Mathematical Symbols

EXERCISE 1

1. ***Addition***

Example Calculate 5 + 10 in cell A1

Step 1 Highlight cell A1

	A	B
1		
2		

Step 2 Type in the formula
= 5+10

	A	B
1	=5+10	
2		

Step 3 Press **enter**

	A	B
1	15	
2		

Calculate the following additions in the cells shown.

(a) 45 + 52 in cell A2
(b) 65 + 27 in cell B1
(c) 190 + 528 in cell B2
(d) 33.61 + 62.7 in cell C1
(e) 39 069 + 8227 in cell A3
(f) 2.1 + 0.62 + 7.8 in cell B3
(g) 5 + 6 + 84 + 50 + 71 in cell C2
(h) 7 + 1 + 54 + 587 in cell A4

2. ***Subtraction***

Calculate the following subtractions in the cells shown.

(a) 85 - 58 in cell A1
(b) 95 - 67 in cell B1
(c) 53.4 - 52.8 in cell C1
(d) 437.1 - 52.9 in cell D1
(e) 39 069 - 8457 in cell A2
(f) 621 - 62 - 7 in cell B2
(g) 453 - 66 - 84 - 50 in cell C2
(h) 76 - 1 - 54 - 21 in cell D2

3. ***Multiplication***

The symbol * is used for multiplication in spreadsheets.

Calculate the following multiplications in the cells shown.

(a) 6 × 58 in cell A1
(b) 6.1 × 47 in cell B1
(c) 19 × 22.8 in cell A2
(d) 64 × 92.7 in cell B2
(e) 36.9 × 8.97 in cell A3
(f) 2.1 × 62 × 0.7 in cell B3
(g) 5 × 6 × 8.4 × 5.01 in cell A4
(h) 71 × 5.4 × 58.7 in cell B4

4. ***Division***

The symbol / is used for division in spreadsheets.

Calculate the following divisions in the cells shown.

(a) 84 ÷ 12 in cell A1
(b) 810 ÷ 15 in cell B2
(c) 235.2 ÷ 5.6 in cell C3
(d) 52 858 ÷ 214 in cell D4
(e) 512.75 ÷ 58.6 in cell E5
(f) 5684 ÷ 39.2 in cell F6

5. ***Combined Operations***

(i) Try to calculate the answers to the following problems using mental arithmetic (remember BODMAS).
(ii) Calculate the answers on a spreadsheet in the cells shown.

(a) 8 + 4 × 2 in cell A1
(b) 10 - 3 × 2 + 6 in cell B1
(c) (3 + 5) × (6 - 2) in cell C1
(d) 14 ÷ 7 + 5 × 2 in cell D1
(e) 20 ÷ (4 + 1) - 3 in cell A2
(f) 36 ÷ 12 + 2 × 5 in cell B2
(g) (14 - 6) × (5 + 3) ÷ 2 in cell C2
(h) (3 + 2) × 4 - 10 ÷ 5 in cell D2

6. ***Colouring Cells***

Use the ***Colour Fill*** to colour the cells given below in the colours shown. The result will be four flags. To which countries do the flags belong?

Blue - A1-7, F8-10, H8-10, I8-10, F14-16, H14-16, I14-16
Black - E1-2, F1-2, G1-2
Red - C1-7, E3-4, F3-4, G3-4, D10-16
Yellow - E5-6, F5-6, G5-6, G8-16, F11-13, H11-13, I11-13
Green - B10-16
White - B1-7, C10-16

Cells and Fills

EXERCISE 2

1. Copy and complete the following tables onto spreadsheets where:
(i) the third column is equal to the sum of the first two columns
(ii) the fourth column is equal to the product of the first two columns

Example

	A	B	C	D
1	A	B	A + B	A × B
2	1	3		
3	4	5		
4	8	9		
5	12	16		
6	25	27		

Step 1 Copy all numbers and letters and centre the letters in the cells as shown.
Step 2 Highlight cell C2 and type the formula **=A2+B2**.
Step 3 Press ***enter***.
Step 4 Highlight cells C2-6.
Step 5 Go to ***Edit***, ***Fill***, ***Down*** and click.
Step 6 Highlight cell D2 and type the formula **=A2*B2**.
Step 7 Press **enter**.
Step 8 Highlight cells D2-6.
Step 9 Go to ***Edit***, ***Fill***, ***Down*** and click.

	A	B	C	D
1	A	B	A + B	A × B
2	1	3	4	3
3	4	5	9	20
4	8	9	17	72
5	12	16	28	192
6	25	27	52	675

(a)

1	A	B
2	0	2
3	5	7
4	14	10
5	23	13

(b)

1	M	N
2	1.3	0.2
3	4.5	5.7
4	7.2	10.0
5	12.3	14.8

(c)

1	P	Q
2	12	21
3	13	22
4	14	23
5	15	24

(d)

1	R	T
2	51.3	5.2
3	62.5	11.7
4	78.8	20.0
5	92.7	34.5

2. Copy and complete this multiplication table using ***fill down***.
See if you can:
(i) change the width of the columns to be the same as their height to make the cells square.
(ii) include the grid on your table.

X	1	2	3	4	5	6	7	8	9	10	11	12
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

The SUM Function

EXERCISE 3

1. Use the SUM function to find the sum of the following sets of numbers.

Example 6, 11, 24, 47

	A
1	6
2	11
3	24
4	47
5	

Step 1 Type the numbers in cells A1, A2, A3, A4.

Step 2 In cell A5 type the formula **= SUM(A1:A4)**

Step 3 Press ***enter***.

	A
1	6
2	11
3	24
4	47
5	88

(a) 5, 6, 8, 16, 25 (b) 124, 57, 385, 79 (c) 8.5, 9.3, 5.7, 11.8
(d) 1047, 859, 546, 2583, 357, 492, 368

2. In an archery competition Adrian achieved the following scores:
125, 136, 127, 145, 140
Use a spreadsheet to find the total of all his scores.

3. The number of students in each class at a college are shown in the table below. Use a spreadsheet to find the total number of students at each year level and the total number of students at the school.

Year 7	*Year 8*	*Year 9*	*Year 10*	*Year 11*	*Year 12*
24	27	24	24	24	22
26	26	25	23	23	23
25	28	25	25	22	21
28	28	25	24	24	20
26	26	24			

The AVERAGE Function

EXERCISE 4

1. Use the AVERAGE function to find the average of the following sets of numbers.

Example 6, 11, 24, 47

Step 1 Type the numbers in cells A1, A2, A3, A4.

	A
1	6
2	11
3	24
4	47
5	

Step 2 In cell A5 type the formula **= AVERAGE(A1:A4)**

Step 3 Press ***enter***.

	A
1	6
2	11
3	24
4	47
5	22

(a) 5, 6, 8, 16, 25 (b) 124, 57, 385, 79 (c) 8.5, 9.3, 5.7, 11.8
(d) 1046, 859, 546, 2583, 357, 492, 368

2. In a darts competition Christine achieved the following scores:
125, 136, 127, 145, 140
Use a spreadsheet to find the average of her scores.

3. The scores achieved by each team in a full round of matches in an indoor cricket competition are listed below. Use a spreadsheet to find the average score for each team.

Bashers	*Sixers*	*Drivers*	*Bouncers*	*Wickeds*
58	27	95	51	26
47	36	22	42	35
21	71	47	30	43
60	14	61	31	34

Mixed Problems Using Spreadsheets

EXERCISE 5

1. The table below shows a list of fruit and vegetables that a grocer needs to buy. The cost per kilogram is shown and the number of kilograms of each item needed by the grocer is listed.
Copy the information onto a spreadsheet and use the ***fill down*** function to show the total cost of each item and the ***SUM*** function to show the total cost of the list.

Item	*Cost per kg*	*Number of kg*	*Total cost*
Apples	$1.50	25	
Oranges	$1.85	30	
Grapes	$1.95	15	
Mandarins	$1.35	12	
Potatoes	$0.65	50	
Carrots	$0.90	15	
Pumpkin	$0.45	35	
Tomatoes	$1.90	40	
		Total	

2. A builder is buying the materials needed for a job he is working on.
The materials, their price per metre and the number of metres of each material required is shown below.
Construct a spreadsheet similar to the one in question 1 showing the materials, their price per metre, the number of metres of each material, the total price of each material and the total price of the materials.

Material	*Price per metre*	*Number of metres*
Hardwood joists	$2.60	26
Oregon beams	$9.40	18
Pine flooring	$2.35	140
Pine studs	$2.25	65

3. Five students competed in the long jump event at the school athletics meeting. Each student had three jumps and the results are shown below.
(a) Display this information on a spreadsheet and include the ***average*** of each competitors jumps.
(b) Which competitor had the longest jump?
(c) Which competitor had the best jumping average?

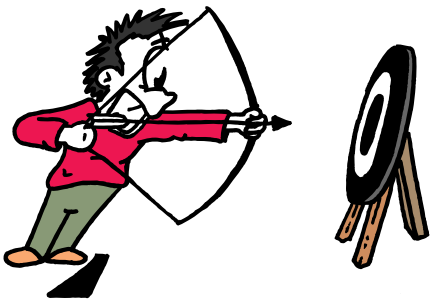
Name	*Jump 1*	*Jump 2*	*Jump 3*
Nerada	4.25 m	4.32 m	4.42 m
Sassie	4.15 m	4.28 m	4.56 m
Grace	4.11 m	4.45 m	4.61 m
Vivian	4.20 m	4.52 m	4.54 m
Wendy	4.30 m	4.50 m	4.43 m

4. A cherry farmer employed seven people to pick cherries. The list below shows how many boxes of cherries each person picked over a week.
The pickers were paid $3.50 per box they picked.
Display the information on a spreadsheet and include:
(i) the names of the pickers.
(ii) how many boxes each person picked each day.
(iii) the total number of boxes each person picked in the week.
(iv) the total amount each picker should be paid.
(v) the average number of boxes each person picked each day.

Number of boxes of cherries picked each day

Name	*Monday*	*Tuesday*	*Wednesday*	*Thursday*	*Friday*
Rupert	20	22	21	25	18
Martin	22	24	26	25	25
Corina	21	20	21	20	20
Rosemary	15	16	18	16	16
Cosmos	14	15	12	14	15
Kylie	19	21	21	18	17
Edwin	20	16	10	18	16

5. In five rounds of an archery competition the following competitors achieved the scores shown.
Mitchell: 103, 102, 93, 111, 100
Jay: 128, 111, 92, 98, 106
Adam: 125, 89, 117, 101, 99
Stephanie: 95, 115, 81, 106, 119
Copy and complete the spreadsheet below using the SUM function to find the total of each competitor's scores.



	A	B	C	D	E	F	G
1	NAME	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 5	TOTAL
2	Mitchell	103	102	93	111	100	
3	Jay						
4	Adam						
5	Stephanie						

6. At an athletics carnival there were six competitors in the pentathlon. The points they received for each event are listed below.
Pistol Shooting
Kate- 100, Sophie- 70, Tamara- 50, Martina- 35, Lark- 25, Nina- 20
Fencing
Lark- 100, Tamara- 70, Martina- 50, Sophie- 35, Nina- 25, Kate- 20
Swimming
Nina- 100, Martina- 70, Kate- 50, Tamara- 35, Lark- 25, Sophie- 20
Equestrian
Tamara- 100, Kate- 70, Martina- 50, Lark- 35, Sophie- 25, Nina- 20
Cross Country Run
Nina- 100, Lark- 70, Tamara- 50, Martina- 35, Sophie- 25, Kate- 20
Copy and complete the spreadsheet below using the SUM function to find the total of each competitor's scores.

	A	B	C	D	E	F	G
1	EVENT	KATE	SOPHIE	TAMARA	MARTINA	LARK	NINA
2	Pistol Shooting	100	70	50	35	25	20
3	Fencing						
4	Swimming						
5	Equestrian						
6	Cross Country Run						
7	TOTAL						

7. In a local election there were four people running for Shire President - ***Georgina Bush***, ***Jenny Carter***, ***Nick Rixon***, ***Clint Billton***.
There were six polling booths in the shire. The number of votes from each polling booth for the candidates are listed below.

Booth 1 - Bush (4563), Carter (3257), Rixon (3925), Billton (4110)
Booth 2 - Bush (2571), Carter (3310), Rixon (4513), Billton (3956)
Booth 3 - Bush (4852), Carter (2856), Rixon (3665), Billton (3145)
Booth 4 - Bush (3556), Carter (4015), Rixon (2998), Billton (3515)
Booth 5 - Bush (2987), Carter (3107), Rixon (4001), Billton (3562)
Booth 6 - Bush (2565), Carter (4123), Rixon (3295), Billton (4101)

Construct a spreadsheet showing all this information and use the SUM function to show:
(a) the total number of votes attained by each candidate.
(b) the total number of votes from each polling booth.
(c) the total number of votes for the election.

8. Beng's Burger Restaurant sells six different types of burgers.
The number of each of the burgers sold each day for a week is shown in the table below.
Construct a spreadsheet showing this information and use the SUM function to show:
(a) the total number of each type of burger sold in the week.
(b) the total number of burgers sold each day.
(c) the total number of burgers sold in the week.

	Plain Beef	*Double Beef*	*Chicken Fillet*	*Fish of the Day*	*Vegetarian*	*Bacon*
Monday	43	24	31	21	9	10
Tuesday	38	22	28	19	14	14
Wednesday	49	40	36	26	21	19
Thursday	58	45	37	30	23	24
Friday	78	72	47	38	33	35
Saturday	91	86	70	53	40	38
Sunday	55	42	32	29	21	19

9. The runs made by each player in a cricket team for 8 rounds of a season are shown in the table below. Copy the table onto a spreadsheet and complete it by using the SUM and AVERAGE functions.

Player	Rd 1	Rd 2	Rd 3	Rd 4	Rd 5	Rd 6	Rd 7	Rd 8	***Total***	***Ave***
A Tunzi	64	21	0	33	101	52	40	89		
J. Forrest	5	39	28	87	130	2	23	31		
M. Vosbergen	17	35	50	23	84	64	0	2		
C. Bullen	12	2	19	37	3	15	41	6		
S. Emery	36	87	14	26	0	0	56	38		
J. Slootjes	0	2	95	67	22	11	71	9		
A. Healy	3	5	147	13	2	1	8	29		
N. Sheppard	7	23	21	29	12	32	40	13		
B. Jones	2	0	1	5	9	11	6	15		
C. Dettman	12	15	10	22	0	0	0	4		
M. Poyser	1	0	1	0	0	1	1	0		
Team Total										

10. From question 9, J. Forrest wants to have an average of 50 runs after the next cricket match. Use trial and error and the AVERAGE function to find what score J. Forrest should make to average 50 runs after the next innings.

11. Derek achieved the following marks for tests in several topics in mathematics.

Fractions - 76%	***Decimals*** - 85%	***Angles*** - 93%
Percentages - 72%	***Measurement*** - 83%	***Data*** - 95%

(a) Use the AVERAGE function to find the average of Derek's test marks.

(b) If Derek wants to have an average of 85% after his next test, what mark should he achieve?

Discounts

EXERCISE 6

Example

A clothes shop is offering a discount of 20% off the following items.

Jeans - $80 Shirt - $50 Jacket - $120

A spreadsheet can be used to find the sale price of these items after they have been discounted by 20%.

Step 1 Set up the spreadsheet as shown here.
(You will need to centre the words in each cell)

	A	B	C	D
1	Item	Full Price	Discount	Sale Price
2	Jeans	$80		
3	Shirt	$50		
4	Jacket	$120		

Step 2 In cell C2 type the formula **=B2*20/100** and enter.
Step 3 Highlight cells C2-C4.
Step 4 Go to **Edit**, **Fill**, **Down** and click.
Step 5 In cell D2 type the formula **=B2-C2** and enter.
Step 6 Highlight cells D2-D4.
Step 7 Go to **Edit**, **Fill**, **Down** and click.

The spreadsheet should look like this:

	A	B	C	D
1	Item	Full Price	Discount	Sale Price
2	Jeans	$80	$16	$64
3	Shirt	$50	$10	$40
4	Jacket	$120	$24	$96

1. A music shop is offering a 20% discount off the following items.

Acoustic Guitars - $150	***Electric Guitars*** - $ 320
Keyboards - $460	***Pianos*** - $780
CDs - $35	***Music Books*** - $15

Construct a spreadsheet that shows the full price, discount and sale price of each item.

2. A bookshop is offering a 15% discount off the following items.
When constructing the spreadsheet to show this information ensure that the discount is **15%**. This is achieved by replacing **20** with **15** in ***Step 2*** of the example.

Novels - $15	***Dictionaries*** - $45
Crossword books - $12	***Sports books*** - $22
Calendars - $30	***Magazines*** - $8

Construct a spreadsheet that shows the full price, discount and sale price of each item.

3. A sport shop is offering discounts off certain items.
The discounts and the items are listed below.
When constructing the spreadsheet to show this information ensure that the discount is correct for each item. This is achieved by replacing **20** with the given discount in ***Step 2*** of the example.

40% ***discount off the following items.***

Basketballs - $60	Netballs - $40
Volleyballs - $35	Footballs - $85

30% ***discount off the following items.***

Tennis rackets - $180	Squash rackets - $110
Cricket bats - $215	Hockey sticks - $75

20% ***discount off the following items.***

Basketball shoes - $160	Football boots - $170
Shirts - $40	Tracksuits - $140

Construct a spreadsheet that shows the full price, discount and sale price of each item.

