

## USING MATHEMATICS 3 (ACC 3)

### Outcome 1

#### Exercise 1

- |      |                               |     |            |     |        |
|------|-------------------------------|-----|------------|-----|--------|
| 1)   | £65.30                        | 2a) | £9.10      | b)  | £10.90 |
| 3a)  | 69.1 kg                       | b)  | 5.1 kg     |     |        |
| 4a)  | £1200                         | b)  | £1250      |     |        |
| 5a)  | Tom 296, Steve 300, Derek 293 | b)  | Derek wins |     |        |
| 6a)  | 21 boxes                      | b)  | £173.25    |     |        |
| 7a)  | 9 weeks                       | b)  | 6 weeks    |     |        |
| 8)   | 42 points                     | 9)  | 35         | 10) | £4.10  |
| 11a) | £11.55                        | b)  | £3.30      |     |        |

#### Exercise 2

- |    |     |    |     |     |      |     |      |
|----|-----|----|-----|-----|------|-----|------|
| 1. | 500 | 2. | 76  | 3i) | 87   | ii) | 261  |
| 4. | 400 | 5. | 680 | 6.  | 2400 | 7.  | 1452 |
| 8. | 356 | 9. | 100 | 10. | 366  |     |      |

#### Exercise 3

- |    |          |    |                |    |             |
|----|----------|----|----------------|----|-------------|
| 1. | 700g     | 2. | 321 pupils     | 3. | 8 questions |
| 4. | 3 pupils | 5. | 2100 customers |    |             |

#### Exercise 4

- |     |            |     |           |     |            |     |         |    |            |
|-----|------------|-----|-----------|-----|------------|-----|---------|----|------------|
| 1.  | £10.50     | 2.  | 36 km     | 3.  | £74.40     | 4.  | 1240 kg | 5. | 110 people |
| 6.  | £309.12    | 7.  | 215.6 m   | 8.  | 86 days    | 9.  | 864 ml  |    |            |
| 10. | 506 pupils | 11. | 87 pupils | 12. | 27 minutes | 13. | 49.5 ml |    |            |
| 14. | £816       | 15. | £204.60   |     |            |     |         |    |            |

#### Exercise 5

- |     |                     |                |                 |
|-----|---------------------|----------------|-----------------|
| 1a) | 120 pupils          | b)             | 255 pupils      |
| 2.  | Rugby shirt £35.70, | Ski Boots £72, | Rucksack £16.45 |
| 3.  | 96 beats per minute |                |                 |
| 4.  | 570 people          |                |                 |
| 5.  | 360 people          |                |                 |
| 6.  | 665 g               |                |                 |

## USING MATHEMATICS 3 (ACC 3)

### Outcome 2

#### Exercise 1

- 1a) 50 hours      b) May      c) April & June
2. Completed graph (Worksheet 1)
3. Pupil's own graph
4. Pupil's own graph

#### Exercise 2

- 1a) Keep Fit      b) Darts      c) 10
- d) 14 (accept 15)      e) 4 (accept 5)
- 2a) Record Company      b) between £2 and £2.50
- c) between £0.5. and £1.00      d) Publisher and Producer
3. Completed graphs (Worksheet 2)
4. Pupil's own graph

#### Exercise 3

- 1a) 2 children      b) 42 kg      c) 10 years 11 months      d) 11 years
- 2a) 152 cm      b) 36 kg      c) 2 children      d) 42 kg
3. Completed graphs (Worksheet 3)
4. Pupil's own graph

#### Exercise 4

- 1a) 1990      b) 1986      c) 70 million
- d) 75 million      e) 5 million      f) 473 million
2. Completed graphs (Worksheet 4)

#### Exercise 5

Pupil's own data and graphs

## Exercise 6

- |                  |                   |
|------------------|-------------------|
| 1a) Thomson Road | b) Cromarty Drive |
| c) Elgin Road    | d) Heather Lane   |
| e) Elgin Road    | f) Bank Street    |
| g) Woodhead Way  | h) Rose Way       |

2. Various answers are possible : sample solutions given

- a) Go up Thomson Road.  
Take the second right into High Street.  
Then first left into Bank Street.  
The bank is on your right.
- b) Go up Thomson Road.  
Take the fourth turn on the right into Clyde Lane.  
Then the first left into Quarry Lane.  
The swimming pool is at the end of Quarry Lane.
- c) Go up Thomson Road.  
Take the second turn on the left into Cromarty Drive.  
Then first right into Rose Way.  
The car park is on your left.

- 3a) Holly Street      b) Ivy Crescent

For (c) and (d) various answers are possible : sample solutions are given

- c) Come out of the house and turn left.  
Turn first right into Holly Street.  
At the end of Holly Street turn right into Rose Street.  
The swimming pool is at the end of the street.
- d) Walk down Ash Lane.  
Take the first left into Oak Road.  
At the end of Oak Road turn right into Ivy Crescent.  
The health centre is on your left.

4. Various answers based on own school building.

### Exercise 7

- 1a) 60 mins or 1 hour                      b) 100 mins or 1 hour 40 mins  
c) 90 mins or 1 hour 30 mins
- 2a) 70 mins or 1 hour 10 mins            b) 7.40 p.m.
- 3a) 90 mins or 1 hour 30 mins            b) 111 mins or 1 hour 51 mins  
c) 195 mins or 3 hours 15 mins
- 4a) 160 mins or 2 hours 40 mins        b) 4.20 p.m.

5. Melinda Black £414

Sam Harper        £122.50

Pete Rivers        £259

- 6a) 59 °F            b) 86 °F            c) 32 °F
- 7a) 15 °C            b) 45 °C            c) 50 °C

### Exercise 8

Various answers

## USING MATHEMATICS 3 (ACC 3)

### Outcome 3

#### Exercise 1

1. Trapezium marked with one axis of symmetry
2. Rectangle marked with two axes of symmetry
3. Square marked with four axes of symmetry
4. Kite marked with two axes of symmetry
5. Symmetry Worksheet 1 - axes of symmetry drawn in
6. Symmetry Worksheet 2 - axes of symmetry drawn in

#### Exercise 2

1. Shape 1 on Symmetry Worksheet 4 completed
2. All shapes on Symmetry Worksheet 4 completed
3. Pupil's own diagram
4. Pupil's own poster
5. Pupil's own logo

#### Exercise 3

1. Triangle tiling
2. Four tilings, each using a different shape (at least 8 tiles shown in each)
3. Tiling Worksheet 1 completed
4. Tiling Worksheet 2 completed
5. Tiling Worksheet 3 completed

#### Exercise 4

1.	$6 \text{ cm}^2$	$12 \text{ cm}^2$	$6 \text{ cm}^2$	$5 \text{ cm}^2$	7
$\text{cm}^2$	$10 \text{ cm}^2$	$9 \text{ cm}^2$	$8 \text{ cm}^2$	$11 \text{ cm}^2$	10
$\text{cm}^2$					
2.	$10 \text{ cm}^2$	$7 \text{ cm}^2$	$9 \text{ cm}^2$	$14 \text{ cm}^2$	
	$11 \text{ cm}^2$	$8 \text{ cm}^2$	$8 \text{ cm}^2$	$15 \text{ cm}^2$	

- 3a) One shape drawn with area  $4 \text{ cm}^2$
- b) Two shapes drawn with area  $6 \text{ cm}^2$
- c) Three shapes drawn with area  $8 \text{ cm}^2$
- d) Four shapes drawn with area  $10 \text{ cm}^2$

### Exercise 5

- |                                                    |                                  |                     |
|----------------------------------------------------|----------------------------------|---------------------|
| 1. $3 \times 2 = 6$<br>12                          | 2. $7 \times 4 = 28$             | 3. $2 \times 6 =$   |
| 4. $3 \times 4 = 12$<br>$20 \text{ cm}^2$          | 5. $4 \times 4 = 16$             | 6. $5 \times 4 =$   |
| 7. $7 \times 2 = 14 \text{ cm}^2$<br>$\text{cm}^2$ | 8. $3 \times 3 = 9 \text{ cm}^2$ | 9. $2 \times 4 = 8$ |
| 10. $3 \times 5 = 15 \text{ cm}^2$                 |                                  |                     |

### Exercise 6

- |                                                                                           |                                                                  |                   |
|-------------------------------------------------------------------------------------------|------------------------------------------------------------------|-------------------|
| 1. Solids Worksheet 1 - front<br>cylinder<br>pyramid<br>triangular prism                  | cube<br>sphere<br>cuboid                                         |                   |
| Solids Worksheet 1 - back<br>cylinder<br>cube<br>triangular prism                         | cuboid<br>sphere                                                 |                   |
| 2. Solids Worksheet 2<br>A = cuboid<br>sphere<br>D = cube<br>cuboid<br>G = cube<br>cuboid | B = pyramid<br>E = triangular prism<br>H = cuboid                | C =<br>F =<br>I = |
| 3. Net of cube built up                                                                   |                                                                  |                   |
| 4. Small nets of cubes stuck into jotter                                                  |                                                                  |                   |
| 5. A = cuboid<br>D = triangular prism<br>pyramid)                                         | B = square based pyramid<br>E = tetrahedron (or triangular based | C = cube          |
| 6. -                                                                                      |                                                                  |                   |

### Exercise 7

1.

A	B	C	D	E	F	G	H	I	J	K	L
$8\text{cm}^3$	$16\text{cm}^3$	$30\text{cm}^3$	$30\text{cm}^3$	$27\text{cm}^3$	$5\text{cm}^3$	$7\text{cm}^3$	$5\text{cm}^3$	$9\text{cm}^3$	$8\text{cm}^3$	$5\text{cm}^3$	$5\text{cm}^3$

- 2a) 6                      b) 3                      c)  $18\text{ cm}^3$   
3a) 9                      b) 2                      c)  $18\text{ cm}^3$

### Exercise 8

2.  $16 \times 5 = 80\text{ cm}^3$                       3.  $8 \times 4 = 32\text{ cm}^3$   
4.  $9 \times 7 = 63\text{ cm}^3$                       5.  $6 \times 1 = 6\text{ cm}^3$   
6.  $4 \times 3 = 12\text{ cm}^3$                       7.  $6 \times 2 = 12\text{ cm}^3$   
8.  $15 \times 2 = 30\text{ cm}^3$                       9.  $16 \times 3 = 48\text{ cm}^3$   
10.  $9 \times 3 = 27\text{ cm}^3$                       11.  $14 \times 3 = 42\text{ cm}^3$   
12.  $18 \times 3 = 54\text{ cm}^3$

### Exercise 9

1.  $16\text{ cm}^3$   
2.  $30\text{ cm}^3$   
3.  $120\text{ cm}^3$   
4.  $120\text{ cm}^3$   
5.  $50\text{ cm}^3$

## USING MATHEMATICS 3 (ACC 3)

### Outcome 4

#### Exercise 1

1. Scales Worksheet 1 - see diagrams
2. Scales Worksheet 2 - see diagrams

#### Exercise 2

- |            |          |          |
|------------|----------|----------|
| 1. A = 0.3 | B = 1.3  | C = 4.2  |
| 2. D = 4.7 | E = 6.8  | F = 9    |
| 3. G = 13  | H = 15.4 | J = 17.7 |
| 4. K = 35  | L = 39.8 | M = 44.8 |
| 5. N = 0.4 | P = 5.4  | R = 9.8  |

#### Exercise 3

- 1a) Measuring jug  
b) Speedometer  
c) Thermometer  
d) Scales  
e) Ruler
2. Descriptions e.g.  
a) volume of liquid  
b) speed of vehicle  
c) temperature  
d) finding weight  
e) measuring length

#### Exercise 4

- |         |          |          |
|---------|----------|----------|
| 1. 30°C | 2. 90°C  | 3. 50°C  |
| 4. 8°C  | 5. 6.5°C | 6. 4.5°C |

#### Exercise 5

- |           |            |               |               |
|-----------|------------|---------------|---------------|
| 1. 400 ml | 2. 600 ml  | 3. 300 ml     | 4. 500 ml     |
| 5. 50 ml  | 6. 1 litre | 7. 1.6 litres | 8. 0.6 litres |



### Exercise 6

- |                      |                       |                       |
|----------------------|-----------------------|-----------------------|
| 1. $10 \text{ cm}^3$ | 2. $220 \text{ cm}^3$ | 3. $200 \text{ cm}^3$ |
| 4. $75 \text{ cm}^3$ | 5. $25 \text{ cm}^3$  | 6. $5 \text{ cm}^3$   |

### Exercise 7

- |              |           |           |           |
|--------------|-----------|-----------|-----------|
| 1. 110 g     | 2. 240 g  |           |           |
| 3. A = 250 g | B = 450 g | C = 750 g | D = 900 g |
| E = 100 g    | F = 550 g | G = 650 g | H = 800 g |
| 5. 43 kg     | 6. 16 kg  |           |           |

### Exercise 8

- |                |               |               |
|----------------|---------------|---------------|
| 1. $50^\circ$  | 2. $30^\circ$ | 3. $70^\circ$ |
| 4. $150^\circ$ | 5. $10^\circ$ | 6. $20^\circ$ |

### Exercise 9

- |                |               |               |         |
|----------------|---------------|---------------|---------|
| 1a) North-west | b) South-west | c) South-east |         |
| 2. -           |               |               |         |
| 3a) True       | b) False      | c) False      | d) True |
| e) False       | f) True       | g) True       | h) True |

### Exercise 10

- |            |           |             |
|------------|-----------|-------------|
| 1a) 120 cm | b) 240 cm | c) 168 cm   |
| 2a) 150 m  | b) 455 m  | c) 160 m    |
| 3a) 200 km | b) 450 km | c) 110 km   |
| 4a) 125 cm | b) 350 cm | c) 322.5 cm |

### Exercise 11

Answers may vary slightly due to photocopying

Allow 0.1 cm for each measure in part a

- |            |           |            |           |
|------------|-----------|------------|-----------|
| 1a) 3.7 cm | b) 74 cm  | 2a) 2.6 cm | b) 26 cm  |
| 3a) 3.5 cm | b) 140 cm | 4a) 6 cm   | b) 900 km |
| 5a) 3 cm   | b) 90 cm  | 6a) 5.3 cm | b) 265 cm |
| 7a) 4.5 cm | b) 90 cm  | 8a) 3.9 cm | b) 7.8 m  |
| 9a) 2 cm   | b) 8 m    |            |           |