1}x$ "	1.23556
"OX := $\sigma_{n-1}x$ "	1.22427
"n"	55.
"MinX"	1.
"Q <sub>1</sub> X"	2.
"MedianX"	3.
"Q <sub>3</sub> X"	4.
"MaxX"	6.
"SSX := $\Sigma(x - \bar{x})^2$ "	82.4364

## CHAPTER 13 - ESTIMATING THE MEAN OF GROUPED DATA

### TI-*nspire*

The table below shows the ages of bus drivers. Estimate the mean age, to the nearest year.

Score	21 – 25	26 – 30	31 – 35	36 – 40	41 – 45	46 – 50	51 – 55
Frequency	11	14	32	27	29	17	7

To estimate the mean of the data alongside, enter the mid-interval values into list **A**, and label the list **score**. Enter the frequency values into list **B**, and label the list **freq**.

	A score	B freq	C	D
1	23	11		
2	28	14		
3	33	32		
4	38	27		
5	43	29		

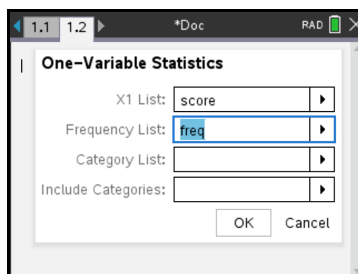
Press **ctrl** **doc** (+ page), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, select **1 Stat Calculations**, then select **1 One-Variable Statistics**.

Press **enter** to choose 1 list. Select **score** from the **X1 List:** drop-box, and **freq** from the **Frequency List:** drop-box.

Then press **enter**.

So, the mean age  $\approx 38$ .

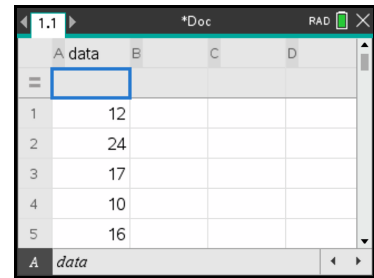


OneVar score,freq: stat.results	One-Variable Statistics
"Title"	"One-Variable Statistics"
"x"	37.6715
"Σx"	5161.
"Σx²"	203083.
"sx := sn-1x"	7.97985
"ox := onx"	7.95068
"n"	137.
"MinX"	23.
"Q1X"	33.
"MedianX"	38.

## CHAPTER 13 - FINDING THE INTERQUARTILE RANGE

### TI-*n*spire

To find the lower and upper quartiles of 12, 24, 17, 10, 16, 29, 22, 18, 32, 20, start by entering the data into list **A** and name the list **data**.



The TI-nspire calculator screen shows a table with columns A, B, C, and D. The first column is labeled 'A' and contains the data values 12, 24, 17, 10, and 16. The second column is labeled 'B' and is empty. The third column is labeled 'C' and is empty. The fourth column is labeled 'D' and is empty. The list name 'data' is entered in the bottom left corner.

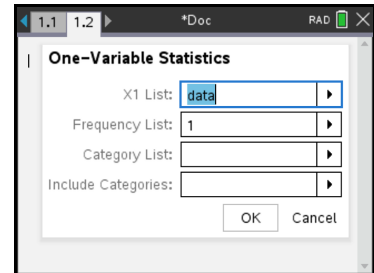
	A	B	C	D
1	12			
2	24			
3	17			
4	10			
5	16			

A data

Press **ctrl** **doc** (+ page), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, select **1 Stat Calculations**, then select **1 One-Variable Statistics**.

Press **enter** to choose 1 list. Select **data** from the **X1 List:** drop-box, and press **enter**.



The TI-nspire calculator screen shows the 'One-Variable Statistics' dialog box. The 'X1 List:' field is set to 'data'. The 'Frequency List:' field is set to '1'. The 'Category List:' field is empty. The 'Include Categories:' field is empty. The 'OK' and 'Cancel' buttons are at the bottom right.

One-Variable Statistics

X1 List: data

Frequency List: 1

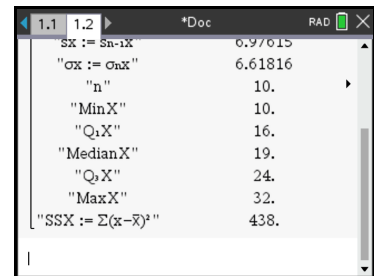
Category List:

Include Categories:

OK Cancel

The lower quartile is  $Q_1 = 16$ , and the upper quartile is  $Q_3 = 24$ .

So, the  $IQR = Q_3 - Q_1 = 24 - 16 = 8$ .



The TI-nspire calculator screen shows the results of the One-Variable Statistics calculation. The results are displayed in a table with two columns: the statistic name and the value.

$Sx := \sum(x - \bar{x})$	6.97615
" $\sigma_x := \sigma_n x$ "	6.61816
"n"	10.
"MinX"	10.
" $Q_1 X$ "	16.
"MedianX"	19.
" $Q_3 X$ "	24.
"MaxX"	32.
" $SSX := \sum(x - \bar{x})^2$ "	438.

## CHAPTER 13 - BOX AND WHISKER DIAGRAMS

### TI-nspire

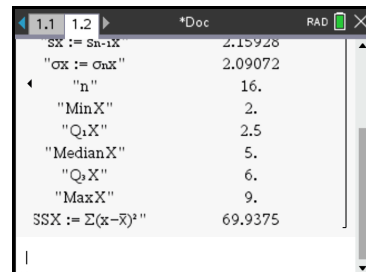
To find the five-number summary of 8, 2, 3, 9, 6, 5, 3, 2, 2, 6, 2, 5, 4, 5, 5, 6, press **ctrl** **doc ▼** (+ page), then select **4 Add Lists and Spreadsheets**. Enter the data into list **A** and give the list a name such as **data**.

Press **ctrl** **doc ▼** (+ page), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, select **1 Stat Calculations**, then select **1 One-Variable Statistics...**. Press **enter** to select 1 list, then choose **data** for the **X1 List:** drop-box and press **enter**.

So, the five-number summary is:

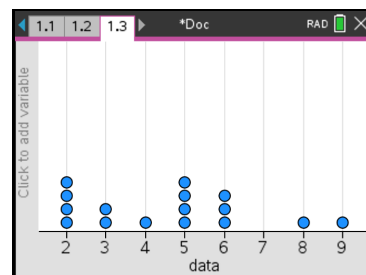
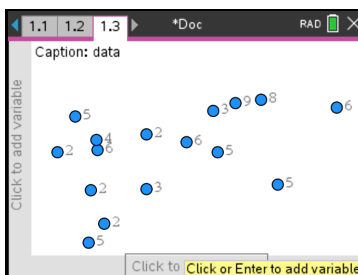
$$\text{minimum} = 2, Q_1 = 2.5, \text{median} = 5, Q_3 = 6, \text{maximum} = 9.$$



To draw a box plot for the data press **ctrl** **doc ▼** (+ page), then select **5 Add Data and Statistics**.

Move the cursor to the bottom of the screen until the "Click or Enter to add variable" box appears.

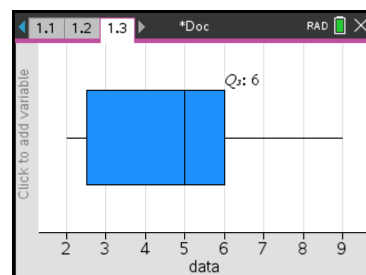
Press **enter**, then select **data**.



Press **menu**, select **1 Plot Type**, then select **2 Box Plot**.

Hovering over an area of the plot will show the important features.

So,  $\text{range} = \text{max} - \text{min} = 9 - 2 = 7$ , and  $\text{IQR} = Q_3 - Q_1 = 6 - 2.5 = 3.5$ .



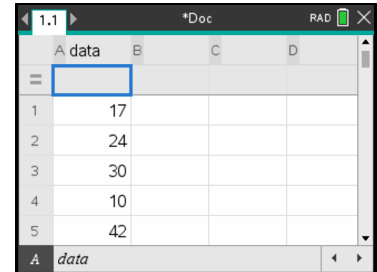
## CHAPTER 13 - STANDARD DEVIATION

### TI-nspire

Kylie is interested in the ages of spectators at a rugby match. She selects a sample of 30 spectators. Their ages are:

17 24 30 10 42 48 37 19 28 53 29 40 11 21 9 43 22 59 46 52 31 13 7 26 32 47 22 15 26 42.

To find the sample standard deviation, enter the data into list **A** as shown alongside. Give list **A** the name **data**.

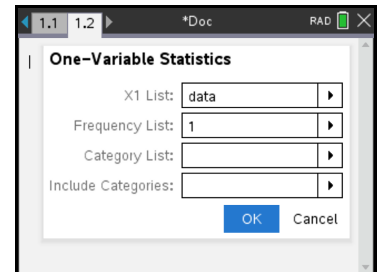


	A data	B	C	D
=				
1	17			
2	24			
3	30			
4	10			
5	42			

Press **ctrl** **doc** (+ **page**), and select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, **1 Stat Calculations**, then **1 One-Variable Statistics...**

Press **enter** to set the number of lists to 1. Select **data** in the **X1 List:** drop-box, and press **enter**.



One-Variable Statistics

X1 List: **data**

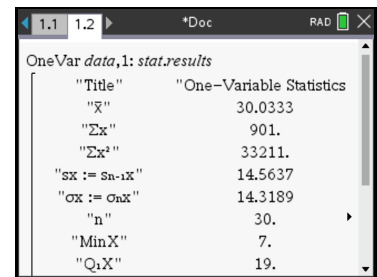
Frequency List: **1**

Category List:

Include Categories:

**OK** **Cancel**

So, the sample standard deviation is  $s \approx 14.6$  years.



OneVar data,1: stat.results	
"Title"	"One-Variable Statistics"
" $\bar{x}$ "	30.0333
" $\Sigma x$ "	901.
" $\Sigma x^2$ "	33211.
" $sx := s_{n-1}x$ "	14.5637
" $ox := \sigma_n x$ "	14.3189
"n"	30.
"MinX"	7.
"Q1X"	19.

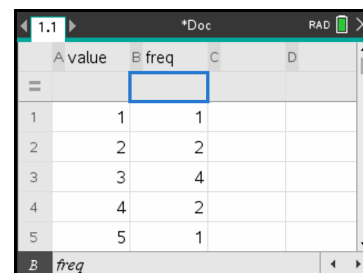
## CHAPTER 13 - STANDARD DEVIATION FROM A FREQUENCY TABLE

### TI-*n*spire

Find the population standard deviation of the data alongside.

Value	1	2	3	4	5
Frequency	1	2	4	2	1

To find the standard deviation, enter the data values into list **A**, and name the list **value**. Enter the frequency values into list **B**, and name the list **freq**.

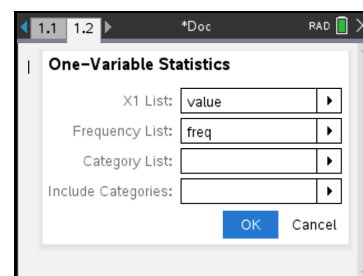


	A value	B freq	C	D
1	1	1		
2	2	2		
3	3	4		
4	4	2		
5	5	1		

B freq

Press **ctrl** **doc** (+ page), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, **1 Stat Calculations**, then select **1 One-Variable Statistics...** Press **enter** to choose 1 list. Select **value** from the **X1 List:** drop-box, and select **freq** from the **Frequency List:** drop-box.



**One-Variable Statistics**

X1 List: value

Frequency List: freq

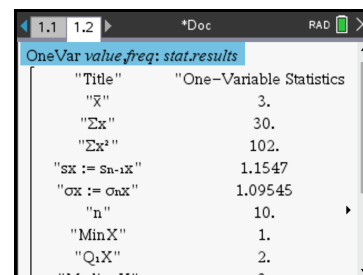
Category List:

Include Categories:

OK Cancel

Press **enter** to find the statistics.

So,  $\sigma \approx 1.10$ .



OneVar value,freq: stat.results	
"Title"	"One-Variable Statistics"
" $\bar{x}$ "	3.
" $\Sigma x$ "	30.
" $\Sigma x^2$ "	102.
" $s_x := s_n - 1x$ "	1.1547
" $s_x := s_n x$ "	1.09545
"n"	10.
"MinX"	1.
"Q <sub>1</sub> X"	2.
"MedianX"	3.

## CHAPTER 17 - DRAWING SCATTER DIAGRAMS

### TI-nspire

Draw a scatter diagram of the following data set:

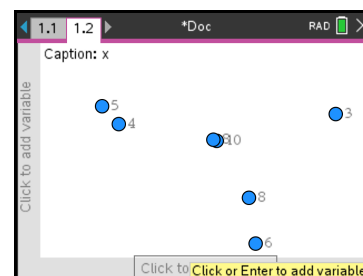
$x$	8	4	5	10	8	3	6
$y$	9	6	5	12	7	4	5

*Step 1:* Enter the  $x$ -values into list **A**, and name the list **x**. Enter the  $y$ -values into list **B**, and name the list **y**.

	A x	B y	C	D
1	8	9		
2	4	6		
3	5	5		
4	10	12		
5	8	7		

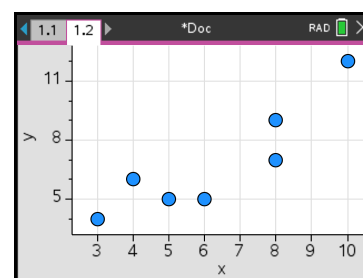
*Step 2:* Press **ctrl** **doc** (+ page), then select **5 Add Data and Statistics** to open the data in the Statistics application.

You will see the data points randomly scattered on the screen.



*Step 3:* Move the cursor to the bottom of the screen until the "Click or Enter to add variable" box appears. Press **enter**, then select **x**.

Move the cursor to the left hand side of the screen until the "Click or Enter to add variable" box appears. Press **enter**, then select **y**.



## CHAPTER 17 - FITTING TRIGONOMETRIC MODELS TO DATA

### TI-nspire

The mean monthly maximum temperatures for Cape Town, South Africa are shown below:

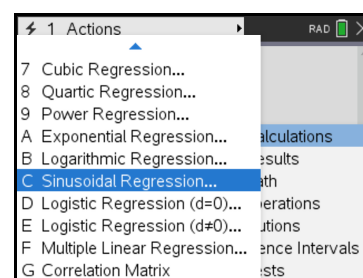
Month ( $t$ )	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature ( $T$ °C)	28	27	25.5	22	18.5	16	15	16	18	21.5	24	26

To model the data with a trigonometric function of the form  $T = a \sin(b(t-c)) + d$ , where Jan  $\equiv 1$ , Feb  $\equiv 2$ , and so on, enter the values for *Month* in list **A**, and the values for *Temperature* in list **B**. Give list **A** the name **month**, and list **B** the name **temp**.

	A month	B temp	C	D
1	1	28		
2	2	27		
3	3	25.5		
4	4	22		
5	5	18.5		

Press **ctrl** **doc** (+ page), then select **1 Add Calculator** to open the Calculator application.

Press **menu**, select **6 Statistics**, select **1 Stat Calculations**, then select **C Sinusoidal Regression...**



Press **enter** and set up the screen as shown alongside.

**Note:** A number between 1 and 16 may be entered in **Iterations**. A larger number will carry out the calculation more slowly but gives a more accurate answer, whilst a smaller number will carry out the calculations more quickly but give a less accurate answer.

Press **enter** to find a trigonometric model for the data.

$$\begin{aligned}
 \text{So, } T &\approx 6.29 \sin(0.525t + 0.967) + 21.4 \\
 &\approx 6.29 \sin(0.525t + 0.967 - 2\pi) + 21.4 \\
 &\approx 6.29 \sin(0.525t - 5.32) + 21.4 \\
 &\approx 6.29 \sin(0.525(t - 10.1)) + 21.4.
 \end{aligned}$$

So,  $a \approx 6.29$ ,  $b \approx 0.525$ ,  $c \approx 10.1$ , and  $d \approx 21.4$ .

SinReg month,temp,16: CopyVar stat.RegEqn	
"Title"	"Sinusoidal Regression"
"RegEqn"	"a·sin(b·x+c)+d"
"a"	6.29222
"b"	0.524694
"c"	0.967212
"d"	21.4458
"Resid"	" {... } "



## CHAPTER 17 - SOLVING TRIGONOMETRIC EQUATIONS

### TI-nspire

To solve the equation  $2 \sin x - \cos x = 4 - x$  for  $0 \leq x \leq 2\pi$ , press **ctrl** **doc** **▼** (+ page), then select **2 Add Graphs**.

Press **home**, select **5 Settings...**, then **2 Document Settings...**

Select **Radian** from the **Angle:** drop-box, and press **enter**.

Press **4 Current** to return.

Press **menu**, select **4 Window/Zoom**, then **1 Window Settings...**

Set **XMin** =  $-\frac{\pi}{6}$ , **XMax** =  $\frac{13\pi}{6}$ , **XScale** =  $\frac{\pi}{6}$ , **YMin** =  $-5$ , and **YMax** =  $5$ .

**Note:**  $\pi$  is entered by pressing **π** then selecting  $\pi$ .

Press **enter** when you are done.

Store  $2 \sin x - \cos x$  into  $f1(x)$ , and press **enter** to plot the graph.

Press **ctrl** **G** and store  $4 - x$  into  $f2(x)$ . Press **enter** to plot the graph.

To find where the graphs intersect, press **menu**, then select **6 Analyze Graph**, then select **4 Intersection**.

Place the lower and upper bounds either side of the first intersection point. The intersection point  $(1.82, 2.18)$  is given. Repeat this process to find the remaining intersection points  $(3.28, 0.725)$ , and  $(5.81, -1.81)$ .

So the solutions to  $2 \sin x - \cos x = 4 - x$  are  $x \approx 1.82, 3.28$ , and  $5.81$ .

