Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 1 Place Value

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Pages 3-4

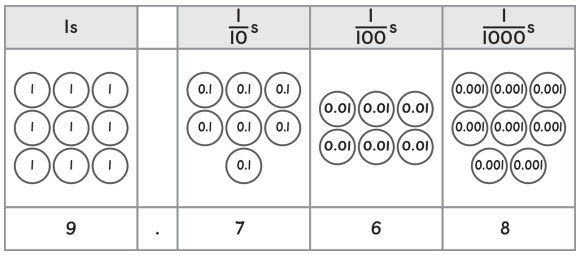
(a) In 0.001, the digit 1 is in the thousandths place.
1 one and 3 thousandths = 1.003

(c) 3 + 0.1 + 0.04 + 0.002 = 3.142.
In the number, the digit 2 is in the thousandths place.

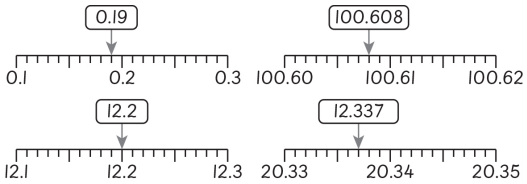
- Let's Practise

Pages 5-6

1. 8; 8 thousandths; 0.008



2. (a) 1; 9
   (b) 1; 6; 8
   (c) 2.2
   (d) 0.33



3. –0.007; 0.004
   Answers vary. For example: Count 7 markings on the left of 0 to get –0.007 and count 4 markings on the right of 0 to get 0.004.

4. TWM.01: Specialising
   Answers vary. For example:
   Option 1: Onions, potatoes, flour, papaya and apples
   Option 2: Watermelon, onions, flour and papaya

Section B

- Let's Learn

Pages 8-9

(a) 15 × 1000 = 15 000
The total mass of 15 boxes of sauce is 15 000 g.
986 ÷ 10 = 98.6

98 sachets of sauce can be made.
986 ÷ 100 = 9.86
9 bottles can be made.

(b) 4.38 × 1000 = 4380
The total mass of the 1000 balls is 4380 g.

- Let's Practise

Page 10

1. (a) 10.23
   (b) 0.474
   (c) 12 410
   (d) 2.5
   (e) 20 045
   (f) 0.32

2. (a) 0.029
   (b) 13.002
   (c) 101
   (d) 3239

3. TWM.08: Improving
   No. Ralph is not correct.
   45.93 × 1000 = 45 930 g, which is not the same as 45 039 g.
   Ralph should say: 1000 golf balls have a total mass of 45 930 g.

4. (a) 453.9 – 48.9 = 405 kg
   Mass of each ball bearing = 405 ÷ 1000 = 0.405 kg

   (b) Mass of 100 ball bearings = 0.405 × 100 = 40.5 kg
   Mass of empty box = 48.9 – 40.5 = 8.4 kg

Section C

- Let's Practise

Page 14

1. (a) 2
   (b) 3
   (c) 7
   (d) 10

2. (a) 0.7
   (b) 1.9
   (c) 2.6
   (d) 5.0
   TWM.06: Classifying
   b; c; a; d

3. Total mass
   = 1.39 + 1.59
   = 2.98 kg
   2.98 kg when rounded to the nearest tenth is 3.0 kg.

4. (a) TWM.04: Convincing
   When we round a number to the nearest whole number, we look at the tenths digit. If it is 5 tenths or more, we round up. So, the digit at the tenths place must be at least 5 and the least possible distance is 1.5 km.

   (b) 2.49 + 5.44 = 7.93 km
   7.93 km when rounded to the nearest tenth is 7.9 km.

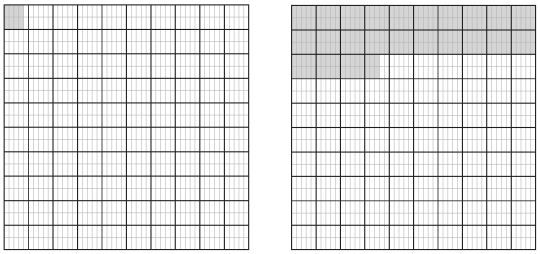
   (c) 5.35 – 2.49 = 2.86 km
   2.86 km when rounded to the nearest tenth is 2.9 km.
   TWM.07: Critiquing
   Answers vary. For example:

Difference: I find the greatest and least possible distances to 2 decimal places while my partner finds the distances to 3 decimal places.
Similarity: After finding the numbers with 2 decimal places or 3 decimal places, the rounded value is the same.

Activity Book

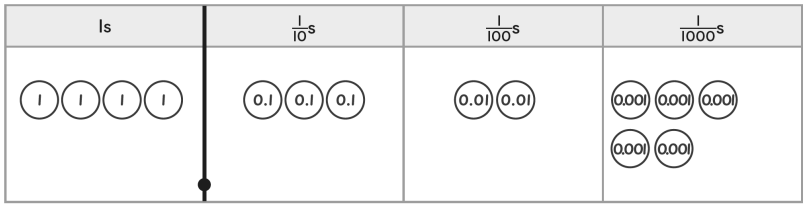
Section A

1.

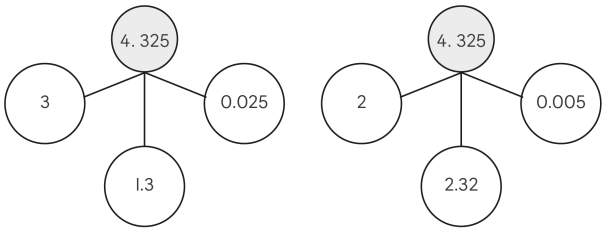


2. (a) 0.005; 4.325

(b)



(c) TWM.01: Specialising
Answers vary. For example:



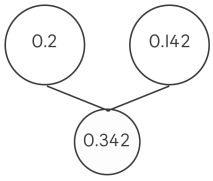
3. 0.202

4. (a) 1 hundredth + 2 thousandths = <u>0.012</u>
(b) 12.504 = 1 ten + 2 ones + <u>5</u> tenths + <u>4</u> thousandths
(c) 45 + 0.04 + 0.006 = <u>45.046</u>
(d) 128.105 = 100 + 28 + <u>0.105</u>

5. (a)

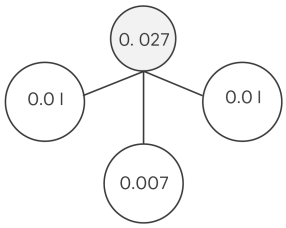
(b) TWM.01: Specialising
Answers vary. For example: –0.004.

6.



0.2 and 0.142 add up to 0.342, so the total distance is 0.342 m.

7.



0.027 can be regrouped as 0.01 + 0.007 + 0.01, so the mass of the third strawberry is 0.01 kg.

8. TWM.04: Convincing
No, he is not. It is smaller only when the number is positive. If the number is negative, the value of the digit in the thousandths place is greater than the value of the digit in the hundredths place.

Section B

1. (a) 72 × 1000 = <u>72 000</u>
When multiplying by 1000, the digits move <u>3</u> places to the <u>left</u>.

(b)

10s	1s	$\frac{1}{10}$s	$\frac{1}{100}$s	$\frac{1}{1000}$s
1	6			
	0	0	1	6

16 ÷ 1000 = <u>0.016</u>
When diving by 1000, the digits move <u>3</u> places to the <u>right</u>.

(c) 5.1 × 1000 = 5100

2.

×	10	100	1000
13	130	1300	13 000
1.6	16	160	1600
3.27	32.7	327	3270
0.481	4.81	48.1	481

÷	10	100	1000
6	0.6	0.06	0.006
23	2.3	0.23	0.023
370	37	3.7	0.37
781	78.1	7.81	0.781

3.

Statement	Correction
a 88.44 × 10 = 8844	88.44 × <u>100</u> = 8844 or 88.44 × 10 = <u>884.4</u>
b 111.2 ÷ 100 = 1.112	No errors
c 2.356 × 1000 = 2 356 000	2.356 × 1000 = <u>2356</u> or 2356 × 1000 = 2 356 000
d 132 ÷ 10 = 0.132	132 ÷ <u>1000</u> = 0.132 or 132 ÷ 10 = <u>13.2</u>

4. 2350 ÷ 1000 = 2.35 g
The mass of one capsule is 2.35 g.

5. Mass of one parcel
   = 1567 ÷ 1000
   = 1.567 kg
   Total mass of 100 parcels
   = 1.567 × 100
   = 156.7 kg

6. 1000 × 25 = 25 000
   He exchanged 25 000 baht.
   25 000 – 15 000 = 10 000
   10 000 × 0.04 = 400
   Minho got S$400 in the end.

Section C

1. 6; 7; 7; 6.3; 6.5; 6.8

2.

Runner	Timing (in min)	Nearest whole number	Nearest tenth
Henna	15.52	16	15.5
James	16.25	16	16.3
Anna	17.56	18	17.6
Harry	20.03	20	20.0

3. TWM.01: Specialising
   Answers vary. For example:
   Richard's mass could be 56.57 kg.
   Your answer could be different from your friend's, but the answers after rounding off are the same.

4. TWM.01: Specialising
   Answers vary. For example:
   2.74 + 3.18 = 5.92
   2.74 when rounded to the nearest tenth is 2.7.
   3.18 when rounded to the nearest whole number is 3.

5. TWM.01: Specialising
   Answers vary. For example:
   Ali has $5.02 and Maya has $4.98.

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Stage 6

Suggested Answers

Chapter 2 The Number System

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Student's Book

Section A

- Let's Learn

Pages 19-20

(a) 0.8
The height of water in the pool is 0.8 m after 4 minutes.

(b) 1.82; 1.83
The height of water in the pool is 1.82 m after 6 minutes.

(c) 0.008 is 4 jumps of 0.002.
The 2nd term is 5.121 + 0.002 = 5.123.
The 3rd term is 5.123 + 0.002 = 5.125.
The 4th term is 5.125 + 0.002 = 5.127.
The railway track at 9:30 am is 5.127 km long.

- Let's Practise

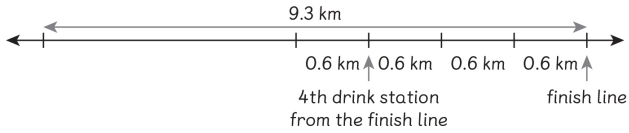
Page 21

1. (a) 0.3, 0.8, 1.3, 1.8, 2.3
   (b) 0.10, 0.06, 0.02, –0.02, –0.06
   (c) 0.004, 0.002, 0, –0.002, –0.004
   (d) $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}, \frac{4}{5}, \frac{5}{5}$

2. TWM.02: Generalising
   9.6 + 4 × 0.3 = 9.6 + 1.2 = 10.8 cm
   Rule: Add 0.3 to get the next term.

3. (a) 0.9 + 4 × 0.6 = 0.9 + 2.4 = 3.3 km

   (b) TWM.04: Convincing



   9.3 – 3 × 0.6 = 9.3 – 1.8
   = 7.5
   The distance between the starting line and the 4th drink station from the finish line is 7.5 km.

Section B

- Let's Learn

Page 24

(b) 14 + 19 + 2 × 8
= 14 + 19 + 16
= 19 + 14 + 16
= 19 + 30
= 49
He bought 49 pieces of fruit altogether.

- Let's Practise

Page 25

1. (a) 133
   (b) 20
   (c) 54
   (d) 798
   (e) $31 \times 11 + 12$
   $= 31 \times \underline{10} + 31 \times 1 + 12$
   $= \underline{353}$
   (f) $25 \times 14 - 8$
   $= 25 \times \underline{4} + 25 \times 10 - 8$
   $= \underline{342}$

2. TWM.07: Critiquing
   $12 \times 9 \times 5 \times 10 + 150$
   $= (12 \times 5) \times (9 \times 10) + 150$
   $= 60 \times 90 + 150$
   $= 5400 + 150$
   $= 5550$
   Elijah will earn $5550 in 10 weeks.
   Answers vary. For example:
   My method is more efficient as I used laws of arithmetic to simplify the calculations.

3. (a) $5 \times 12 - 4 = 56$
   12 bottles of drink will cost $56.

   (b) TWM.04: Convincing
   Cost of 12 bottles = $\$5 \times 12 - \$4 = \$56$
   Cost of 2 sets of 12 bottles = $\$56 \times 2 = \$112$
   Cost of a box of 24 bottles = $\$5 \times 24 - \$6 = \$114$
   It is cheaper to buy 2 sets of 12 bottles.
   Julie should buy 3 sets of 12 bottles and 4 individual bottles to pay the least amount.
   $56 \times 3 + 4 \times 5 = 188$
   The minimum payment is $188.

Section C

- Let's Learn

Page 27

(b) $4 + 8 \times (\underline{23} + \underline{2})$
$= 4 + 8 \times \underline{25}$
$= 4 + \underline{200}$
$= \underline{204}$
$\underline{204}$ people went for the trip altogether.

- Let's Practise

Page 28

1. (a) 105
   (b) 11
   (c) 70
   (d) 8

2. (a) $3 + 5 \times (8 + 2) = 53$
   (b) $(65 - 25) \div 5 + 3 = 11$
   (c) $8 \times (12 + 18) - 5 \times 4 = 220$

3. (a) The 22 represents the number of students in the classroom where there were 2 absentees.

   (b) Number of students in the classroom without absentees
   $= 22 + 2$
   $= 24$
   Number of classrooms and laboratories
   $= 120 \div 24$
   $= 5$

Number of classrooms
= 5 – 3
= 2
The missing number is 2.

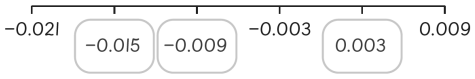
(c) $120 \div 2 + (3 - 2) = 61$

Activity Book

Section A

1. (a) Starting from 0.2, subtract 0.05 each time to find the next term.

(b) Starting from –0.021, add 0.006 each time to find the next term.



(c) Starting from $\frac{7}{3}$, subtract $\frac{2}{3}$ each time to find the next term.

2. (a)

$\frac{15}{6}$, $\frac{13}{6}$, $\frac{11}{6}$, $\frac{9}{6}$, $\frac{7}{6}$

(b) $-\frac{1}{6}$

3. TWM.02: Generalising
The number sequence is: 3, 2.7, 2.4, 2.1, 1.8, 1.5.
Starting from 3, subtract 0.3 each time to get the next term.

4. (a) Count back in $\frac{2}{5}$s:

$-\frac{2}{5}, -\frac{4}{5}, -\frac{6}{5}, -\frac{8}{5}, -\frac{10}{5}, -\frac{12}{5}$

The sixth step is $\frac{12}{5}$ m or 2.4 m below the water level.

(b) TWM.03: Conjecturing
$-\frac{11}{5}$ is between the 5th term and the 6th term of the number sequence in (a).
It cannot be a term in the sequence, so $-\frac{11}{5}$ m cannot be the height of a step in the pool.

5. $3500 \div 100 = 35$
Count on in 0.9 s for 35 times to get the 36th term in the sequence below:
–18, –17.1, –16.2, –15.3, ...
$35 \times 0.9 = 31.5$
$-18 + 31.5 = 13.5$
The temperature at the foot of the mountain is 13.5°C.

6. TWM.02: Generalising
4.5 – 3 = 1.5 m
The snail is 1.5 m higher every two hours.
How far the snail can move every two hours forms a sequence:
1.5, 3, 4.5, 6, 7.5, 9, 10.5, 12

After 16 hours, the snail is 1.5 × 8 = 12 m higher.
After 17 hours, 12 + 4.5 = 16.5 m
After 17 hours, the snail can get out of the well.
17 hours after 12 pm is 5 am the next day.
The snail can get out of the well at 5 am the next day.

Section B

1. (a) $5 \times 21 \times 6 - 30$
$= 21 \times \underline{5} \times \underline{6} - 30$
$= 21 \times \underline{30} - 30$
$= \underline{630} - 30$
$= \underline{600}$

(b) $24 + 18 + 3 \times 2$
$= 24 + 18 + \underline{6}$
$= 24 + \underline{6} + \underline{18}$
$= \underline{30} + \underline{18}$
$= \underline{48}$

(c) $500 - 34 \times 11$
$= 500 - 34 \times \underline{10} - 34 \times 1$
$= 500 - \underline{340} - 34$
$= \underline{160} - 34$
$= \underline{126}$

2. African elephant: 70
Horse: 30
Lion: 15
Cow: 22
The <u>African elephant</u> is the longest living animal.

3. TWM.07: Critiquing
Caz solved the problem correctly.
Izzy is wrong because she subtracted and then multiplied.

4. Route 1: 3 + 2 + 6 + 9 = 20 km
Route 2: 3 + 7 + 6 = 16 km
Total distance travelled by all students
$= 2 \times 20 + 3 \times 16$
$= 40 + 48$
$= 88$ km

5. TWM.01: Specialising
$10 + \underline{36} \times \underline{5}$
$= 10 + \underline{9} \times \underline{4} \times \underline{5}$
Alternatively,
$10 + \underline{45} \times \underline{4}$
$= 10 + \underline{9} \times \underline{5} \times \underline{4}$

Section C

1. $5 \times (\underline{3} + 2) + 4$
$= 5 \times \underline{5} + 4$
$= \underline{25} + 4$
$= \underline{29}$
Andy bought <u>29</u> bell peppers.

2. $(8 + \underline{4}) \div 3 \times 5$
$= \underline{12} \div 3 \times 5$
$= \underline{4} \times 5$
$= \underline{20}$
Jay spent $<u>20</u> altogether.

3.

A 1	6		B 3	0
8		C 2	5	
	D 1	2		F 5
E 2	3		G 3	4
0		H 5	2	

4. (a) $(7 - 4 - 2) \times 3 = 3$
   (b) $3 \times (4 - 2) + 8 \div 2 = 10$

5. $5 \times (21 + 4) + 7$
   $= 5 \times 25 + 7$
   $= 125 + 7$
   $= 132$
   There are 132 people in the parade altogether.

6. TWM.04: Convincing
   No, it is not correct. For example:
   $6 \div 2 \times 3 = 3 \times 3 = 9$
   $(6 \div 2) \times 3 = 3 \times 3 = 9$
   $6 \div (2 \times 3) = 6 \div 6 = 1$

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Stage 6

Suggested Answers

Chapter 3 2D Shapes and Angles

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Pages 33-35

(b) AD or BC

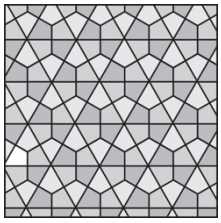
(d) The parallelogram is decomposed into 2 triangles and 1 rectangle.

- Let's Practise

Page 37

1. Square; Trapezium; Kite

2. Answers vary. For example:



3. TWM.05: Characterising
   Answers vary. For example:
   Both the square and the kite have four sides. All sides are equal in the square; whereas adjacent sides are equal in the kite. The square has two lines of symmetry, but the kite has one line of symmetry.

4. TWM.04: Convincing
   Ron is correct. As squares, rectangles and rhombuses all have two pairs of parallel sides, they are parallelograms. Caz is wrong. As some parallelograms do not have right angles, they are not all necessarily to be squares.

Section B

- Let's Practise

Page 40

1. (a) Centre: R; Radius: RP or RQ or RS; Diameter: PQ
   (b) Centre: C; Radius: CA or CB or CD; Diameter: AB
   (c) Centre: L; Radius: LK or LJ; Diameter: JK

2. (a) Radius = 3 cm, diameter = 6 cm
   (b) Radius = 5 cm, diameter = 10 cm
   (c) Radius = 2 m, diameter = 4 m

3. TWM.04: Convincing
   Izzy is correct about the diameter but she is wrong about the radius.
   The blue line is not a radius and so it is not 7 cm long.

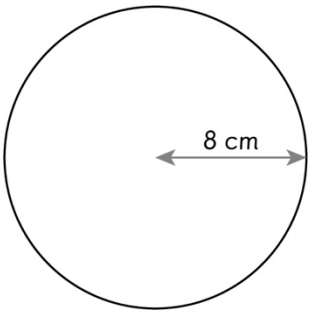
Section C

- Let's Practise

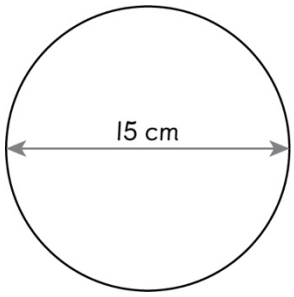
Page 43

1. (a) Students to use a compass to complete the circle in Student's Book.
   (b) Students to use a compass to complete the circle in Student's Book.

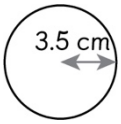
2. (a)



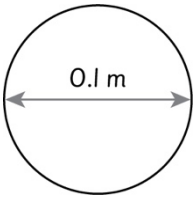
(b)



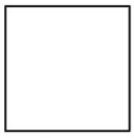
(c)



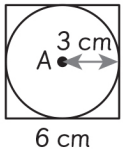
(d)



3.



(a) TWM.01: Specialising



The radius of the circle is 3 cm.

(b) TWM.02: Generalising
The radius of the circle is half the length of the side of the square.

Section D

- Let's Learn

Page 45

(a) Area of the rectangle = 8 cm^2 or 8 square centimetres
Area of each right-angled triangle = 8 ÷ 2
= 4 cm^2
Area of blue triangle = 4 cm^2
Area of orange triangle = 4 cm^2

- Let's Practise

Page 46

1. (a) 8 cm^2
   (b) 12.5 cm^2

2. (a) 12 cm^2
   (b) 35 cm^2
   (c) 42 cm^2
3. TWM.04: Convincing
   18 + 20 = 38
   Ron had 38 cm^2 of cake.
   10 × 8 ÷ 2 = 40
   Izzy had 40 cm^2 of cake.
   So, Izzy had more cake.

Section E

- Let's Learn

Page 48

(a) It is more than 90°. The size of this angle is 121°.
It is more than 180° but less than 360°. The size of this angle is 235°.

- Let's Practise

Page 50

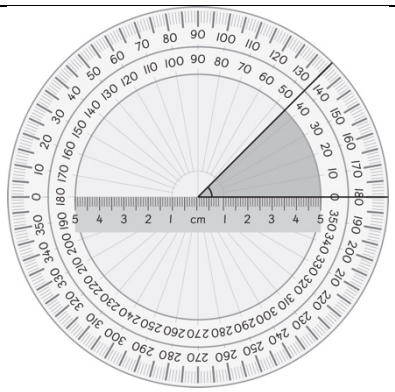
1. (a) Answers vary. For example: Estimate: 45°.
   Actual: 40°

   (b) Answers vary. For example: Estimate: 100°.
   Actual: 132°

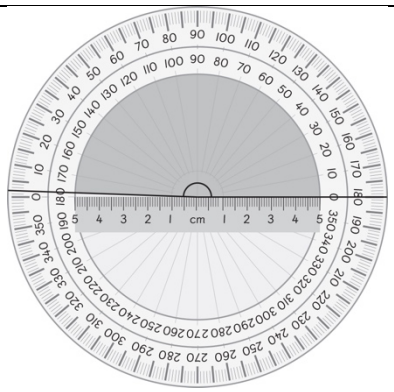
2. (a) Answers vary. For example: Estimate: 50°.
   Actual: 58°

   (b) Answers vary. For example: Estimate: 260°.
   Actual: 265°

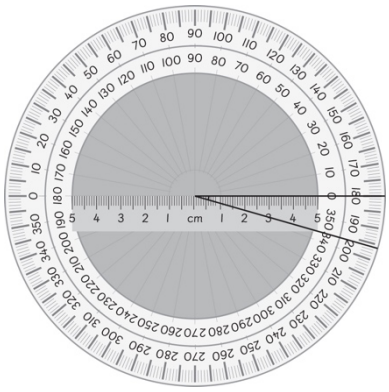
3. (a) TWM.03: Conjecturing



45°



178°



344°

Answers vary. For example:
One can improve the accuracy of angle drawing by making sure that the protractor is placed correctly where the centre of the protractor is on top of the vertex of the angle.

(b) TWM.06: Classifying
45º is an acute angle. 178º is an obtuse angle. 344º is a reflex angle

Section F

- Let's Learn

Page 52

(b) 180° – 27° – 82° = <u>71</u>°
So ∠C = <u>71</u>°
This triangle is an <u>isosceles</u> triangle.
180° – 50° = <u>130</u>°
130° ÷ 2 = <u>65</u>°
So, ∠Z = <u>65</u>°

- Let's Practise

Page 53

1. (a) ∠C = 60º
   (b) ∠D = 110º
   TWM.06: Classifying
   Triangle ABC is an equilateral triangle as all angles are equal. Triangle DEF is an isosceles triangle as it has two equal angles.

2. (a) No
   (b) No

(c) Yes

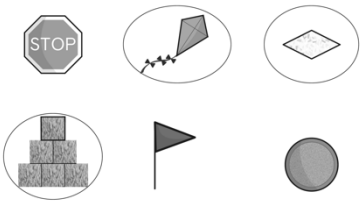
3. TWM.04: Convincing
Shila can draw her triangle successfully. In her triangle, two of the angles are acute angles, which sum to less than 180°. So, it is possible for Shila to draw such a triangle.

Activity Book

Section A

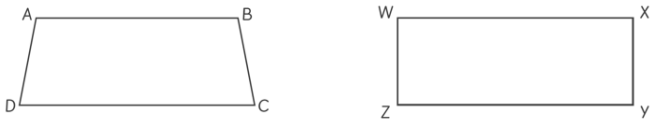
1. TWM.06: Classifying
Parallel: a, c, f, g; Non-parallel: b, d, e, h

2.



3. TWM.05: Characterising
Square; Trapezium; Parallelogram

4. (a)



(b) TWM.05: Characterising
Answers vary. For example:
Both shapes have at least one pair of parallel lines. Trapezium ABCD has one line of symmetry but Rectangle WXYZ has two lines of symmetry.

5. TWM.05: Characterising
Parallelogram

6. TWM.08: Improving
Caz's sentence is incorrect. Answers vary. For example:
All kites have one line of symmetry, but trapeziums may or may not have one line of symmetry.

Section B

1. (a) radius
(b) diameter
(c) circumference

2. 6 cm; 30 cm; 10 cm

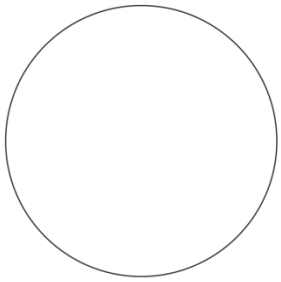
3. TWM.03: Conjecturing
Button A is bigger. Since the radius of Button A is 4 cm, its diameter will be 8 cm, which is longer than the diameter of Button B. Hence, Button A is bigger.

4. Length of square = 24 cm ÷ 4 = 6 cm
   Diameter of circle = 6 cm
   Radius of circle = 6 cm ÷ 2 = 3 cm

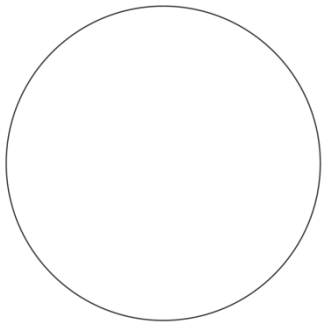
Section C

1. (a) Radius = 2 cm, diameter = 4 cm
   (b) Radius = 2.5 cm, diameter = 5 cm

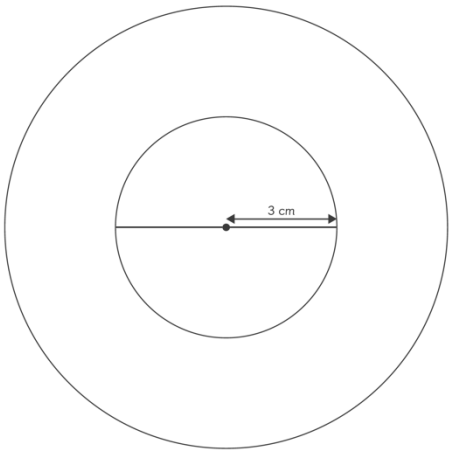
2. (a) Radius = 3 cm



   (b) Diameter = 7 cm



3. (a) & (b)
   Answers vary. For example:

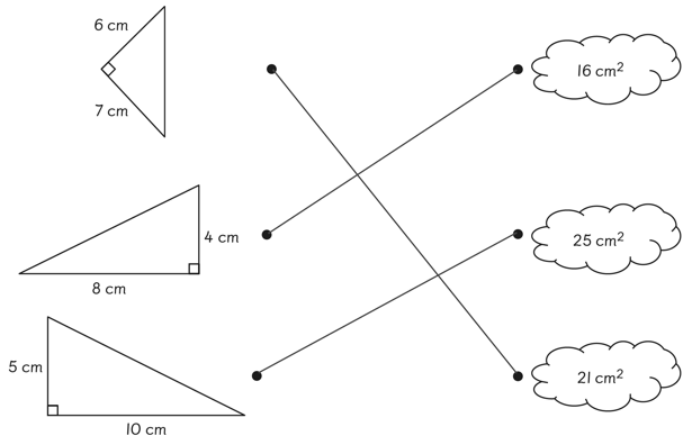


Section D

1. (a) 28 cm^2
   (b) 14 cm^2

2. (a) 12 cm^2
   (b) 9 cm^2

3.



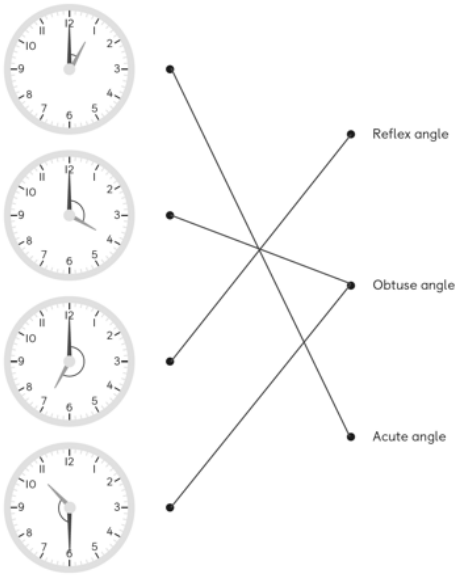
4. 50 m × 8 m = 400 m²
   400 m² ÷ 2 = 200 m²
   The area is 200 m².

5. 90 cm ÷ 2 = 45 cm
   Area of the shape = 45 cm × 65 cm = 2925 cm²
   The area of the shape is 2925 cm².

6. Length of one triangle = 70 cm ÷ 7 = 10 cm
   Area of one triangle = 10 × 15 ÷ 2 = 75 cm²
   Area of the pattern = 75 × 13 = 975 cm²

Section E

1. TWM.06: Classifying



2. (a) 24°
   (b) 137°
   (c) 302°
   (d) 225°

3. (a) Answers vary. For example: Estimate: 60°.
   Actual: 56°

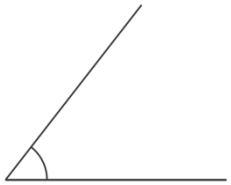
(b) Answers vary. For example: Estimate: 120º.
Actual: 118º

(c) Answers vary. For example: Estimate: 212º.
Actual: 210º

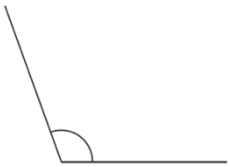
(d) Answers vary. For example: Estimate: 89º.
Actual: 90º

(e) Angles from the smallest to the largest: 56º, 90º, 118º, 210º

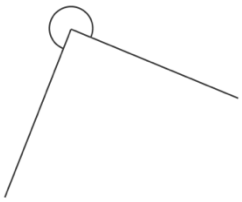
4. (a) 52º



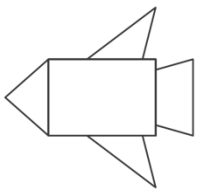
(b) 110º



(c) 271º



5. (a) Answers vary. For example:



(b) Answers vary.

Section F

1. (a) 65º
   (b) 71º
   (c) 19º
   (d) 35º
   (e) 62º
   (f) 60º

2. TWM.01: Specialising
Triangle 1: 60º, 19º and 101º
Triangle 2: 60º, 14º and 106º

3. TWM.04: Convincing
Yasin is incorrect. A triangle cannot have two right angles as two right angles would form 180°, leaving 0° as the third angle.

4. $\angle x = 180^\circ - 48^\circ - 86^\circ$
$= 46^\circ$
$\angle y = 180^\circ - 47^\circ - 87^\circ$
$= 46^\circ$
Hence, the two angles x and y are equal.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 4 3D Shapes, Volume and Capacity

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Pages 58-59

(a) Layer 1 has 1 cube. Layer 2 has 3 cubes. Layer 3 has 8 cubes.
Total number of cubes = 1 + 3 + 8
= 12
This 3D shape is made up of 12 cubes in total.

(b) Layer 3 needs 4 more cubes. Layer 2 needs 9 more cubes. Layer 1 needs 11 more cubes.
Total number of cubes = 4 + 9 + 11
= 24
Emily needs 24 cubes to turn this shape into the cuboid.

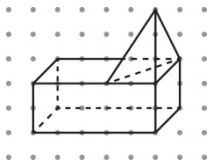
(c) This compound 3D shape has 6 square faces and 4 triangular faces.
It has 20 edges and 9 vertices.

- Let's Practise

Pages 59-60

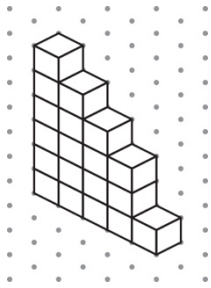
1. 8; 10; 13

2. TWM.05: Characterising
Answers vary. For example:



My sketch and my partner's have the same number of faces, vertices and edges; but our sketches look different.

3. (a) TWM.01: Specialising
Answers vary. For example:



(b) 45 cubes

Section B

- Let's Learn

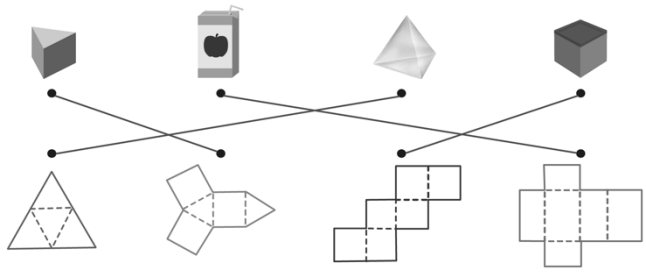
Page 62

(a) A cuboid has 6 rectangular faces. So its net has 6 rectangles.
(b) The triangular prism has 2 triangular and 3 rectangular faces. So its net has 2 triangles and 3 rectangles.
(c) A square pyramid has 1 square and 4 triangular faces. So its net has 1 square and 4 triangles.

- Let's Practise

Pages 63-64

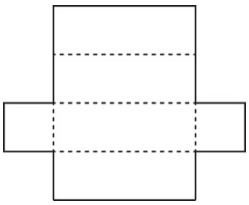
1. TWM.06: Classifying



Objects that have nets with triangles: triangular prism, triangular pyramid. Objects that have nets without triangles: cuboid, cube.

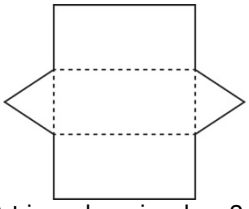
2. TWM.05: Characterising

(a)



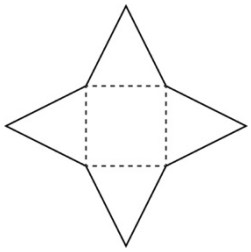
A cuboid has 2 square and 4 rectangular faces.

(b)



A triangular prism has 2 triangular and 3 rectangular faces.

(c)

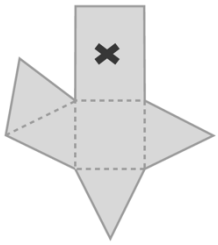


A square pyramid has 1 square and 4 triangle faces.

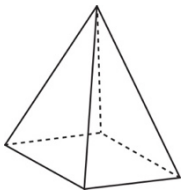
Answers vary. For example:
Both the cuboid and the triangular prism have rectangular faces but the square pyramid does not.
Both the triangular prism and square pyramid have triangular faces but the cuboid does not.

3. TWM.03: Conjecturing
   Conjecture: The surface area of the toy block is 96 cm^2.
   Area of the net
   = 21 + 6 + 28 + 6 + 35
   = 96 cm^2
   The surface area of the toy block is equal to the area of the net.
   So, the surface area of the toy block is 96 cm^2.

4.



The sketch of the square pyramid is shown below.



Section C

- Let's Learn

Pages 65-66

(a) The capacity of a water bottle is 1000 mℓ or 1 ℓ. The volume of water in the water bottle is 250 mℓ.

- Let's Practise

Page 66

1. Volume of juice in Jug A = 500 mℓ
   Volume of juice in Jug B = 900 mℓ
   Volume of juice in Jug C = 1200 mℓ

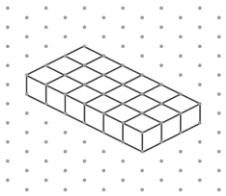
2. (a) 2 ℓ
   (b) 1 ℓ
   (c) 2 more cans

3. (a) Answers vary. For example: 10 cups.
   (b) TWM.07: Critiquing
   Yes. Answers vary. For example: Use a measuring cup.
   (c) 3 more cups

Activity Book

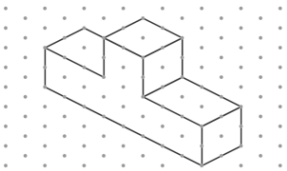
Section A

1. (a) 18 cubes
   (b) 5 cubes
   (c) 11 cubes
   (d) 12 cubes
   (e) Answers vary. For example:



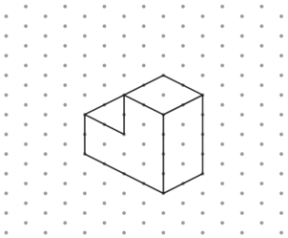
2. (a) 4 cubes
   (b) 12 cubes
   (c) Each layer of the 3D shape must be a cuboid. Each layer must have the same number of cubes.

3. (a)



   (b) The length of each edge of the sketch must match with the length of each of the 3D shape.

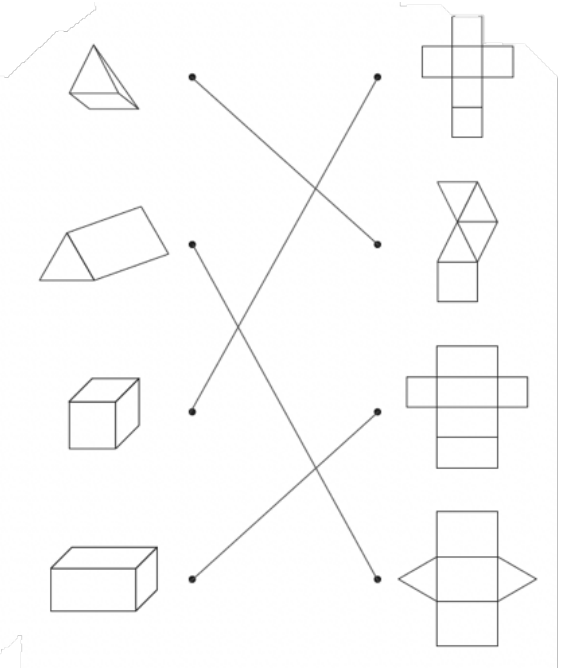
4. TWM.01: Specialising
   (a) Answers vary.



   (b) Answers vary.

Section B

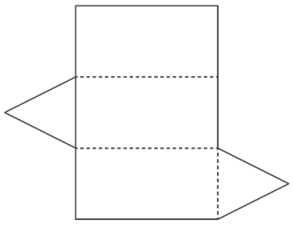
1.



2. The 3D shape is a cuboid.
   The net has 3 pairs of equal rectangles.

3. The 3D shape is a square pyramid.
   Its net has 1 square and 4 identical triangles.
   The surface area of the 3D shape is equal to the area of its net.

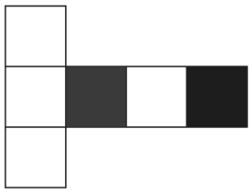
4. (a)



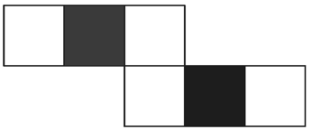
(b) Triangular prism

(c) TWM.05: Characterising
A triangular prism has 5 faces and 9 edges.

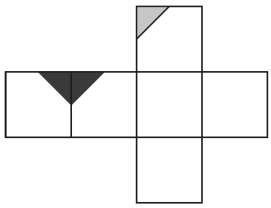
5. (a)



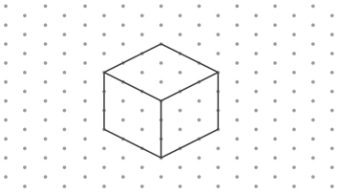
(b)



6.



7.



8. (a) TWM.02: Generalising
Each number is half or double of the other number.

(b) TWM.01: Specialising
32 or 128

Section C

1. (a) Cylinder A has 20 mℓ of vinegar solution, B has 50 mℓ, C has 60 mℓ and D has 40 mℓ.
(b) Cylinder C

2. (a) 300 mℓ
(b) 60 mℓ
(c) Volume of water in $\frac{2}{5}$ of the jug
$= \frac{2}{5} \times 300$

= 120 mℓ
120 – 60 = 60
60 mℓ of water is needed.

3. (a) 10
(b) 64 – 10 = 54 cubes
(c) TWM.03: Conjecturing
Four such 3D shapes can fit into the box.

4. 22 ÷ 2 = 11
12 ÷ 2 = 6
8 ÷ 2 = 4
11 × 6 × 4 = 264 cubes

Suggested Answers

Chapter 5 Addition and Subtraction

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Page 71

(a) If B = 2, A = 8.
(b) If $s = 12$, $p = 48$.

- Let's Practise

Page 72

1. (a) $p = a + a + a = 3a$
   (b) $p = k + k + k + k + k = 5k$

2. TWM.01: Specialising
   (a) $m = 1$, $n = 4$; $m = 2$, $n = 3$; $m = 3$, $n = 2$; $m = 4$, $n = 1$
   (b) $m = 8$, $n = 1$; m = 9, $n = 2$

3. TWM.01: Specialising
   Yes, it is possible. Answers vary. For example: A rectangular table cloth with a width of $3s$ cm and a breadth of s cm has a perimeter of $8s$ cm.

Section B

- Let's Learn

Page 74

(b) –10; Mr Lee has –$10 in his account in September.

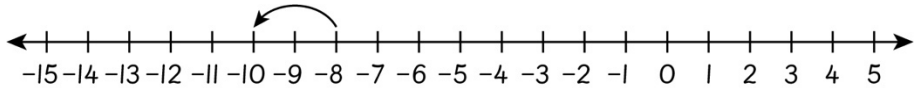
- Let's Practise

Page 75

1. (a) –39 + 20 = –19
   The new temperature is –19°C.

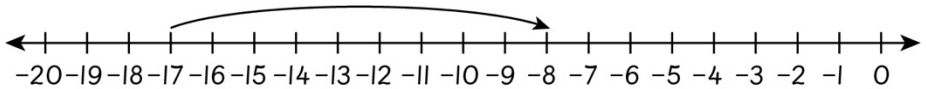
   (b) –10 – 2 = –12
   The new temperature is –12°C.

2. TWM.04: Convincing
   (a)



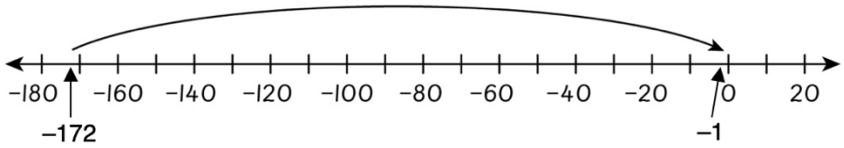
From the number line, –8 – 2 = –10. So, the new temperature is –10°C.

(b)



From the number line, the difference between –17 and –8 is 9.
So, Ralph is 9 m further under the water surface than Izzy.

(c)



From the number line, the difference between the deepest and shallowest points is 171 m.

3. Estimate:
The diver will dive 4 × 5 = 20 m after 10 minutes.
–6 m is close to –5 m.
–5 + (–20) = –25. So, the estimated depth of the diver is –25 m.
Actual:
After 2 minutes, –6 – 4 = –10
After 4 minutes, –10 – 4 = –14
After 6 minutes, –14 – 4 = –18
After 8 minutes, –18 – 4 = –22
After 10 minutes, –22 – 4 = –26
The scuba diver will be 26 m below the water level after 10 minutes.

Section C

- Let's Learn

Pages 77-78

(a) Step 1:

	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
	2	3	8	0
+	0	5	2	5
				5

Step 2:

	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
		1		
	2	3	8	0
+	0	5	2	5
			0	5

10 hundreds = 1 tenth 0 hundredths

Step 3:

	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
		1		
	2	3	8	0
+	0	5	2	5
		9	0	5

Step 4:

	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
		1		
	2	3	8	0
+	0	5	2	5
	2	9	0	5

2.38 + 0.525 = 2.905
The total mass of the fruits is 2.905 kg.

(b)

	100s	10s	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
	(1)	(1)	(1)	. (1)		
		8	8	. 6	5	0
	2	0	5	4	0	0
+	1	1	0	. 5	7	8
	(4)	(0)	(4)	. (6)	(2)	(8)

The distance between City A and City D is 404.628 km.

- Let's Practise

Page 79

1. (a) Estimate: 70 + 80 = 150; actual: 150.779; reasonable
   (b) Estimate: 70 + 50 = 120; actual: 119.208; reasonable
   (c) Estimate: 50 + 20 = 70; actual: 65.526; reasonable

2. (a) 320.251 + 236.387 = 556.638
   Kate and Kiara travelled 556.638 km altogether.

   (b) TWM.07: Critiquing
   353.481 + 68.127 = 421.608
   The mass of the heavier object is 421.608 kg.
   Answers vary. For example: My answer is the same as my partner's. Both of us use the column method to work out the answer.

3. Route 1: 3.86 + 8.005 = 11.865 km
   Route 2: 5.725 + 7.285 = 13.01 km
   Route 1 is shorter.

Section D

- Let's Learn

Pages 81-82

(a) Step 1:

	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
	5	. 7	1	5
−	1	. 5	2	4
		.		(1)

Step 2:

	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
		(6)	(11)	
	5	. ~~7~~	~~1~~	5
−	1	. 5	2	4
		.	(9)	(1)

1 tenth 1 hundred = 11 hundredths

Step 3:

	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
		(6)	(11)	
	5	. ~~7~~	~~1~~	5
−	1	. 5	2	4
		. (1)	(9)	(1)

Step 4:

1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
	6	11	
5 .	~~7~~	~~1~~	5
− 1 .	5	2	4
4 .	1	9	1

5.715 – 1.524 = 4.191

The desktop computer is 4.191 kg heavier than the laptop computer.

(b) To subtract, write 84.75 on top of 71.636.

10s	1s	$\frac{1}{10}$ s	$\frac{1}{100}$ s	$\frac{1}{1000}$ s
			4	10
8	4 .	7	~~5~~	~~0~~
− 7	1 .	6	3	6
1	3 .	1	1	4

Stanley scored 13.114 fewer points than Shelly.

- Let's Practise

Page 83

1. (a) Estimate: 60 – 10 = 50; actual: 43.375; reasonable
   (b) Estimate: 90 – 50 = 40; actual: 45.495; reasonable
   (c) Estimate: 90 – 60 = 30; actual: 29.115; reasonable

2. 178.512 – 138.851 = 39.661
   Jennifer drove 39.661 km more than Kenny.

3. (a) 95.913 – 32.641 = 63.272
   The distance between the second fret and the fourth fret is 63.272 mm.

   (b) 65.390 – 32.641 = 32.749
   The distance between the second fret and the third fret is 32.749 mm.
   The distance between the second fret and the first fret is 32.641 mm.
   32.749 m > 32.641 m
   The second fret is closer to the first fret.

Activity Book

Section A

1. (a) $x + x + 6 = 15$
   (b) $y - 7 = 78$

2. (a) $T = s + s + s + s + s + s$ or $T = 6s$
   (b) $T = 4 + 4 + 4 + 4 + 4 + 4 = 24$

3. $a + 120° + 80° + 45° + 40° = s$
   $a + 285° = s$ or $a = s - 285°$
   So, Equation A is correct and Equation B is wrong.

4. (a) $x + y = 6$

   (b) TWM.01: Specialising
   $x = 1$, $y = 5$; $x = 2$, $y = 4$; $x = 3$, $y = 3$; $x = 4$, $y = 2$; $x = 5$, $y = 1$.
   There are 5 sets of x and y.

5. (a) Area of wall = $5 \times 8 = 40$ m^2
   $y = 40 - x$

   (b) TWM.04: Convincing
   When $x = 2.25$, $y = 40 - 2.25$

= 37.75
= 38 (to the nearest m^2)
So, Tim is correct.

(c) TWM.03: Conjecturing
$40 - 0.5 = 39.5$
So, $y = 39.5 - x$.
The new equation will be $y = 39.5 - x$.

6. TWM.01: Specialising
When $A = 2$ and $B = 3$, $A + B = 5$ and $B + 4 = 7$

7. (a) $x + y = 10$, $y + z = 7$, $x + z = 5$

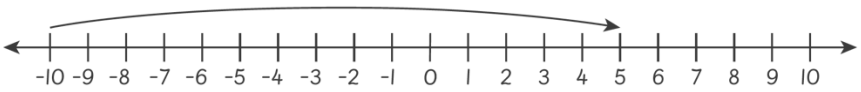
(b) Replace x, y and z with values and check if the values satisfy all three equations.
By trial and error, $x = 4$, $y = 6$ an $z = 1$.

Section B

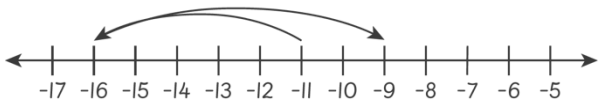
1. (a) 1
(b) –9
(c) –1
(d) –8
(e) TWM.02: Generalising
To find a value that is more than a negative number, we move towards the right.
To find a value that is less than a negative number, we move towards the left.

2. (a) –5 – 3 = –8

(b) –10 + 15 = 5



(c) –11 – 5 + 7 = –9



3. (a) –10 + 5 = –5
The temperature was –5°C last week.

(b) –10 – 6 = –16
The temperature will be –16 °C.

4. (a) 21 is about 20.
–240 + 20 = –220
Submarine A will be at 220 m below the water.

(b) 12 is about 10.
–250 –10 = –260
Submarine B will be at 260 m below the water.

5. TWM.02: Generalising
(a) The numbers in each row, column or diagonal add up to 0.

(b) The numbers in each row, column or diagonal add up to 15.

8	1	6
3	5	7
4	9	2

Grid B

When 5 is added to each number, the sum of the numbers in each row, column or diagonal will increase by $5 \times 3 = 15$; so the new sum will be $0 + 15 = 15$.

(c) The numbers in each row, column or diagonal add up to –15.

-2	-9	-4
-7	-5	-3
-6	-1	-8

Grid C

When 5 is subtracted from each number, the sum of the numbers in each row, column or diagonal will decrease by $5 \times 3 = 15$; so the new sum will be $0 - 15 = -15$.

Section C

1. (a) Estimate: 30 + 30 = 60; actual: 60.019
   (b) Estimate: 140 + 50 = 190; actual: 189.388

2. (a) H
   (b) A
   (c) P
   (d) P
   (e) Y

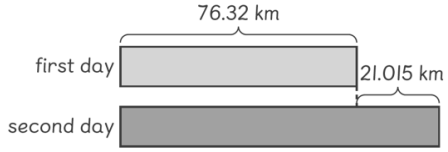
3. (a)

$$\begin{array}{r} 31.467 \\ +\ 294.213 \\ \hline 325.680 \end{array}$$

   (b)

$$\begin{array}{r} 400.735 \\ +\ 189.337 \\ \hline 590.072 \end{array}$$

4. TWM.04: Convincing
   Estimate:
   76.32 is close to 80 and 21.015 is close to 20.
   80 + 20 + 80 = 180
   The total distance is about 180 km.
   Actual:



   76.32 + 21.015 = 97.335
   97.335 + 76.32 = 173.655
   He travels 173.655 km altogether.

5. Parcel B: 1.455 + 0.25 = 1.705 kg
   Parcel C: 1.705 × 10 = 17.05 kg
   Total mass: 1.455 + 1.705 + 17.05 = 20.21 kg

6. TWM.01: Specialising
   Answers vary. For example: 4.761 + 5.239 = 10.

7. The combined mass of 1 orange and 1 apple is 0.395 kg.
   The combined mass of 2 oranges and 2 apples is 0.395 + 0.395 = 0.79 kg.
   The combined mass of 2 oranges and 3 apples is 0.93 kg.
   So, the mass of 1 apple is 0.93 – 0.79 = 0.14 kg.

Section D

1. (a) Estimate: 80 – 20 = 60; actual: 53.504
   (b) Estimate: 200 – 90 = 110; actual: 109.531

2. 0.79 and 0.974

3. 4145 ÷ 1000 = 4.145
   4.145 – 1.615 = 2.53
   2.53 – 1.615 = 0.915
   The number is 0.915.

4. Estimate:
   4.6 is close to 5, 2.258 is close to 2 and 1.56 is close to 2.
   5 – 2 – 2 = 1
   The flour is about 1 kg.
   Actual:
   4.6 – 2.258 = 2.342 kg
   2.342 – 1.56 = 0.782 kg
   = 0.8 kg (nearest 0.1 kg)
   0.8 kg of flour was left.

5. (a) Largest difference
   = 0.754 – 0.123
   = 0.631

   (b) Smallest difference
   = 0.457 – 0.321
   = 0.136

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 6 Multiplication and Division

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

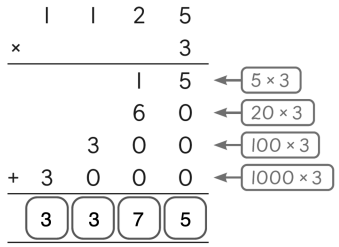
- Let's Learn

Page 88

(a) Method 1:

$1125 \times 3 = (1100 + 25) \times 3$
$= 1100 \times 3 + 25 \times 3$
$= \underline{3300} + \underline{75}$
$= \underline{3375}$

Method 2:

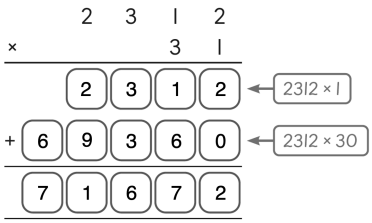


The cost of 3 computers is $\underline{3375}$.

(b) Method 1:

$2312 \times 31 = 2312 \times (20 + 1)$
$= 2312 \times 30 + 2312 \times 1$
$= \underline{69\ 360} + \underline{2312}$
$= \underline{71\ 672}$

Method 2:



$\underline{71\ 672}$ dumplings can be made in 31 days.

- Let's Practise

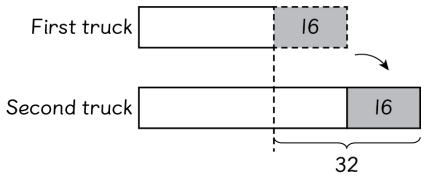
Page 89

1. (a) Estimate: $1000 \times 8 = 8000$; actual: $1250 \times 8 = 10\ 000$
   (b) Estimate: $5000 \times 6 = 30\ 000$; actual: $5374 \times 6 = 32\ 244$
   (c) Estimate: $3000 \times 10 = 30\ 000$; actual: $3021 \times 11 = 33\ 231$
   (d) Estimate: $2000 \times 10 = 20\ 000$; actual: $1934 \times 14 = 27\ 076$
   TWM.07: Critiquing
   Answers vary. For example: The column method is easier to multiply by 2-digit numbers than using the distributive law.

2. $\$1280 \times 9 + \$1150 \times 15$
   $= \$11\ 520 + \$17\ 250$

= $28 770
Feroz saved $28 770 altogether.

3. (a) No, I do not agree.



From the diagram, the number of boxes in the first truck was decreased by 16 and the number of boxes in the second truck was increased by 16. So, the second truck had 32 more boxes than the first.

(b) 8974 × 32 = 287 168 g
The difference in the total mass of boxes was 287 168 g.

(c) 32 × 3 = 96
8974 × 96 = 861 504
The total mass of all the boxes in both trucks was 861 504 g.

Section B

- Let's Learn

Page 91

(b)

$$\begin{array}{r} 33 \\ 24\overline{)811} \\ -\ 72 \\ \hline 91 \\ -\ 72 \\ \hline 19 \end{array}$$

811 ÷ 24 = $33\frac{19}{24}$
Each piece is $33\frac{19}{24}$ cm long.

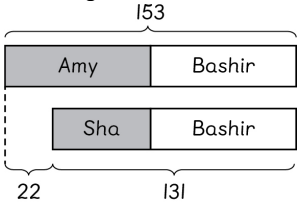
- Let's Practise

Page 92

1. (a) Estimate: 240 ÷ 10 = 24; actual: 243 ÷ 9 = 27
   (b) Estimate: 630 ÷ 9 = 70; actual: 630 ÷ 8 = $78\frac{3}{4}$
   (c) Estimate: 450 ÷ 25 = 18; actual: 430 ÷ 25 = $17\frac{1}{5}$
   (d) Estimate: 300 ÷ 15 = 20; actual: 301 ÷ 14 = $21\frac{1}{2}$

2. TWM.07: Critiquing
   195 × 5 ÷ 15 = 65
   Each charity will receive 65 kg of clothing.
   Answers vary. For example: I can estimate to check if my answer is reasonable.
   195 is close to 200 and 15 is close to 20.
   200 × 5 ÷ 20 = 1000 ÷ 20 = 50
   The answer is close to 50.

3. (a) Yes, I agree.



From the diagram, Amy has 22 more magnets than Sha.

(b) 153 – 131 = 22
946 ÷ 22 = 43
The mass of each magnet is 43 g.

(c) 559 ÷ 43 = 13
(131 – 13) ÷ 2 = 59
Sha has 59 magnets.

Section C

- Let's Learn

Page 94

(a) The marker and bench will next be placed together at 20 m from the start of the trail.
(b) Fizah will need at most 6 bags.

- Let's Practise

Page 95

1. (a) 12
   (b) 36

2. (a) 1 and 3
   (b) 1, 2, 3 and 6

3. Possible lengths of the stick such that it can be cut into pieces of 8 cm each:
   8 cm, 16 cm, 24 cm, 32 cm, 40 cm, 48 cm, 56 cm, 64 cm, 72 cm, 80 cm, 88 cm, …
   Possible lengths of the stick such that it can be cut into pieces of 6 cm each:
   6 cm, 12 cm, 18 cm, 24 cm, 30 cm, 36 cm, 42 cm, 48 cm, 54 cm, 60 cm, 66 cm, 72 cm, 78 cm, …
   Common lengths = 24 cm, 48 cm, 72 cm, …
   Minimum length of the original stick = 72 cm (to have at least 7 pieces of stick)

4. TWM.01: Specialising
   Factors of 56: 1, 2, 4, 7, 8, 14, 28, 56
   Factors of 72: 1, 2, 3, 4, 6, 8, 9, 12, 18, 36, 72
   Number of triangles in each group = 14
   Number of groups = 4
   Answers vary. For example: First, find the factors of 56 and of 72. Using the factors of 56, identify the number of triangles that are in each group, which is 14. Find the number of groups when there are 14 triangles. Check the number of squares when there are 4 groups. If the number of squares is between 10 and 20, it shows that the answer is 4 groups.

5. TWM.01: Specialising
   (a) No, because 16 is not a factor of 24.

   (b) Common multiples of 3 and 8 are multiples of 24:
   24, 48, 72, 96, 120, …
   Numbers that have factors 1, 2, 4, 8 and 16 among the multiples of 24 are 48, 96, …
   Common multiples of 10 and 20 are multiples of 20:
   20, 40, 60, 80, 100, …
   A number that has factors 1, 2, 4, 8 and 16 among the multiples of 20 is 80.
   Since both numbers are less than 150, Mark's number could be 80 and Amran's could be 48.

Section D

- Let's Learn

Page 97

(a) 18 is a multiple of 3. So, 198 is divisible by 3.
198 is an even number. So, it is divisible by 2.
Since 198 is divisible by both 2 and 3, it is also divisible by 6.
The sum of the digits in 198 is 18, which is a multiple of 9. So, 198 is divisible by 9.

- Let's Practise

Page 98

1. (a) True
   (b) False
   (c) False

2. TWM.06: Classifying

Divisible by 3	Divisible by 6	Divisible by 9
582 603 1788	582 1788	603

3. TWM.04: Convincing
Since 6 is a factor, the number is divisible by 6. To be divisible by 6, the number must be divisible by 2 and 3, making it divisible by 3. 18 can be rewritten as 2×9. Since 18 is a factor, 9 is also a factor of the number, making it divisible by 9.

4. Sum of digits = 9 + 3 + 8 = 20
To be divisible by 9, we could add 7 or 16.
20 + 7 = 27 (not divisible by 6)
20 + 16 = 36 (divisible by 3, 6 and 9)
So, we add 16 to 938.
16 mℓ of water is needed to add into the tank.

Section E

- Let's Learn

Page 101

(a)

$$\begin{array}{r} 2.35 \\ \times \quad 18 \\ \hline 18.80 \\ +\ 23.50 \\ \hline 42.30 \end{array}$$

2.35 × 8

2.35 × 10

The total cost of 18 markers is $\$\underline{42.30}$.

- Let's Practise

Page 102

1. (a) $6.02 \times 18 = 6.02 \times 10 + 6.02 \times \underline{8}$
(b) $7.93 \times 43 = 7.93 \times \underline{40} + 7.93 \times 3$

2. (a) Estimate: $2 \times 14 = 28$; actual: $1.7 \times 14 = 23.8$
(b) Estimate: $6 \times 30 = 180$; actual: $5.6 \times 27 = 151.2$
(c) Estimate: $2 \times 6 = 12$; actual: $1.82 \times 6 = 10.92$
(d) Estimate: $8 \times 40 = 320$; actual: $8.35 \times 39 = 325.65$
TWM.08: Improving
Answers vary. For example: Estimate 1.7 to 1.5 instead of 2 and estimate 8.35 to 8.5 instead of 8.

3. $3.69 \times 16 = 59.04$
The first pot of plant is 59.04 m from the last pot of plant.

Section F

- Let's Learn

Pages 104-105

(a) The distance around the track is 0.4 km.

(b)

```
        3   0   2
   ┌──────────────
13 ) 3   9 . 2   6
   − 3   9
   ──────────
     0   2
         0
   ──────────
         2   6
   −     2   6
   ──────────
             0
```

The mass of one brick is 3.02 kg.

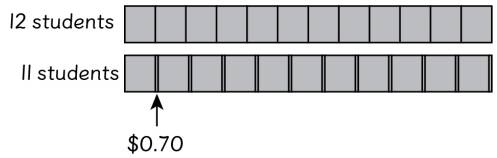
- Let's Practise

Pages 105-106

1. (a) Estimate: 8 ÷ 8 = 1; actual: 7.2 ÷ 8 = 0.9
   (b) Estimate: 6 ÷ 6 = 1; actual: 4.26 ÷ 6 = 0.71
   (c) Estimate: 28 ÷ 14 = 2; actual: 28.14 ÷ 14 = 2.01
   (d) Estimate: 64 ÷ 16 = 4; actual: 64.48 ÷ 16 = 4.03
   TWM.07: Critiquing
   Answers vary. For example: For (c), split ÷ 14 into ÷ 7 and ÷ 2. For (d), split ÷ 16 into ÷ 4 and ÷ 4.

2. $40.30

3. (a)



$0.70 × 11 = $7.70
$7.70 + $0.70 = $8.40

(b) $7.70 × 12 = $92.40
The cost of the meal was $92.40.

(c) $92.40 ÷ 8 = $11.55
Each student would pay $11.55.

Activity Book

Section A

1.

Estimate:

525 is about 500.
500 × 6
= 3000
525 × 6 is about 3000.

Actual:

```
    5   2   5
×               6
    ──────────
        3   0
    1   2   0
+ 3   0   0   0
  ──────────────
  3   1   5   0
```

There are 3150 tomatoes altogether.

2.

Estimate:	Actual:
295 is about 300. 38 is about 40. 295 × 38 is about 12 000.	295 × 38 = 2360 + 8850 = 11 210

Cheers Bakery makes 11 210 cupcakes in 38 days.

3. (a) Estimate: 8000; actual: 1530 × 4 = 6120
   (b) Estimate: 45 000; actual: 5230 × 9 = 47 070
   (c) Estimate: 30 000; actual: 2541 × 13 = 33 033
   (d) Estimate: 350 000; actual: 6712 × 45 = 302 040

4. (a) 52 × 235 × 10
   = 52 × 2350
   = 2350 × 51 + 2350 × 1
   = 119 850 + 2350
   = 122 200

   (b) 1175 × 49 × 2
   = 1175 × 2 × 49
   = 2350 × 49
   = 2350 × 51 – 2350 × 2
   = 119 850 – 4700
   = 115 150

5. TWM.03: Conjecturing
   7920 + 45 = 7965
   7965 × 6 = 47 790, which is about 48 000.
   The approximate population of the town is about 48 000.

6. (a) 1260 × 75 = 94 500 apples, which is not equal to 95 000 apples.
   So, all the apples cannot be loaded into 75 full trucks.

   (b) 95 000 – 94 500 = 500
   There will be 500 apples left over.

7. 28 × 1012 = 28 336
   49 × 318 = 15 582
   28 336 + 15 582 = 43 918
   There are 43 918 potted plants altogether.

8. TWM.01: Specialising
   The 2-digit number is either 13 or 31.
   The 4-digit number ends with 5.
   31 × 2045 = 63 395
   The 4-digit number 2045 is the smallest, yet the product is greater than 52 325.
   So, the 2-digit number must be 13.
   2045 is close to 2000.
   2000 × 13 = 26 000
   So, the 4-digit number must be greater than 2045.
   13 × 4025 = 52 325
   So, the numbers are 4025 and 13.

Section B

1.

Estimate:	Actual:
102 is close to 100. 9 is close to 10. 100 ÷ 10 = 10 102 ÷ 9 is about 10.	9) 102 11 - 9 12 - 9 3

Each friend will get 9 paper stars.

There will be 3 paper stars left over.

2.

T $325 \div 4 = 81 \text{ R } 1 = 81\frac{1}{4}$

W $677 \div 9 = 75 \text{ R } 2 = 75\frac{2}{9}$

E $486 \div 11 = 44 \text{ R } 2 = 44\frac{2}{11}$

R $307 \div 16 = 19 \text{ R } 3 = 19\frac{3}{16}$

A $716 \div 25 = 28 \text{ R } 16 = 28\frac{16}{25}$

I $937 \div 39 = 24 \text{ R } 1 = 24\frac{1}{39}$

Answer:

W	A	T	E	R
$75\frac{2}{9}$	$28\frac{16}{25}$	$81\frac{1}{4}$	$44\frac{2}{11}$	$19\frac{3}{16}$

3. (a) 961 ÷ 15 = 64R1
He can plant 64 cabbage plants in each row.

(b) 64 − 1 = 63
63 cabbage plants are needed.

4. (a) $978 is close to $1000.
6 is close to 5.
$1000 ÷ 5 = $200
$978 ÷ 6 is close to $200.
Exact cost of one bicycle
= $978 ÷ 6
= $163

(b) TWM.04: Convincing
$1000 is not enough for Anna to buy the bicycles and seat covers.
$4.50 × 6 = $27
$27 + $978 = $1005, which is more than $1000.

5. 900 ÷ 75 = 12
12 × 60 = 720
She will need 720 mℓ of water.

6. TWM.01: Specialising
20 × 29 = 580 and 29 × 29 = 841
The divisor is between 20 and 29.
First solution:
The divisor can have 0, 2, 4, 6 and 8 as its ones digit.
By guess and check, 780 ÷ 20 = 39.
Second solution:
The divisor can have 1, 3, 5, 7 and 9 as its ones digit.
By guess and check, 783 ÷ 27 = 29.

Section C

1. Multiples of 6: 6, 12, 18, 24

Multiples of 8: 8, 16, 24
24 is the smallest common multiple of 6 and 8.
Hola can pack 24 cookies and 24 tarts.

2. Factors of 15: 1, 3, 5, 15
Factors of 20: 1, 2, 4, 5, 10, 20
1 and 5 are common factors of 15 and 20.
Keith will need 5 baskets at most.

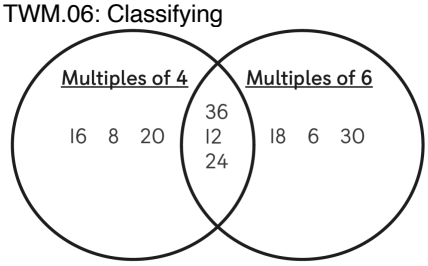
3. (a) Multiples of 4: 4, 8, 12, 16, 20
Multiples of 10: 10, 20, 30
First common multiple: 20

(b) Multiples of 5: 5, 10, 15, 20, 25, 30, 35
Multiples of 7: 7, 14, 21, 28, 35
First common multiple: 35

4. (a) Factors of 5: 1, 5
Factors of 15: 1, 3, 5, 15
Common factors: 1, 5

(b) Factors of 20: 1, 2, 4, 5, 10, 20
Factors of 50: 1, 2, 5, 10, 25, 50
Common factors: 1, 2, 5, 10

5. (a) TWM.06: Classifying



(b) They are common multiples of 4 and 6.

(c) Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
Factors of 28: 1, 2, 4, 7, 14, 28
4 is the largest common factor of 24 and 28. 4 is a multiple of 4 but not a multiple of 6. So, it should be put in the non-overlapping part of the first circle.

6. TWM.04: Convincing
(a) Factors of 40: 1, 2, 4, 5, 8, 10, 20, 40
The total number of pieces cut from A and B is an odd number.
So, it can only be 5 pieces.
$40 \div 5 = 8$, $8 \times 3 = 24$, $8 \times 2 = 16$.
So, the length of A is 24 cm and the length of B is 16 cm.

(b) Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24
Factors of 16: 1, 2, 4, 8, 16
8 is the largest common factor.
No, 8 cm is the longest that can be cut equally from A and B.

Section D

1. (a) Is 564 divisible by 3?
Sum of the digits = 5 + 6 + 4 = 15
15 is a multiple of 3.
So, 564 is divisible by 3.

Is 564 divisible by 6?
564 is an even number.
So, 564 is divisible by 2.

Since 564 is divisible by both 2 and 3, 564 is divisible by 6.

Is 564 divisible by 9?
The sum of the digits is not a multiple of 9.
So, 564 is not divisible by 9.

(b) Is 1269 divisible by 3?
Sum of the digits = 1 + 2 + 6 + 9 = 18
18 is a multiple of 3.
So, 1269 is divisible by 3.

Is 1269 divisible by 6?
1269 is not an even number.
So, 1269 is not divisible by 2.
Since 1269 is not divisible by both 2 and 3, 1269 is not divisible by 6.

Is 1269 divisible by 9?
The sum of the digits is a multiple of 9.
So, 1269 is divisible by 9.

2.

234	235	236	237
238	239	240	241
242	243	244	245
246	247	248	249

3. (a) TWM.06: Classifying

Numbers divisible by 3	Numbers divisibly by 6	Numbers divisible by 9
288	288	288
591	3228	675
675	8520	5913
3228		
5913		
8520		

(b) TWM.01: Specialising
4 + 5 + 3 = 12, which is a multiple of 3.
For the number to be divisible by 6, the number must be even.
So, we can add 3 or 9 to 453.
453 + 3 = 456, which is divisible by 6.
453 + 9 = 462, which is divisible by 6.
The 1-digit number could be 3 or 9.

4. TWM.01: Specialising
The number is 180. It is less than 200 and divisible by 6 and 9.

5. TWM.04: Convincing
(a) No. 1 + 5 + 9 + 6 + 0 = 21, which is a multiple of 3.
So, 15 960 is divisible by 3. There are no pens left.

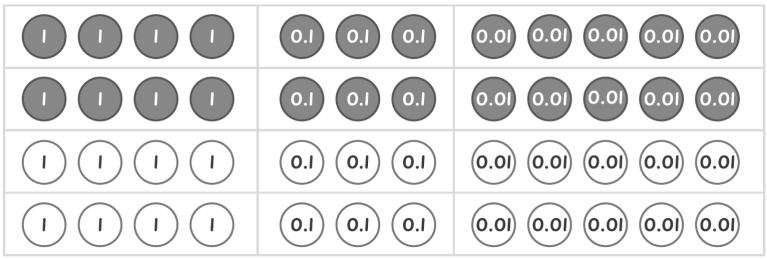
(b) Yes, Ron is correct.
15 960 is an even number and so it is divisible by 2.
Since 15 960 is divisible by both 2 and 3, it is divisible by 6.
So, there will be no pens left.

(c) Yes, Izzy is correct.
1 + 5 + 9 + 6 + 0 = 21. 21 + 6 = 27, which is a multiple of 9.
So, 6 more pens are needed so that 15 960 + 6 = 15 966 pens can be packed into sets of 9.

Section E

1. (a) Round $4.35 to $4.
$4 × 4 = $16
Sheryl needs to pay about $16.

(b)



$4.35 × 4 = $17.40

$$\begin{array}{r} 4.35 \\ \times \quad 4 \\ \hline 17.40 \end{array}$$

The cost of 4 reams of paper is $17.40.

2. (a)

(b)

3. (a) 89.25 is about 90.
11 is about 10.
90 × 10 = 900
The total mass of 11 blocks of chocolate is about 900 g.

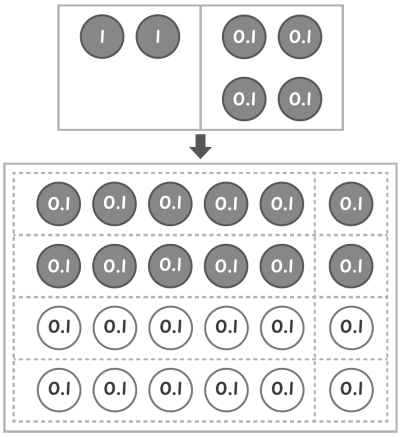
(b) 89.25 × 11 = 981.75
The actual mass of the 11 blocks of chocolate is about 981.75 g.

4. 28 × $1.25 = $35
$4.50 + $35 = $39.50
Ralph earns $39.50.

5. Wednesday: 18.41 × 3 = 55.23 km
Sunday: 18.41 + 92 = 110.41 km
55.23 is about 55.
110.41 is about 110.
110 = 55 × 2
On Sunday, Mary travelled about 2 times as far as she did on Wednesday.

Section F

1.



$2.4 \div 4 = \underline{0.6}$
Vivian jogs 0.6 km in a day.

2. (a)

Estimate:

20.08 is close to 20.
$20 \div 4 = 5$
The quotient is about 5.

Actual:

$20.08 \div 4 = 20.08 \div 2 \div 2$
$= 10.04 \div 2$
$= 5.02$

(b)

Estimate:

87.45 is close to 90.
$90 \div 15 = 6$
The quotient is about 6.

Actual:

$$\begin{array}{r} 5.83 \\ 15\overline{)87.45} \\ -\,75 \\ \hline 124 \\ -\,120 \\ \hline 45 \\ -\,45 \\ \hline 0 \end{array}$$

3. 8.76 is about 9.
9 = 6 + 3.
3 is half of 6.
So, $9 \div 6 = 1.5$.
The estimated length is 1.5 m.

```
   1.4 6
6 ) 8.76
  - 6
    2 7
  - 2 4
      3 6
    - 3 6
        0
```

The exact length of each piece of ribbon is 1.46 m.

4. (a) 6.72 is about 6.
   $6 \div 6 = 1$
   2 blocks have about $1 \times 2 = 2$ g of sugar.
   Caz takes about 2 g of sugar.

   (b) $6.72 \div 6 = 1.12$
   $1.12 \times 2 = 2.24$
   The actual amount of sugar Caz takes is 2.24 g.

5. $\$2.35 \times 7 = \$16.45$
   $\$16.45 + \$2.85 = \$19.30$
   $\$19.30 - \$2.50 = \$16.80$
   $\$16.80 \div 8 = \$2.10$
   $2.10 is charged for every additional hour on weekdays.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 7 Number Patterns

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Page 112

(b) Position: 6; Term: 11
n pots will have $1 + 2 \times n$ seedlings altogether.

- Let's Practise

Pages 112-113

1. (a) 7; 8; 9

   (b) TWM.02: Generalising
   Add 2 to each term, to get the next term.

   (c) TWM.02: Generalising
   $n + 2$

   (d) 22

2. (a) No, Ralph is not right. The term-to-term rule is to multiply each term by 4.
   As 30 is not divisible by 4, it is not in the sequence.

   (b) TWM.02: Generalising
   The position-to-rule is $4 \times n$.

   (c) 7th house

3. (a) TWM.03: Conjecturing
   Izzy saved $2 every week.
   $7 + 2 \times 4 = 15$. She will have saved $15 by Week 5.

   (b) $(35 - 19) \div 2 = 8$
   Izzy needs 8 more weeks to save $35.

Section B

- Let's Learn

Pages 115-117

(a) $10 \times 10 = 100$
The number of stamps in Figure 10 is 100.

(b) Following the pattern, the next two purses will have 121 and 144 flowers.

(d) 125 1-cm cubes are needed.

- Let's Practise

Pages 117-118

1. Square numbers from 1 to 100:
   1, 4, 9, 16, 25, 36, 49, 64, 81, 100

2. (a) $5^3 = \underline{5} \times \underline{5} \times \underline{5}$
(b) $\underline{4^3} = 4^2 \times 4$

3. TWM.03: Conjecturing
111 is not a cube number. Answers vary. For example: $4^3 = 64$ and $5^3 = 125$. There is no whole number between 4 and 5, when multiplied by itself 3 times will give 111. So, 111 is not a cube number.

4. (a) 36, 49, 64, 81, 100
(b) 3, 5, 7, 9
(c) TWM.05: Characterising
The differences form a sequence of odd numbers.

5. (a) TWM.02: Generalising
$(n + 2) \times (n + 2)$
(b) Add 2 to 16 to get 18. Then, multiply 18 by itself to get 324.

Activity Book

Section A

1. (a)

(b)

Number of tables (Position)	1	2	3	4	5
Total number of chairs (Term)	6	12	18	24	30

(c) TWM.02: Generalising
The term-to-term rule is to add 6 to get the next term.

(d) TWM.02: Generalising
The position-to-term rule is $6 \times n$.

2. (a)

Position	1	2	3	4	7	11
Term	8	16	24	32	56	88

(b) The terms differ by 8.

(c) TWM.02: Generalising
The nth term is $8 \times n$.

(d) 160

(e) 114 is not a multiple of 8, so it is not a term in the sequence.

3. TWM.02: Generalising
(a) The position-to-term rule is $8 \times n$.

(b) $9 - 8 = 1$, $17 - 16 = 1$, $25 - 24 = 1$, $33 - 32 = 1$
So, the corresponding terms in the two sequences differ by 1.

(c) The position-to-term rule is $8 \times n + 1$.

4. TWM.02: Generalising
(a) 48 cups. With n litres of juice, Caz can make $4 \times n$ cups of drink.

(b) 1 cup for 50¢, 2 cups for \$1, so 4 cups (from 1ℓ of juice) for \$2.
In other words, 1ℓ for \$2, so n litres of juice can make earnings of $\$2 \times n$.

5. Ron: \$17 – \$5 = \$12 saved in 4 weeks.
\$12 ÷ 4 = \$3
Izzy: \$17 – \$5 = \$12 saved in 3 weeks.
\$12 ÷ 3 = \$4
So, Izzy saves \$1 more than Ron every week.

6. (a) TWM.02: Generalising
The numbers in each column increase by 6.

(b) TWM.07: Conjecturing
The numbers in each column increase by 6 each time.
112 ÷ 6 = 18R4
So, 112 is in the 18th row, 4th column of the grid.
The missing number should be in the 19th row, 3rd column of the grid.
19 × 6 + 3 = 117
The missing number is 117.

(c) TWM.02: Generalising
The nth term is $6 \times n + 3$.

Section B

1. (a) 16 ✓
(b) 12
(c) 6
(d) 4 ✓

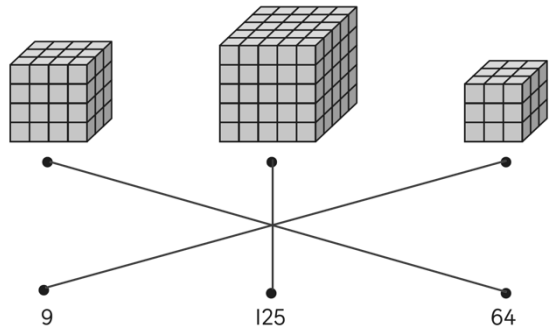
2. (a) 9; 16; 25

(b) TWM.05: Characterising
This is a sequence of square numbers.

(c) 36 = 1 + 3 + 5 + 7 + 9 + 11

(d) TWM.02: Generalising
The sum of n consecutive odd numbers from 1 onwards is the square of n.

3. (a)



(b) TWM.05: Characterising
The number of unit cubes on each side increases by 1 each time.

4. (a) 100 = 10 × 10, 121 = 11 × 11

(b) TWM.03: Conjecturing
144 = 12 × 12, 169 = 13 × 13, so it is a sequence of square numbers.

(c) TWM.04: Convincing
The 1st term, 100, is the square of 10. 1 + 9 = 10.
The 2nd term, 121, is the square of 11. 2 + 9 = 11.
The 3rd term, 144, is the square of 12. 3 + 9 = 12.
The 4th term, 169, is the square of 13. 4 + 9 = 13.
So, the 10th term is the square of (10 + 9), which is 361.

(d) TWM.07: Convincing
No, I don't. 234 is not a square number, so it is not a term in the sequence.

5. $4^3 - 60 = 4$, $3^3 - 24 = 3$, $1^3 \times 2 + 2 = 4$, $5^3 \div 25 - 1 = 4$
$3^3 - 24$ is the odd one as it has a different value from the others.

6. $5^3 = 125$ pieces

7. (a) Pattern 5:

(b)

Pattern number	1	2	3	4	5	6
Number of black circles	0	2	4	6	8	10
Total number of circles	1	4	9	16	25	36

(c) TWM.04: Convincing
The total number of white and black dots forms a sequence of square numbers.
In Pattern 12, the total number of white and black dots = $12^2 = 144$.
The number of black dots forms a sequence of multiples of 2.
In Pattern 12, the number of black dots = $2 \times 11 = 22$.

(d) TWM.02: Generalising
The number of circles in Pattern n is n^2.

(e) TWM.02: Generalising
The number of black circles in Pattern n is $2 \times (n - 1)$.

8. (a)

	Triangle	Square
Pattern 1		
Pattern 2		
Pattern 3		
Pattern 4		

(b) She can move 1 dot in Pattern 1, 2 in Pattern 2, 4 in Pattern 3 and 6 in Pattern 4.

(c) No, the numbers 1, 2, 4, 6 do not follow any pattern rule.

(d) TWM.02: Generalising
The number of dots in the nth square pattern is $(n + 1)^2$.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 8 Probability

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Page 123

(a) $\frac{2}{8} = \frac{1}{4} = 25\%$
Paul has a 25% chance of taking a yellow jellybean.

(b) 4 out of the 8 jellybeans are red.
Paul has 4 out of 8 chances of taking a red jellybean.
$\frac{4}{8} = 50\%$

- Let's Practise

Pages 124-126

1. (a) ✓
   (b)
   (c) ✓
   (d)

2. (a) She has 1 out of 10 chances of landing on the number 4.
   (b) She has 2 out of 10 chances of landing on the number 2.
   (c) She has a 40% chance of landing on the number 3.
   (d) She has 30% chance of landing on the number 1.
   (e) TWM.08: Improving
   Replace two of the numbers on the spinner with the number 4.

3. (a) Bag C
   (b) Blue
   (c) 14 in 36 chances.

4. (a) $\frac{1}{2}$

   (b) No, he is not. The 3 seats can be either 2 even and 1 odd numbered seats or 2 odd and 1 even numbered seats. There will not be an equal number of odd and even numbered seats left.

   (c) TWM.03: Conjecturing
   Since their seats were next to the 3 bought earlier, the 3 seats must be 2 even numbered and 1 odd numbered seat. This makes the number of odd and even seats purchased equal.
   Hence, the probability of being assigned an odd and even numbered seat is equal.

Section B

- Let's Learn

Page 129

(b) The colour that the spinner is most likely to land on is purple.
Out of 300 repetitions, 117 landed on this colour.
The probability of landing on this colour is 39%.
This is because there is a 3 in 8 chance of landing on this colour, which has the largest proportion out of

the different colours.

- Let's Practise

Pages 130-131

1. (a) Number 2
   (b) Answers vary.
   (c) The spinner will land on 2 the most number of times and 4 the least number of times.

2. (a) No. There are too little repetitions to be certain.
   (b) It is most likely that the ball numbered 9 will be picked the most often.
   (c) It is likely that there are more balls numbered 8 than 7 because the balls numbered 8 gets picked up almost 4 times as often as the balls numbered 7.

3. (a) They have an equal chance of taking out a blue pen. Caz has 3 in 10 chances and Ron has 6 in 20 chances. They both have a 30% chance of taking out a blue pen.
   (b) The red pen will be picked the least number of times in both bag A and B.
   (c) Answers vary. For example: 4 red, 8 blue and 8 green. The frequency outcome for blue and green pens in bag C are almost identical.

Activity Book

Section A

1. TWM.06: Classifying
   Mutually exclusive: A, E
   Not mutually exclusive: B, C, D, F

2. (a) 1 out of 6.
   (b) 2 out of 6.
   (c) 3 out of 6.

3. (a) 3 out of 5; 60%; likely
   (b) 2 out of 8; 25%; unlikely

4. TWM.04: Convincing
   No, it is equally likely for him to pick an apple or an orange as the number of oranges is the same as the number of apples.

5. (a) Box 3
   (b) 3 out of 12 chances or 25%.
   (c) TWM.08: Improving
   Replace 6 oranges or pears in the box with apples.

6. (a) TWM.04: Convincing
   Mr Tan is correct. If the first spinner lands on \$1, the possible outcomes are 10 cents, 50 cents, \$1 and \$2. If the first spinner lands on \$2, the possible outcomes are 20 cents, \$1, \$2 and \$4. If the first spinner lands on \$4, the possible outcomes are 40 cents, \$2, \$4 and \$8. Hence, there is a total of 8 possible outcomes which are 10 cents, 20 cents, 40 cents, 50 cents, \$1, \$2, \$4, \$8.

   (b) He has a $\frac{1}{16}$ chance of getting a \$8 discount.

Section B

1. (a) Answers vary.
   (b) Answers vary.
   (c) Answers vary.
   (d) The chances of both heads and tails become more equal as the number of tries increases.
   (e) TWM.04: Convincing
   The result in (c) is more reliable as the frequency of each outcome is almost identical. This is true because there is an equal chance of getting both heads and tails.

2. (a) TWM.08: Improving
   No. There are too few repetitions in this experiment. He should repeat the experiment more times to get more reliable data.

(b) TWM.03: Conjecturing
Ron has the least number of apple cards because the frequency of the outcome “apple cards” is the lowest.

(c) The banana card will be picked the greatest number of times and the apple card will be picked the least number of times.

3. TWM.03: Conjecturing
The probability of tossing to any number is $16\frac{2}{3}\%$. To calculate the probability, a large number of trials is required. The percentage of occurrence for each number for Experiment Y is the closest to $16\frac{2}{3}\%$. So, Experiment Y is the 3rd experiment. The 1st and 2nd experiments have 50 and 80 trials, which are not large enough. Hence, both Experiments X and Z have varying results. Therefore, it is not possible to tell if Experiment X or Z is the 1st or 2nd experiment.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 9 Fractions, Percentages and Decimals

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Page 136

(c) 2; 2

- Let's Practise

Page 137

1. (a) $\frac{1}{3}$

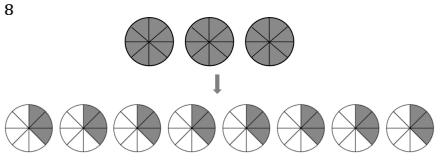
   (b) $\frac{2}{5}$

   (c) $\frac{3}{4}$

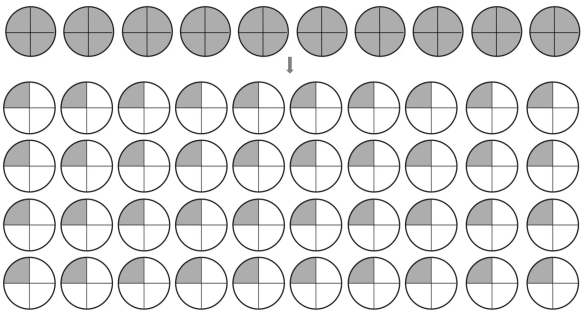
   (d) $\frac{9}{2}$

2. TWM.04: Convincing

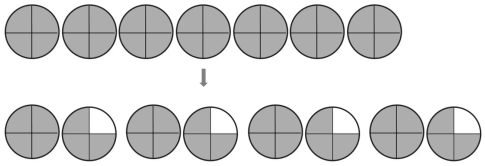
   (a) $\frac{3}{8}$



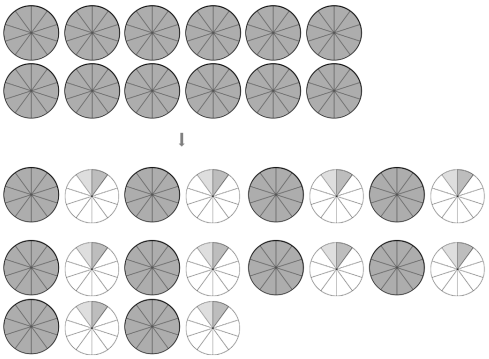
   (b) $\frac{1}{4}$



   (c) $1\frac{3}{4}$



(d) $1\frac{1}{5}$



3. (a) $\frac{3}{4}$ of an orange
   (b) $\frac{1}{12}$ of an orange

4. (a) Yes, they will. Both $\frac{6}{15}$ and $\frac{8}{20}$ are $\frac{2}{5}$ in the simplest form.

   (b) TWM.04: Convincing
   No, the statement is not correct.
   $\frac{14}{35} = \frac{2}{5}$. Each person will still get the same amount of cake.

Section B

- Let's Learn

Page 140

(d) 5% of 300 = 3 × 5 = 15
He has 15 European stamps.
10% of 300 = 300 ÷ 10 = 30
He has 30 Asian stamps.

(e) 100% of $200 is $200.
10% of $200 is $200 ÷ 10 = $20.
20% of $200 is $20 × 2 = $40.
The price increase is $40.
The new price is $200 + $40 = $240.

- Let's Practise

Page 141

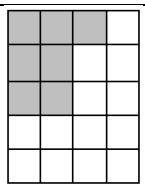
1.

Fraction	Percentage	Decimal
$\frac{7}{20}$	35%	0.35
$\frac{3}{4}$	75%	0.75
$2\frac{1}{10}$	210%	2.1

2. (a) 1% of 60 kg = 60 ÷ 100 = 0.6 kg
   10% of 60 kg = 0.6 × 10 = 6 kg

   (b) 5% of 110 cm = 110 ÷ 20 = 5.5 cm
   30% of 110 cm = 5.5 × 6 = 33 cm

3. Answers vary. For example:



My partner and I did not shade the same way. Both answers are correct as we each have shaded 7 squares.

4. 100% of \$200 = \$200
10% of \$200 = \$200 × 10 = \$20
5% of \$200 = \$20 ÷ 2 = \$10
15% of \$200 = \$10 × 3 = \$30
New price = \$200 – \$30 = \$170

5. (a) Yes, it is. 10% of 640 and 20% of 320 have the same value, 64.

(b) TWM.04: Characterising
The price increase on the camera will be twice the price increase on the oven.

Section C

- Let's Learn

Pages 143-144

(a) <; less

(b) Rashid

(c) 0.16 < 0.2 < 0.24 < 0.4
16%, $\frac{1}{5}$, 0.24, 0.4
Carrie, Aris, Dini, Bala

- Let's Practise

Page 145

1. (a) >
(b) <
(c) =

2. Myra

3. 6.1 m, 6.15 m, 6.5 m, 6,51 m

4. TWM.06: Classifying

More than 75%	Less than 75%	Equal to 75%
0.9, $\frac{4}{5}$	0.73, 0.49, $\frac{2}{5}$, $\frac{1}{2}$	$\frac{3}{4}$

5. (a) $\frac{1}{9}+\frac{1}{3}=\frac{1}{9}+\frac{3}{9}=\frac{4}{9}$
Adam ate $\frac{4}{9}$ of the cake.

(b) Will ate the least portion of the cake.

6. TWM.04: Convincing
Izzy's share: 0.15
Ron's share: $\frac{6}{30}$ = $\frac{2}{10}$ = 0.2
Caz's share: 15% + 20% = 35% = 0.35
Eddy's share: 0.15 × 2 = 0.30
Arrange each person's share in order from the smallest to the largest share:
0.15, 0.2, 0.3, 0.35.
Caz paid the most.

Section D

- Let's Learn

Page 147

(b) 0.3 h = 0.3 × 60 min = 18 min
6.3 h = 6 h + 0.3 h = 6 h 18 min
The return journey took 6 hours and 18 minutes.

- Let's Practise

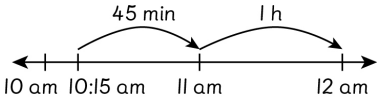
Page 148

1. (a) 0.2
   (b) 48
   (c) 42
   (d) 1.75

2. (a) 1 h 36 min
   (b) 1.9 h
   (c) 2 days 6 h
   (d) 6.75 days

3. 1.4 h + 20 min = 1 h 24 min + 20 min = 1 h 44 min
   The total time Ian cycled and swam is 1 h 44 min.

4. TWM.04: Convincing



From the diagram, the duration is 1 h 45 min.
1 h 45 min = 1 h + $\frac{45}{60}$ h = 1 h + $\frac{3}{4}$ h = 1 h + 0.75 h = 1.75 h

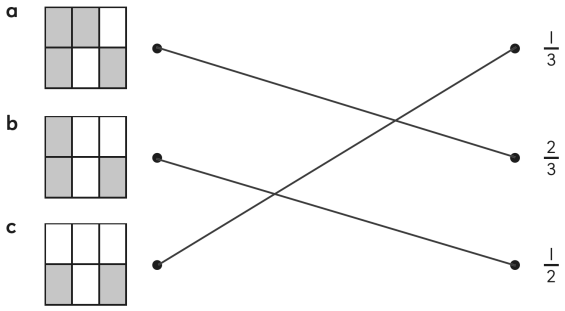
5. (a) Creative Thinking: 1 h 45 min
   Using IT Tools: 2 h 15 min
   Maths in Arts: 1 h 45 min
   Scientific Query: 2 h 30 min
   Creative Thinking and Maths in Arts have the same duration, 1 h 45 min.
   1 h 45 min = 1 h + $\frac{45}{60}$ h = 1 h + $\frac{3}{4}$ h = 1 h + 0.75 h = 1.75 h

   (b) 2.2 h = 2 h 12 min
   2 h 30 min – 2 h 12 min = 18 min
   18 minutes after 9:30 am is 9:48 am.
   Fiona arrived at the workshop at 9:48 am.

Activity Book

Section A

1.



2. (a) 3 ÷ 5 = $\frac{3}{5}$
   (b) 5 ÷ 4 = $\frac{5}{4}$

3. (a) $8 \div 10$
   (b) $16 \div 5$

4. TWM.04: Convincing
   Only Eddy is correct. 4 oranges divided into 10 equal parts is $\frac{4}{10}$.
   $\frac{4}{10} = \frac{2}{5} = \frac{6}{15}$
   So, Eddy is correct.
   3 apples divided into 10 equal parts is $\frac{3}{10}$.
   $\frac{3}{10}$ and $\frac{6}{12}$ are not equivalent.
   So, Caz is not correct.

5. (a) $\frac{1}{2}$
   (b) $\frac{2}{5}$
   (c) $\frac{3}{5}$
   (d) $\frac{1}{3}$
   (e) $\frac{6}{5}$
   Hidden word: MANGO

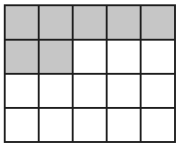
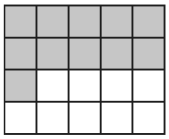
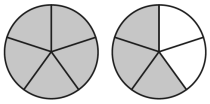
6. TWM.04: Convincing
   (a) I agree. $\frac{7}{8} = \frac{21}{24}$, so $\frac{21}{24}$ of the figure is unshaded.

   (b) $\frac{21}{24} - \frac{5}{24} = \frac{16}{24} = \frac{2}{3}$
   Izzy should shade $\frac{2}{3}$ more of the figure.

7. $5 \div 25 = \frac{5}{25}$
   $\frac{5}{25} = \frac{1}{5} = \frac{3}{15}$
   There are 15 adults at the party.

Section B

1.

	Fraction	Percentage	Decimal
a 	$\frac{7}{20}$	35%	0.35
b 	$\frac{11}{20}$	55%	0.55
c 	$1\frac{3}{5}$	160%	1.6

2. (a) 0.2 m
   (b) 25 kg
   (c) 26 g
   (d) $40

3.

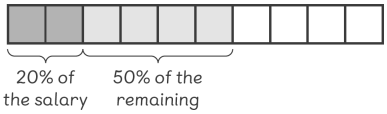
Let's Play Tic Tac Toe!

$\frac{3}{20}$	15%	0.05	1.22	142%	$1\frac{6}{25}$
0.50	50%	$\frac{25}{50}$	$1\frac{21}{50}$	124%	1.42
$\frac{1}{20}$	5%	0.15	1.24	$1\frac{11}{50}$	122%

4. (a) 1% of \$1800 = \$1800 ÷ 100 = \$18
5% of \$1800 = \$18 × 5 = \$90
The increase in price is \$90.

(b) 1% of \$65 = \$65 ÷ 100 = \$0.65
10% of \$65 = \$0.65 × 10 = \$6.50
11% of \$65 = \$6.50 + \$0.65 = \$7.15
\$65 – \$7.15 = \$57.85
The new price of the blouse is \$57.85.

5. (a)



From the diagram, 40% of Ken's salary is left.

(b) 40% of the salary is \$1200.
10% of the salary = \$1200 ÷ 4 = \$300
100% of the salary = \$300 × 10 = \$3000
Ken's salary is \$3000.

(c) 1% of \$3000 is \$30.
5% of \$3000 is \$30 × 5 = \$150
6% of \$3000 is \$30 + \$150 = \$180
\$180 + \$3000 = \$3180
Ken's salary will be \$3180.

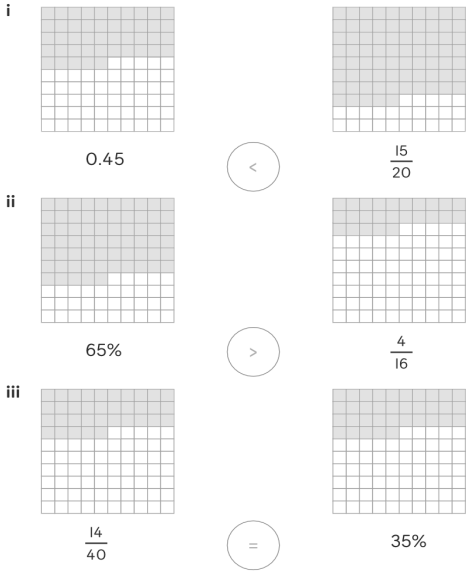
6. (a) Time spent on Pottery Memories: 5% × 3 = 15%
Time spent on both Culture Unfolded and Music Around: 100% – 15% – 25% – 5% = 55%
Time spent on Music Around: 55% ÷ 5 = 11%
Time spent on Culture Unfolded: 11% × 4 = 44%

Event	Decimal/Percentage of the total time spent
Flora Artwork	5%
Pottery Memories	15%
History Gallery	0.25
Culture Unfolded	44%
Music Around	11%

(b) 44% of Jayla's time is 1 h 28 min or 88 min.
1% of Jayla's time is 88 ÷ 44 = 2 min.
100% of Jayla's time is 2 × 100 = 200 min.
Jayla spent 3 h 20 min at the museum.

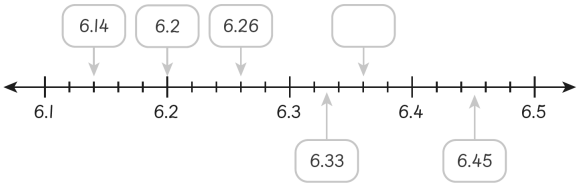
Section C

1. (a)



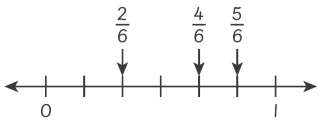
(b) Answers vary. For example: Change fractions and percentages to decimals. Then compare the decimals.

2. (a)



(b) From the number line, 6.14 < 6.2 < 6.26 < 6.33 < 6.45.

3. $\frac{2}{3} = \frac{4}{6}$



So, $\frac{5}{6} > \frac{2}{3} > \frac{2}{6}$.
Packet A has the greatest amount of flour.

4. 0.85

5. (a) Glasses: A, C, B, D

(b) TWM.06: Classifying
Glasses A and B each have more than half a glass of water.
Glasses C and D each have less than half a glass of water.

6. TWM.04: Convincing
$\frac{3}{14}$ has the greatest denominator and smallest numerator. It is the smallest fraction.
$\frac{5}{10}$ is equal to $\frac{1}{2}$. $\frac{7}{12}$ is greater than $\frac{1}{2}$. $\frac{4}{9}$ is smaller than $\frac{1}{2}$. $\frac{7}{12}$ is greater than $\frac{4}{9}$.
So, $\frac{7}{12}$ is the greatest fraction.

Section D

1. 24

2. (a) 6.25 min = 6 min + 0.25 min
= 6 min 15 s

$0.25 = \frac{1}{4} \rightarrow \frac{1}{4}$ of 1 min $= \frac{1}{4}$ of 60 s

= 15 s

(b) 2.15 h = 2 h + 0.15 h
= 2 h 9 min

$0.15 = \frac{3}{20} \rightarrow \frac{3}{20}$ of 1 h $= \frac{3}{20}$ of 60 min

= 9 min

(c) 4.75 h = 4 days + 0.75 day
= 4 days 18 h

$0.75 = \frac{3}{4} \rightarrow \frac{3}{4}$ of 1 day $= \frac{3}{4}$ of 24 h

= 18 h

3. (a) 10.7 min
(b) 5.4 h
(c) 12.75 days

4. (a) 3.7 h = 3 h 42 min
Ray cycles for 3 hours and 42 minutes. He finishes cycling at 6:42 pm.

(b) Maggie starts cycling at 3:15 pm. 3 hours and 57 minutes have passed from 3:15 pm to 7:12 pm.
3 h 57 min – 3 h 42 min = 15 min = $\frac{1}{4}$ h
Maggie has cycled $\frac{1}{4}$ hour more than Ray.

5. $\frac{11}{5}$ h = 2 h 12 min = 132 min
Time spent on playing football = 132 min – 30 min
= 102 min
= 1 h 42 min
= 1 h + $\frac{7}{10}$ h
= 1.7 h
Ali spent 1.7 hours playing football.

6. TWM.01: Specialising
1.7 h + $1\frac{4}{5}$ h = 210 min or 1.9 h + $1\frac{3}{5}$ h = 210 min

7. TWM.01: Specialising
90% of 5 h = 4.5 h
Answers vary. For example:
Horse riding: 1.25 h; Canoeing: 1.3 h; Skiing: 1 h; Cycling: 1.2 h
1.25 h + 1.3 h + 1 h + 1.2 h = 4.75 h
William can do horse riding, canoeing, skiing and cycling.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 10 Calculations with Fractions

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Pages 153-154

(b) $\frac{13}{10} + \frac{3}{4} = \frac{26}{20} + \frac{15}{20}$

$= \frac{41}{20}$

$= 2\frac{1}{20}$

The depth of the adults' pool is $2\frac{1}{20}$ m.

(d) $\frac{9}{5} - \frac{2}{3} = \frac{27}{15} - \frac{10}{15}$

$= \frac{17}{15}$

$= 1\frac{2}{15}$

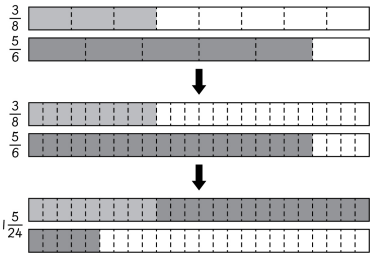
Andrew is left with $1\frac{2}{15}$ m of cloth.

- Let's Practise

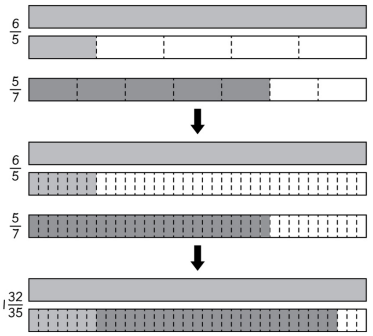
Page 155

1. TWM.04: Convincing

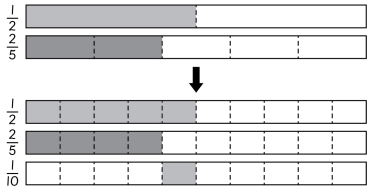
(a) Estimate: $1\frac{1}{2}$; actual: $\frac{3}{8} + \frac{5}{6} = 1\frac{5}{24}$



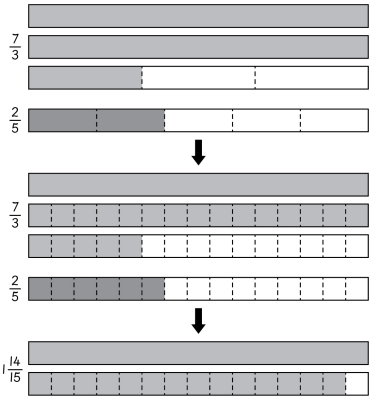
(b) Estimate: 2; actual: $\frac{6}{5} + \frac{5}{7} = 1\frac{32}{35}$



(c) Estimate: 0; actual: $\frac{1}{2} - \frac{2}{5} = \frac{1}{10}$



(d) Estimate: $1\frac{1}{2}$; actual: $\frac{7}{3} - \frac{2}{5} = 1\frac{14}{15}$



2. $\frac{3}{4} + \frac{1}{6} = \frac{9}{12} + \frac{2}{12} = \frac{11}{12}$
   Fiza uses $\frac{11}{12}$ of the filling.

3. $\frac{7}{8} - \frac{1}{3} = \frac{21}{24} - \frac{8}{24} = \frac{13}{24}$
   $\frac{13}{24}\ \ell$ of water is needed.

4. (a) TWM.03: Conjecturing
   $\frac{1}{2} + \frac{3}{5} = \frac{11}{10} = 1\frac{1}{10}$
   The total amount of water needed is more than 1 whole.
   So, Nisa will not have enough water.

   (b) $\frac{1}{2} - \frac{1}{9} = \frac{9}{18} - \frac{2}{18} = \frac{7}{18}$
   $\frac{7}{18}$ of the pail of water is used for plants.

Section B

- Let's Learn

Page 158

(b) Method 1: $\frac{600}{3}$; 200; \$200
Method 2: 40; 200; \$200

- Let's Practise

Page 159

1. (a) \$46
   (b) 175 kg
   (c) 3440 m

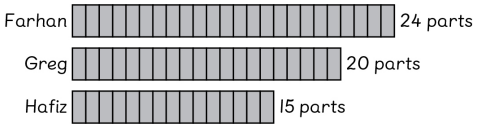
2. $\frac{7}{3} \times 6 = 14$ tries
   Rizal took 14 tries to solve the puzzle

3. $\frac{4}{3}$ of Hajar's ribbon = $\frac{4}{3} \times 75 = 100$ cm.
   $\frac{1}{4}$ of Jenny's ribbon = 100 cm

$\frac{4}{4}$ of Jenny's ribbon = $100 \times 4 = 400$ cm
Jenny's ribbon is 400 cm.

4. (a) TWM.03: Conjecturing
Farhan has more paper stars than Greg.
Greg has more paper stars than Hafiz.
So, Farhan has the most paper stars.

(b) $\frac{6}{5} = \frac{24}{20}$ and $\frac{4}{3} = \frac{20}{15}$
Draw 24 equal parts for Farhan, 20 equal parts for Greg and 15 equal parts for Hafiz.



$\frac{24}{15} = \frac{8}{5}$
$\frac{8}{5}$ of Hafiz's paper stars are Farhan's paper stars.

(c) $\frac{8}{5} \times 40 = 64$ paper stars

Section C

- Let's Learn

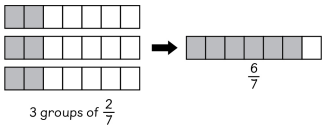
Page 161

(a) Method 1: $\frac{6}{5}$; $1\frac{1}{5}$; There is $1\frac{1}{5}$ ℓ of water altogether.
Method 2: 2; $\frac{6}{5}$; $1\frac{1}{5}$
1; 2; There is 2 ℓ of water altogether now.

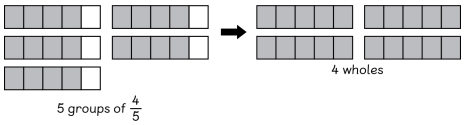
- Let's Practise

Page 162

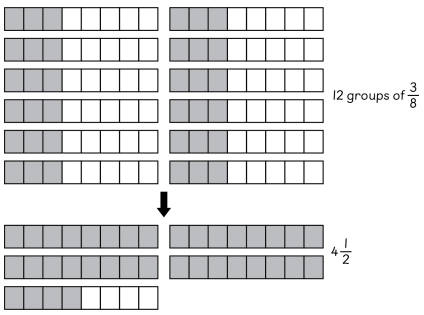
1. TWM.04: Convincing
(a) Estimate: 1; actual: $\frac{2}{7} \times 3 = \frac{6}{7}$



(b) Estimate: 5; actual: $5 \times \frac{4}{5} = 4$



(c) Estimate: 6; actual: $\frac{3}{8} \times 12 = 4\frac{1}{2}$

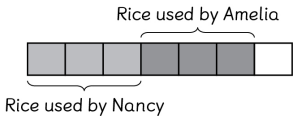


2. $\frac{5}{8} \times 6 = \frac{5}{4} \times 3 = 3\frac{3}{4}$ kg

The total mass of 6 boxes of cereal is $3\frac{3}{4}$ kg.

3. $(\frac{2}{5} + \frac{3}{5}) \times 14 = 1 \times 14 = 14$
   14ℓ of paint are used.

4. (a) TWM.04: Convincing
   Yes, Amelia is correct.



   Amelia uses 3 out of 4 parts from the remainder, which is $\frac{3}{7}$ of the sack of rice.

   (b) $\frac{1}{7}$ of the sack of rice is left.
   $\frac{1}{7} \times 21 = 3$ kg

Section D

- Let's Learn

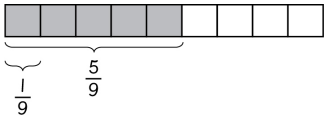
Page 164

(a) $\frac{1}{8}$; Each book costs $\frac{1}{8}$ of Diana's savings.
(b) $\frac{2}{9}$; There is $\frac{2}{9}$ kg of flour in each bowl.

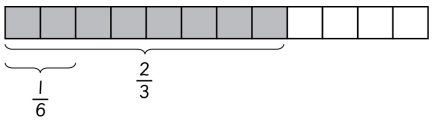
- Let's Practise

Page 165

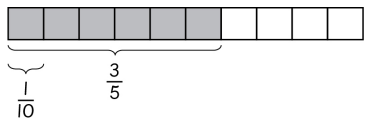
1. TWM.04: Convincing
   (a) Estimate: $\frac{1}{10}$; actual: $\frac{5}{9} \div 5 = \frac{1}{9}$



   (b) Estimate: $\frac{1}{4}$; actual: $\frac{2}{3} \div 4 = \frac{1}{6}$



   (c) Estimate: $\frac{1}{12}$; actual: $\frac{3}{5} \div 6 = \frac{1}{10}$



2. $\frac{3}{4} \div 4 = \frac{3}{16}$
   $\frac{3}{16}$ of the cloth is used for each scarf.

3. TWM.07: Critiquing
   She should only divide the numerator by 2.
   $\frac{6}{8} \div 2 = \frac{6 \div 2}{8} = \frac{3}{8}$
   Each cup should have $\frac{3}{8}\ell$ of juice.

4. (a) $\frac{9}{10} \div 3 \div 3 = \frac{3}{10} \div 3 = \frac{1}{10}$
   Each smaller piece is $\frac{1}{10}$ m long.

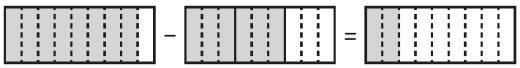
(b) TWM.04: Convincing
No, Tim is wrong.
$\frac{9}{10} \div 6 = \frac{3}{20}$
To have the same length as Andy's, Tim should have cut it into 9 equal pieces instead.

Activity Book

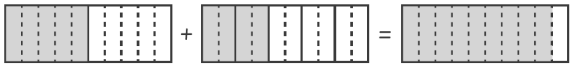
Section A

1. (a) $\frac{11}{12}$

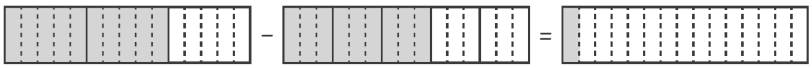
(b) $\frac{2}{9}$



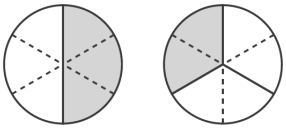
2. TWM.04: Convincing
(a) Estimate: 1; actual: $\frac{9}{10}$



(b) Estimate: 0; actual: $\frac{1}{15}$



3. (a)



(b) TWM.04: Convincing
The first circle has 3 equal parts shaded. The second circle has 2 equal parts shaded.
So, $\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$.

4. Estimate:
Both $\frac{7}{9}$ and $\frac{4}{5}$ are close to 1.
1 + 1 = 2
The estimated answer is 2 pizzas.
Actual:
$\frac{7}{9} + \frac{4}{5} = \frac{35}{45} + \frac{36}{45} = \frac{71}{45} = 1\frac{26}{45}$
They eat $1\frac{26}{45}$ pizzas altogether.

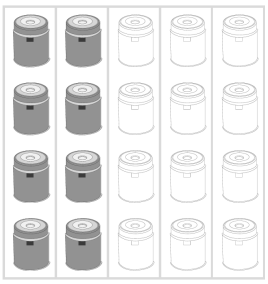
5. $\frac{6}{5} - \frac{7}{8} = \frac{48}{40} - \frac{35}{40} = \frac{13}{40}$
Ron has left $\frac{13}{40}$ more of a cake than Ralph.

6. $\frac{1}{7} + \frac{2}{7} = \frac{3}{7}$
The squid lost a total of $\frac{3}{7}$ kg.
$\frac{22}{35} + \frac{3}{7} = \frac{22}{35} + \frac{15}{35} = \frac{37}{35}$
$\frac{37}{35} - \frac{1}{5} = \frac{37}{35} - \frac{7}{35} = \frac{30}{35} = \frac{6}{7}$

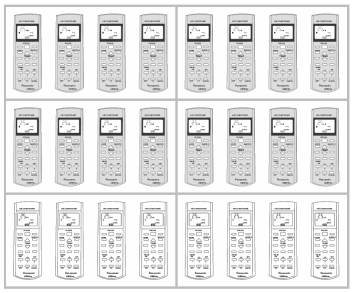
The squid was $\frac{6}{7}$ kg heavy three weeks ago.

Section B

1. (a) 8



(b) 16



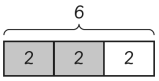
2. (a)

Method I: Divide then multiply.

$6 \div \underline{3} = \underline{2}$

$\underline{2} \times \underline{2} = \underline{4}$

$\frac{2}{3} \times 6 = \underline{4}$

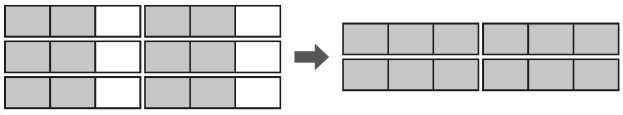


Method 2: Multiply then divide.

$6 \times \underline{2} = \underline{12}$

$\underline{12} \div \underline{3} = \underline{4}$

$\frac{2}{3} \times 6 = \underline{4}$



(b) 63

Method 1: $\frac{7}{4} \times 36 = 7 \times \frac{36}{4}$

$= 7 \times 9$

$= 63$

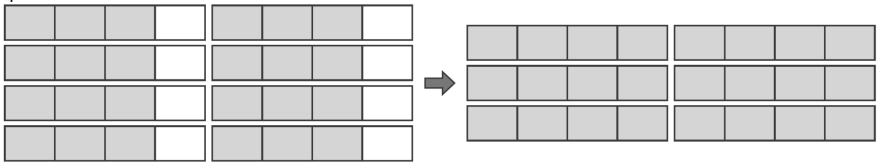
Method 2: $\frac{7}{4} \times 36 = \frac{7 \times 36}{4}$

$= \frac{252}{4}$

$= 63$

3. TWM.04: Convincing

$\frac{3}{4} \times 8 = 6$ pizzas



4. $\frac{2}{3} \times 12 = 8$
8 leaves are crumpled.
$12 - 8 = 4$
4 leaves are not crumpled.

5. $\$750 \times \frac{3}{5} = \$\frac{2250}{5} = \$450$
Jia spends \$450 on food.
$\$450 \times \frac{1}{3} = \frac{\$450}{3} = \$150$
Jia spends \$150 on clothes.

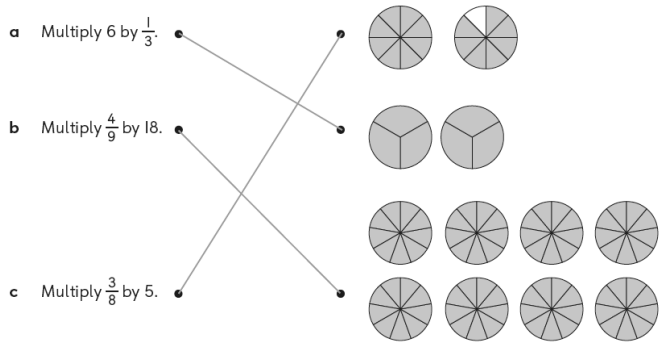
6. $\frac{7}{4} \times 12 = 21$ min and $\frac{4}{7} \times 21 = 12$ min
Chris takes 21 minutes to write a poem; whereas Yani takes 12 minutes to do it.
Hence, Chris takes 9 minutes longer than Yani to write a poem.

7. $\frac{23}{6} \times 4 \times 4 = \frac{184}{3}$ m^2
$\frac{184}{3} \times \$12 = \$736$
The total cost of painting the walls is \$736.

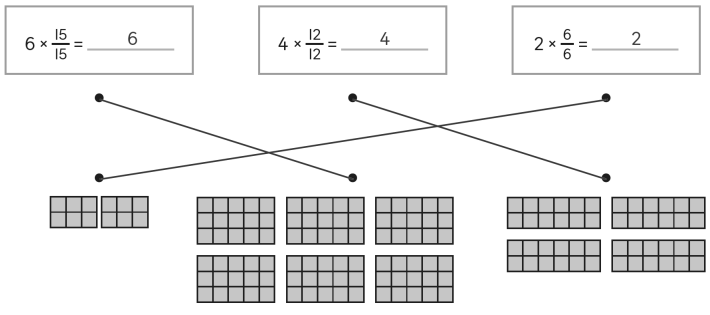
8. Mr Li earned $\frac{11}{2} \times \$120 = \$660$.
Mr Li donated $\frac{1}{5} \times \$660 = \$132$ to charity.
Mr Li spent $\frac{2}{3} \times \$132 = \$88$ on books.
$\$660 - \$132 - \$88 = \$440$
Mr Li spent $\frac{7}{10} \times \$440 = \$308$ on 2 concert tickets.

Section C

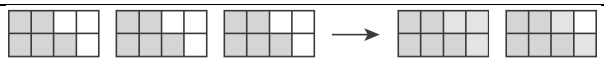
1.



2.

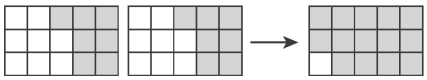


3. TWM.04: Convincing
(a) Estimated: $\frac{5}{8}$ is close to $\frac{1}{2}$. So, $3 \times \frac{5}{8}$ is close to $1\frac{1}{2}$.
Actual: $1\frac{7}{8}$



(b) Estimated: $\frac{7}{15}$ is close to $\frac{1}{2}$. So, $2 \times \frac{7}{15}$ is close to 1.

Actual: $\frac{14}{15}$



4. TWM.04: Convincing

No. Sometimes the product of a fraction and a whole number is not a whole number.

For example, $\frac{1}{5} \times 2 = \frac{2}{5}$.

5. Estimate:

9 is close to 10.

$\frac{1}{5}$ of 10 is 2, and so $\frac{4}{5}$ of 10 is 8.

$10 - 8 = 2$

The estimated answer is 2 km.

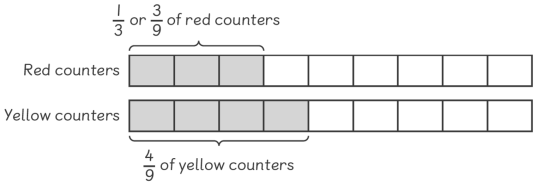
Actual:

Kian rode $9 \times \frac{4}{5} = \frac{36}{5}$ km on Tuesday.

$9 - \frac{36}{5} = \frac{9}{5} = 1\frac{4}{5}$

Kian rode $1\frac{4}{5}$ km farther on Monday than on Tuesday.

6. (a)



Jane had $\frac{1}{3}$ of the red counters and $\frac{4}{9}$ of the yellow counter left.

(b) TWM.04: Convincing

Jane had 4 more yellow counters than red counters.

From the diagram, 1 part $\rightarrow$ 4 counters

9 parts $\rightarrow 9 \times 4 = 36$ counters

Jane had $36 + 36 = 72$ counters at first.

(c) 4 parts $\rightarrow 4 \times 4 = 16$ counters

$\frac{3}{8} \times 16 = 6$

$16 - 6 = 10$

Jane had 10 yellow counters left.

7. $25 - 5 = 20$

The product of the fraction and 36 is 20.

Since the product is a whole number, the denominator of the fraction and 36 must have a common factor other than 1.

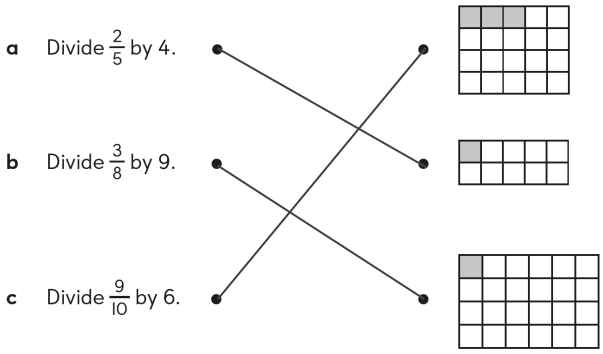
Starting from the lowest terms, list possible numerators and denominators, and check whether the product is 20.

Numerator	1	2	3	4	5	6
Denominator	5	6	7	8	9	10
Does the denominator and 36 have a common factor other than 1?	✗	✓	✗	✓	✓	✓
Is the product of 36 and the fraction 20?	✗	✗	✗	✗	✓	✗

Based on the table, the fraction is $\frac{5}{9}$.

Section D

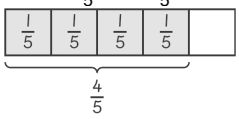
1.



2. TWM.04: Convincing

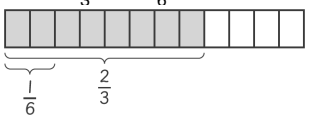
(a) Estimate: $\frac{4}{5}$ is about 1. So, $\frac{4}{5} \div 4$ is close to $\frac{1}{4}$.

Actual: $\frac{4}{5} \div 4 = \frac{1}{5}$



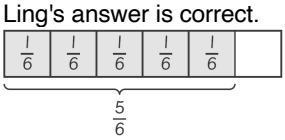
(b) Estimate: $\frac{2}{3}$ is about 1 . So, $\frac{2}{3} \div 4$ is close to $\frac{1}{4}$.

Actual: $\frac{2}{3} \div 4 = \frac{1}{6}$



3. TWM.07: Critiquing

Ling's answer is correct.



Based on the diagram, 5 equal parts of juice are shared by 5 cups; So, it is correct to divide the numerator by 5 and keep the denominator unchanged. Each cup has $\frac{1}{6}\ \ell$ of juice; So, Ling is correct.

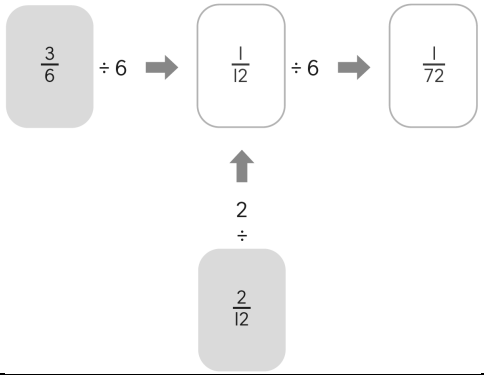
4. (a) $\frac{5}{9} \div 5 = \frac{1}{9}$

Each friend gets $\frac{1}{9}$ of the chocolate balls.

(b) $\frac{1}{9} \times 45 = 5$

Each friend gets 5 chocolate balls.

5.



6. (a) Izzy has $10 \times \frac{2}{25} = \frac{4}{5}$ kg of sugar.

$\frac{4}{5}$ kg of sugar is needed for 24 small muffins + 12 big muffins or 12 sets of 2 small muffins + 1 big muffin.

$\frac{4}{5} \div 12 = \frac{1}{15}$

$\frac{1}{15}$ kg of sugar is needed for making 2 small muffins and 1 big muffin.

(b) Making 2 small muffins + 1 big muffin is equivalent to making 4 small muffins.

$\frac{1}{15} \div 4 = \frac{1}{60}$

$\frac{1}{60} \times 11 = \frac{11}{60}$

$\frac{11}{60}$ kg of sugar is needed for making 11 small muffins.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 11 Ratio and Proportion

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

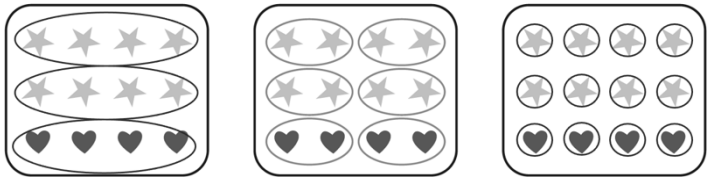
Page 170

(a) 2 : 3; 2 : 3

- Let's Practice

Page 171

1. (a)



(b) Answers vary. For example: 6 : 3, 12 : 6.

2. (a) Equivalent. (45 ÷ 15) : (60 ÷ 15) = 3 : 4
   (b) Not equivalent. (28 ÷ 7) : (21 ÷ 7) = 4 : 3 ≠ 3 : 4

3. (a) 1 : 12 = (1 × 5) : (12 × 5) = 5 : 60
   There are 60 students.

   (b) 1 : 12 = (1 × 7) : (12 × 7) = 7 : 84
   There are 7 teachers.

   (c) 6 : 60 = (6 ÷ 6) : (60 ÷ 6) = 1 : 10 ≠ 1 : 12
   So, it is not possible to have 6 teachers and 60 students in the school.

4. Oranges : Apples = 2 : 4 = (2 × 7) : (4 × 7) = 14 : 28.
   If there are 28 apples, then there are 2 × 7 = 14 oranges.
   14 + 28 = 42
   The total number of fruits in the basket is 42.

Section B

- Let's Learn

Page 173

(a)

Apple syrup (ℓ)	Water (ℓ)
1	4
2	8
10	40

For every 10 ℓ of apple syrup, she uses 40 ℓ of water.

(b)

Flour (g)	Butter (g)
150	80
75	40

The amount of butter decreases as the amount of flour decreases. 40 g of butter is needed to make pancakes for 3 people.

- Let's Practise

Page 174

1. (a) 1 : 5 = (1 × 6) : (5 × 6) = 6 : 30
   The real cat is 30 cm tall.

   (b) 1 : 5 = (1 × 3) : (5 × 3) = 3 : 15
   The toy cat's tail is 3 cm long.

2. 28 : 500 = (28 × 2) : (500 × 2) = 56 : 1000
   56 ℓ of paint will be needed.

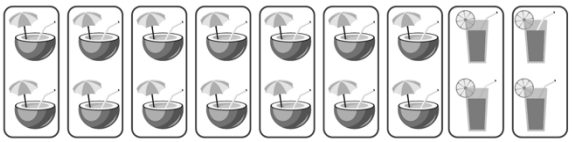
3. TWM.04: Convincing
   Eddy bought the 2 kg packet of cookies which cost $10, so 1 kg costs $5.
   Caz bought the 5 kg packet of cookies which cost $20, so 1 kg costs $4.
   Therefore, Eddy is not correct as Caz made the best buy.

Activity Book

Section A

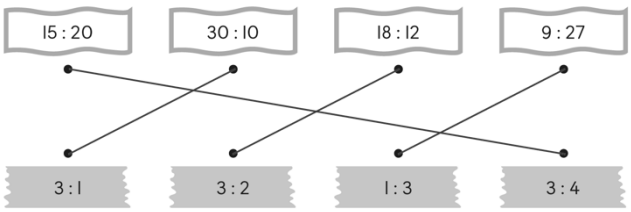
1. (a) 1 : 3

   (b) 7 : 2

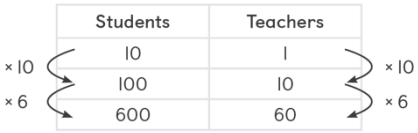


2. (a) 27
   (b) 54
   (c) 3
   (d) 8

3.



4.



60 teachers are going on the field trip.

5. 420 ÷ 14 = 30
30 × 11 = 330
330 + 420 = 750
There are 750 ice creams in total.
Alternatively,
420 ÷ 14 = 30
14 units + 11 units = 25 units
30 × 25 = 750
There are 750 ice creams in total.

6. TWM.04: Convincing
Ron is correct.
Answers vary. For example: Only Recipe C and Recipe D can make a drink that would taste the same as Izzy's drink. This is because they have the same ratio as Izzy's recipe when expressed in the simplest form, with 3 parts of lime and 4 parts of soda.

7. TWM.01: Specialising
(a) Answers vary. For example:
4 : 7 = 14 : 28
James is making a salad dressing. He mixes 4 mℓ of vinegar for every 7 mℓ of olive oil. How many mℓ of olive oil does James need if he uses 28 mℓ of vinegar?

(b) Answers vary. For example:
6 : 9 = 18 : 27
Mei Lin is making some fruit juice. She uses 6 oranges for every 9 apples. If she uses 18 oranges, how many apples does she need?

Section B

1. (a) 60
(b) 3 hours

2. (a) 360
(b) 5

3. (a) Amount of butter needed for 1 cupcake = 180 ÷ 12 = 15 g
Amount of butter needed for 30 cupcakes = 15 × 30 = 450 g
Sarah needs 450 g of butter to bake 30 cupcakes.

(b) Number of eggs needed to bake 6 cupcakes = 2 ÷ 2 = 1
Sarah needs 1 egg to bake 6 cupcakes.

4. S$1 = £0.55
S$599 = £0.55 × S$599 = £329.45
In Singapore, it costs £329.45 to buy the laptop but in the UK, it cost £379 to buy the same laptop.
The laptop is cheaper in Singapore than in the UK.

5. TWM.07: Critiquing
Both methods are correct, but Ralph made an error in his calculation. 3 × 9 is equal to 27, not 24.

6. <u>Shop A</u>
4 kg ÷ 2 kg = 2
Cost of 4 kg of nuts = $5 × 2 = $10
<u>Shop B</u>
4 kg ÷ 1 kg = 4
Cost of 4 kg of nuts = $2.30 × 4 = $9.20

Shop C
4 kg ÷ 200 g = 4000 g ÷ 200 g = 20
Cost of 4 kg of nuts = $0.70 × 20 = $14

Pei Ling should buy the nuts from Shop B because the nuts are the cheapest at Shop B.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 12 Data Handling and Statistical Inquiry

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

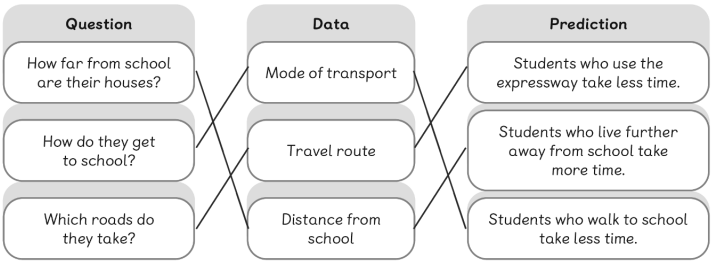
Page 180

(b) She investigates if there is a connection between the number of holidays in a month and the electrical consumption.

- Let's Practise

Pages 181-182

1.



2. (a) Answers vary. For example:
Does the thickness of the material affect the load it can hold?
Is the noise level higher with a cheaper material?
Is there a connection between the maximum load and the noise level?

(b) The stronger and thicker material will cost more.
The thicker the material, the higher the noise level.

3. (a) TWM.08: Improving
Answers vary. For example: How many students and adults with children visit the location each day on average?

(b) Answers vary. For example:
Does a higher number of students and adults with children visiting the location result in a higher amount of spending?
Which time period has the greatest number of students and adults with children visiting the location?

(c) Answers vary. For example:
A higher number of students and adults with children visiting the location may not result in increased spending.
There are more students visiting the location during the weekdays from 1 pm to 3 pm.

(d) Answers vary. For example:
Does the distance of the location to nearby schools result in a higher number of students visiting the shop?

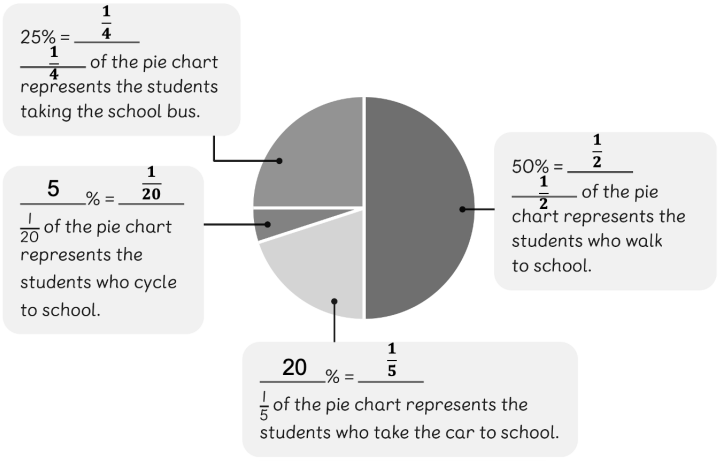
Section B

- Let's Learn

Page 184

(a)

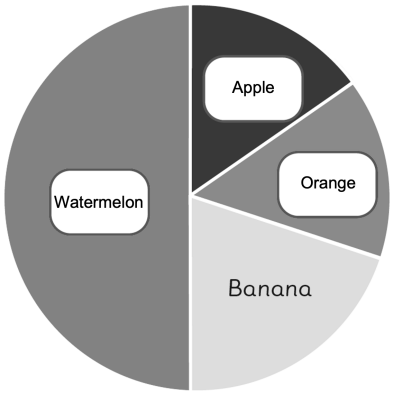
	Frequency	Percentage
 School bus	10	25%
 Walking	20	50%
 Cycling	2	5 %
 Car	8	20 %



- Let's Practise

Page 185

1. (a)



50% of the students like watermelons.
15% of the students like apples.
15% of the students like oranges.
20% of the students like bananas.

(b) Two students changed their minds.

2. TWM.04: Convincing
Yes, the statement is correct.
Vanilla and chocolate ice creams are 25% each and make up 50% of all the ice creams sold.

Section C

- Let's Learn

Pages 187-188

(a)

Number of books bought	Frequency
1 – 2	17
3 – 4	24
5 – 6	20
7 – 8	13
9 – 10	10

From the bar chart, the number of visitors who bought 3 to 4 books was the highest.

(b) From the bar chart, Gym 4 had the most number of new members. There were 16 fewer new members in Gym 3 than in Gym 2.

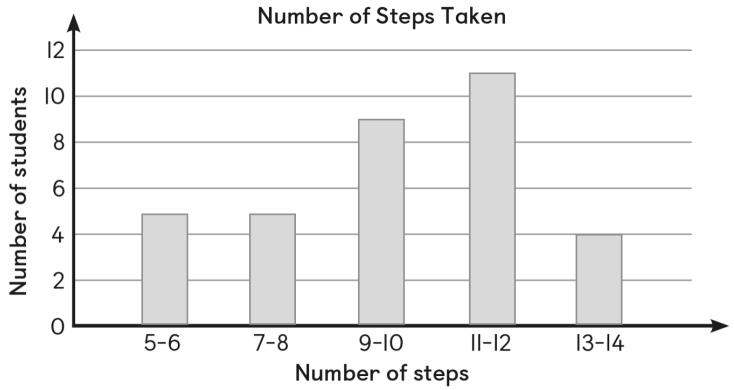
- Let's Practise

Pages 189-190

1. (a)

Number of steps	Frequency
5 – 6	5
7 – 8	5
9 – 10	9
11 – 12	11
13 – 14	4

(b)



2. (a) No, it is not a good choice because there are too many intervals.

(b) No, we can't because we do not know how many students scored 5, 15 and 25 marks only.

(c) TWM.08: Improving
Answers vary. For example: I could group the data in 10s.

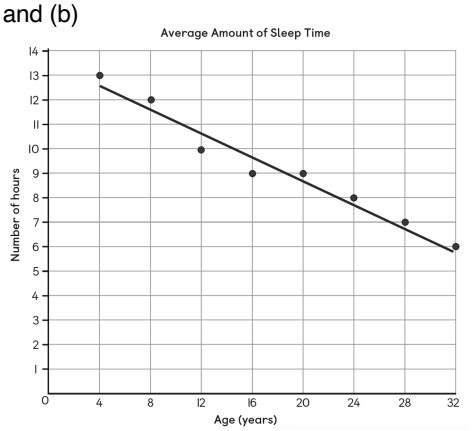
Score	Number of students
1 – 10	6
11 – 20	24
21 – 30	16

Section D

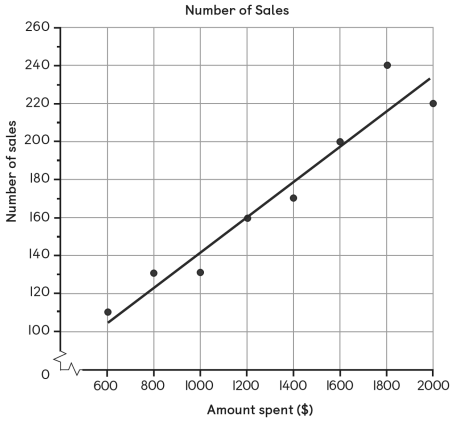
- Let's Practise

Pages 193-194

1. (a) and (b)



2. (a)



(b) TWM.03: Conjecturing
No, it does not. There was no increase in sales when the amount spent on advertising increased from $800 to $1000. There was a decrease in sales when the amount spent on advertising increased from $1800 to $2000.

Section E

- Let's Practise

Pages 197-198

1. (a) Venn diagram/Carroll diagram
   (b) It can show the number of students who chose blue or green.

2. (a) Bar Chart
   (b) Histogram
   (c) Scatter graph
   (d) Waffle diagram

3. (a) TWM.04: Convincing
   The mass of the lion cub is continuous.

   (b) TWM.04: Convincing
   No, it cannot. The pie chart is used to represent discrete data. The pie chart cannot show the rate that the cub's mass is increasing.

   (c) A line graph can show the rate that the lion cub is growing.

Section F

- Let's Learn

Page 200

(a) The modes are 3 and 6.

- Let's Practise

Page 202

1. (a) Mode: 4; Median: 4.5; Mean: 5; Range: 7
   (b) Mode: 46, 73; Median: 47; Mean: 58; Range: 41

2. (a) 4
   (b) 18.5
   (c) 18
   (d) No, it is not. Julie needs to score 22 to get a mean score of 17.5 but the maximum score for each quiz is only 20.

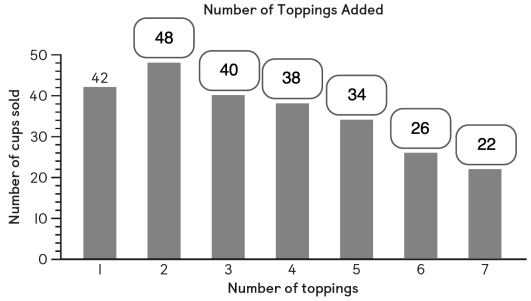
3. Answers vary. For example: Heaviest: 45 kg; Lightest: 39 kg. Accept all reasonable answers.

Section G

- Let's Learn

Pages 204-205

(a)



Total number of toppings sold = 42 × 1 + 48 × 2 + 40 × 3 + 38 × 4 + 34 × 5 + 26 × 6 + 22 × 7
= 890
Total number of cups sold = 250
Mean number of toppings per cup = 890 ÷ 250
= 3.56
The shape of the chart goes up and then down. From the chart, we can see a bump at 2. Hence, the mode for the number of toppings added is 2. Half of the data are to the left of the centre at 3. Hence, the median number of toppings is 3.

- Let's Practise

Pages 206-207

1. (a) 4
   (b) $12
   (c) TWM.04: Convincing
   No, Cheryl's prediction is not correct. Answers vary. For example: 2 vegetable dishes may be too much.

2. (a) Class 6A: median = $20, mode = $10, range = $40
   Class 6B: median = $30, mode = $30, range = $40

   (b) Total number of students
   = 12 + 8 + 6 + 7 + 5 + 9 + 6 + 10 + 6 + 7
   = 76
   Total amount of money donated by all the students 990
   = $10 × 12 + $20 × 8 + $30 × 6 + $40 × 7 + $50 × 5 + $10 × 9 + $20 × 6 + $30 × 10 + $40 × 6 + $50 × 7
   = $2090
   Mean amount of money donated by all the students
   = $2090 ÷ 76
   = $27.50

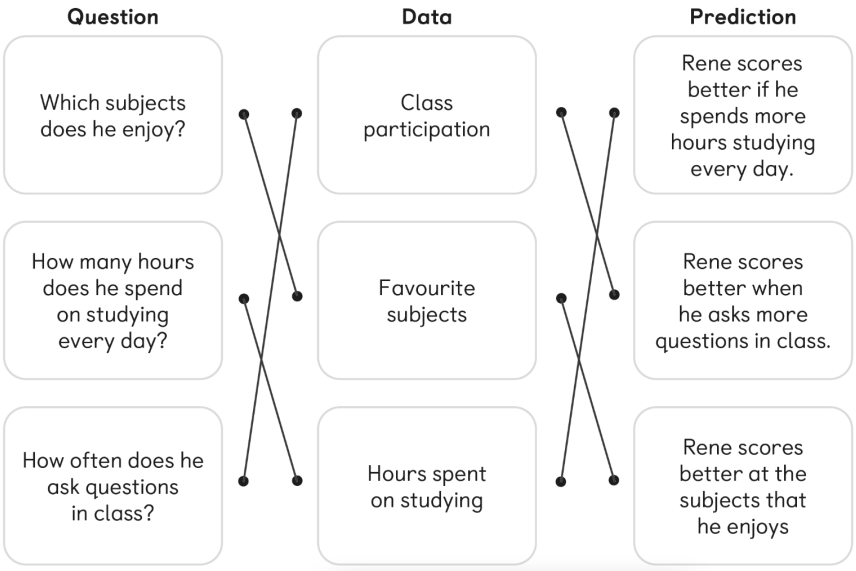
   (c) TWM.04: Convincing
   Yes. The median for 6B is $30, meaning half the class donated $30 or more. For 6A, 18 students donated $30 or more.

   (d) TWM.04: Convincing
   There is a higher number of students donating $10 in 6A, making the median lower. The mean tells us that there are students who donated more than $10.

Activity Book

Section A

1.



2. a, b, d

3. (a) Answers vary. For example: Will the length of a person's arm be longer if he is taller? Will the length of a person's leg be longer if he is taller?

   (b) TWM.03: Conjecturing
   Answers vary. For example: People with longer arms are often taller. People with longer legs are often taller as well.

4. (a) TWM.08: Improving
   He can ask how much water is given to the green beans every day.

   (b) Answers vary. For example: Does the amount of water used affect the height of the green bean sprouts? Does the amount of sunlight affect the amount of water needed?

   (c) Answers vary. For example: The greater the amount of water, the greater the height of the green beans sprouts. The amount of sunlight does not affect the amount of water to needed.

5. (a) TWM.08: Improving
   Answers vary. For example: Instead of using younger or older people, Diana could state an age or a range of age. The phrase "sleep better" is also not clear. It should be changed to the number of hours slept.

   (b) Answers vary. For example: Do 5 year old children sleep more hours than 50 year old adults?

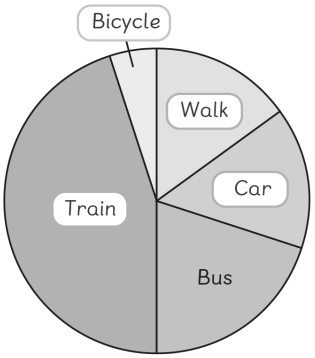
   (c) Answers vary. For example: I predict that 5 year old children sleep more hours as they are younger and need more sleep.

Section B

1. (a)

Means of transport	Frequency	Percentage
Bicycle	5	5%
Bus	20	20%
Car	15	15%
Train	45	45%
Walk	15	15%

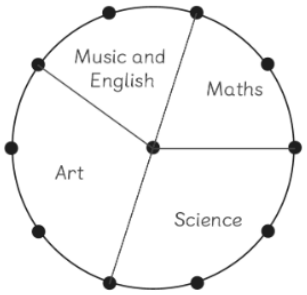
(b)



2. There was a total of 6 votes for Sally, Bao and Tom.
$6 \div 24 = 0.25 \times 100\% = 25\%$

3. TWM.04: Convincing
No, the pie chart is drawn wrongly.
Truck: $3 \div 30 = 0.10 \times 100\% = 10\%$
Bicycle: $9 \div 30 = 0.30 \times 100\% = 30\%$
The truck should be 10%. The bicycle should be 30%.

4. TWM.01: Specialising
(a)



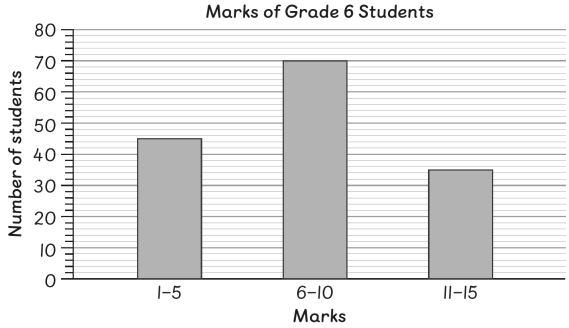
(b) 6 students like Art.

Section C

1. (a)

Marks	Frequency
1–5	45
6–10	70
11–15	35

(b)

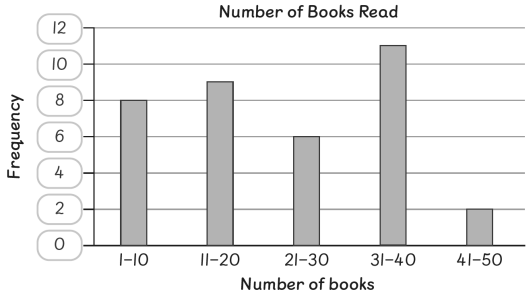


2. (a) TWM.04: Convincing
Answers vary. For example: This is not a good choice as there are too many intervals.

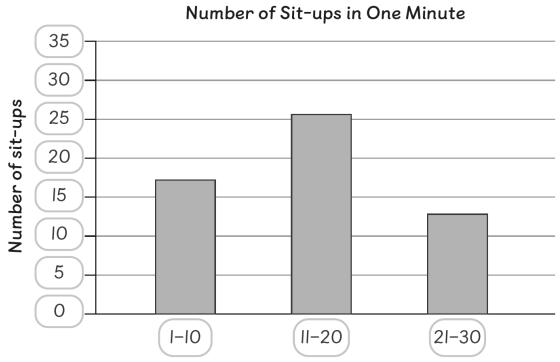
(b)

Number of books read	Frequency
1–10	8
11–20	9
21–30	6
31–40	11
41–50	2

(c)

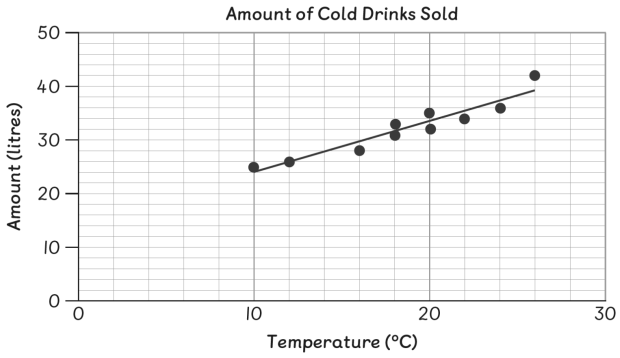


3. Answers vary.

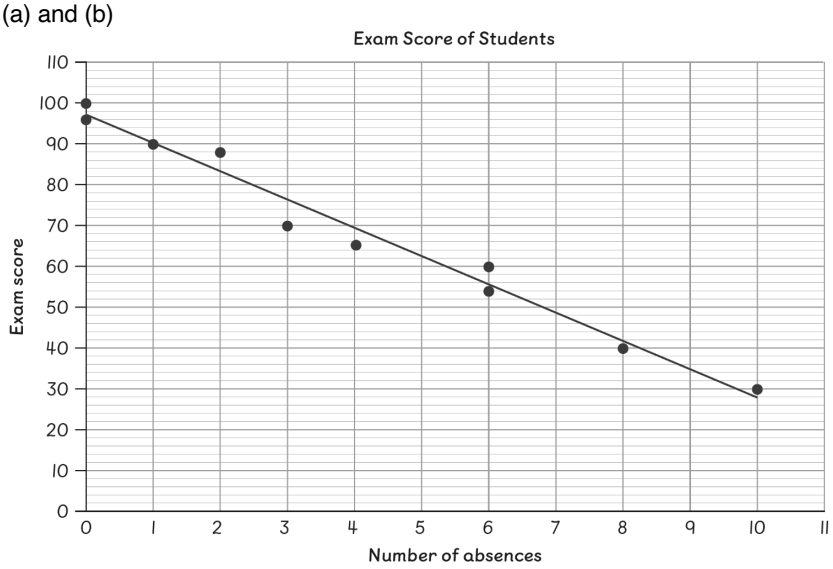


Section D

1. (a) and (b)



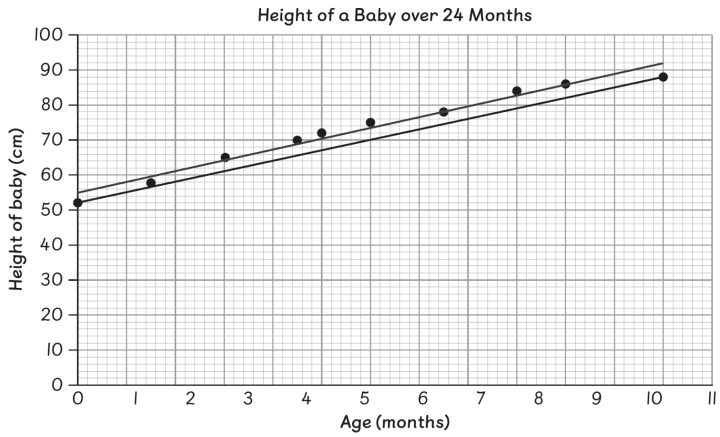
2. (a) and (b)



(c) TWM.03: Conjecturing
Answers vary. For example: 62.

3. (a) Answers vary. For example: The line of best fit is not close to many points, so it does not represent the given data set well.

(b) TWM.08: Improving



Section E

1. (a) bar chart
   (b) pie chart
   (c) scatter graph

(d) line graph

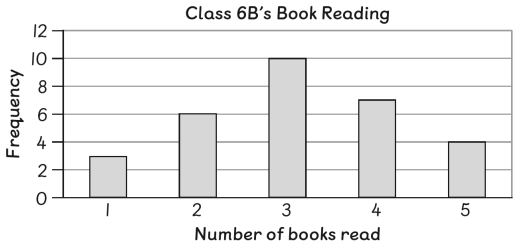
2. TWM.05: Characterising
   (a) Bar chart
   (b) Venn diagram
   (c) Line graph
   (d) Pie chart
   (e) Scatter graph

3. (a) Pie chart
   (b) TWM.07: Critiquing
   Answers vary. For example: It is a useful way of showing proportion.
   (c) TWM.07: Critiquing
   Answers vary. For example: It is difficult to read exact values from a pie chart.

4. (a) Venn diagram/Carroll diagram
   (b) Carroll diagram/Venn diagram
   (c) TWM.04: Convincing
   Venn diagrams and Carroll diagrams are used to sort data easily. The shapes can be compared using colour and number of sides.

5. (a) TWM.05: Characterising
   A frequency table is a good way of organising the data but it does not give a visual picture of the data.

   (b)



   (c) The bar chart is used as it can show a pattern clearly and it is easy to read exact frequencies.

   (d) TWM.07: Critiquing
   Yes, the percentages of the books will be added to the data.

6. TWM.03: Conjecturing
   (a) She was trying to find out the proportion or percentage of sales for each month.
   (b) She was trying to find out if the sales for each model have improved over the months.

Section F

1. Mode = 25; Median = 25; Mean = 27; Range = 14

2. Black and white

3. (a) 66 – 31 = 35
   (b) By arranging the numbers from smallest to greatest, we get 31, 32, 34, 41, 54, 66. Since there is an even number of data values, we should add the two numbers in the middle and divide by 2. So, the median is 37.5.

4. TWM.04: Convincing
   No, I do not agree with them. Answers vary. For example: A data set with an even number of data values will have two middle values. So, the median will be half of their sums. The mean is found by dividing the total of the values by the number of values which may not result in a value from the set of data.

5. TWM.01: Specialising
   Answers vary. For example: 301 g, 316 g

6. (a) Total = \$3100 + \$12 000 + \$3000 + \$3000 + \$3100 + \$2700 + \$2800 + \$3100 = \$32 800
   Mean = \$32 800 ÷ 8 = \$4100
   Median = (\$3000 + \$3100) ÷ 2 = \$3050

(b) He should use median.

7. (a) Total number of goals = 0 + 4 + 0 + 3 + 3 = 10
Mean = 10 ÷ 2 = 5
Modes = 0, 3
Median = 3

(b) Since Brandon had scored in three matches, using mode as an average is not appropriate as there are two modes.

8. Total mass of apples: 90 g × 4 = 360 g
Two apples with masses in the middle must add up to 90 × 2 = 180 g as the median is 90 g.
Combined mass of the lightest and heaviest apples = 360 – 180 = 180 g.
180 – 50 = 130
130 ÷ 2 = 65 (lightest apple)
65 + 50 = 115 (heaviest apple)
Answers vary. For example: The lightest apple is 65 g and the heaviest apple is 115 g.

Section G

1. (a) chicken
(b) cheese
(c) 50%

2. (a) 20 km
(b) 40 km

3. (a) Set A
(b) Michael's prediction is not correct.
Answers vary. For example: Set A is the most popular set because it is the cheapest.

4. (a) 25 + 20 + 30 + 20 + 40 = 135
135 ÷ 5 = 27
The mean score of Test A is 27.

(b) 40 + 35 + 40 + 30 + 45 = 190
190 ÷ 5 = 38
The mean score of Test B is 38.

(c) The mean score for Test B is 11 higher than Test A.

(d) TWM.03: Conjecturing
Devi's prediction is not correct. There is a difference in the scores.

(e) TWM.03: Conjecturing
Answers vary. For example: Students' scores are higher if they studied for the test.

5. TWM.07: Critiquing
The median score for 6A is 4 while the median score for 6B is 3.5. Taufiq is right. The mean score for 6A is 3.8 while the mean score for 6B is 4. Zack is also right. There is no right or wrong to which class did better. It depends on what criteria they look at.

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 13 The Coordinate Grid

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

Pages 212-213

(a) Pole B
It is 2 squares to the left starting from the origin along the x-axis.
It is 3 squares above the origin along the y-axis.
The coordinates of pole B are (–2, 3).

Pole C
It is 3 squares to the left starting from the origin along the x-axis.
It is 3 squares below the origin along the y-axis.
The coordinates of pole C are (–3, –3).

Pole D
It is 1 square to the right starting from the origin along the x-axis.
It is 3 squares below the origin along the y-axis.
The coordinates of pole D are (1, –3).

Pole F
It's y-coordinate is 0.
The coordinates of pole F are (–2.5, 0) or $(-\frac{5}{2}, 0)$.

(b) To plot the coordinates of the hut, we count 2 squares to the right starting from the origin along the x-axis, and 1.75 squares below the origin along the y-axis.

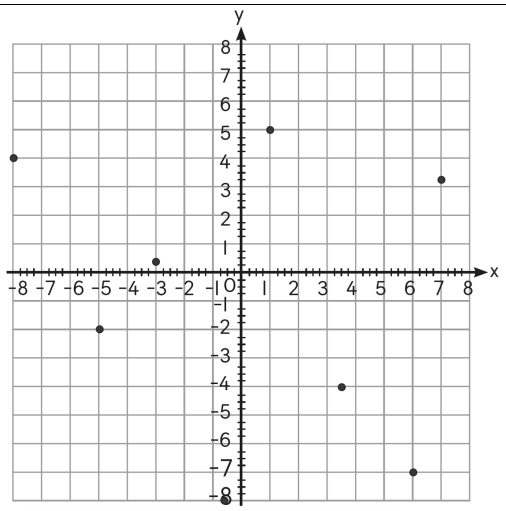
- Let's Practise

Page 214

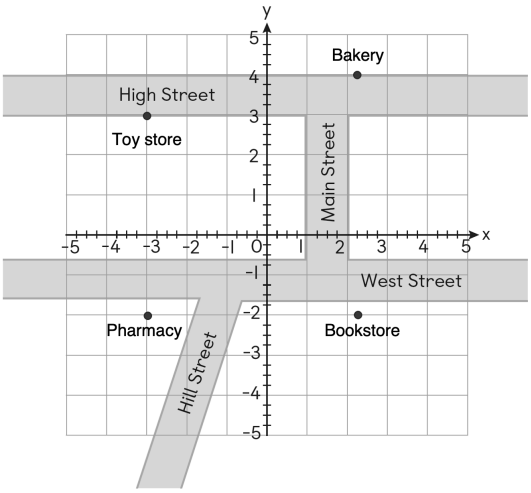
1. Coordinates of Ron's house: (–3, 2)
Coordinates of Eddy's house: (3.5, 1)
Coordinates of Caz's house: (4, –2)
Coordinates of Izzy's house: (–4, –2.5)

2. TWM.06: Classifying

First quadrant	Second quadrant	Third quadrant	Fourth quadrant
(1, 5) (7, 3.2)	(–8,4) $(-3, \frac{1}{4})$	(–5, –2) (–0.5, –8)	$(\frac{7}{2}, -4)$ (6, –7)



3. (a) and (b): Refer to the diagram below.
   (c) Bookstore $(\frac{9}{4}, -2)$
   (d) Toy store (–3, 3)



Section B

- Let's Learn

Page 217

(a) The coordinates of C are <u>(–4, –2)</u>.

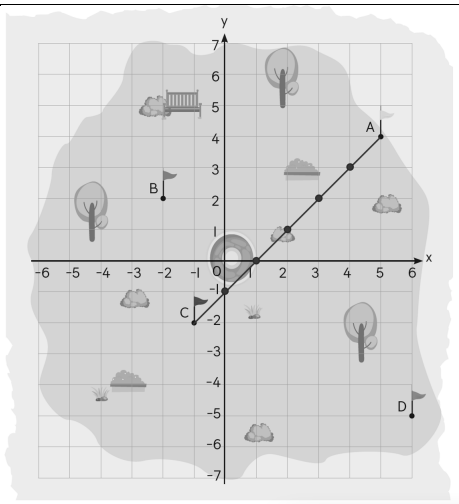
- Let's Practise

Pages 218-219

1. (a) TWM.05: Characterising
   Possible answers: (2, –6), (3, –6), (4, –6), (5, –6) or (6, –6).
   Points C and D have the same y-coordinate.

   (b) TWM.05: Characterising
   (1, –0.5). Points A and E have the same x-coordinate.

2. (a)



Possible answers: (4, 3), (3, 2), (2,1), (1,0), (0, –1). Accept fractional coordinates where $y = x - 1$.

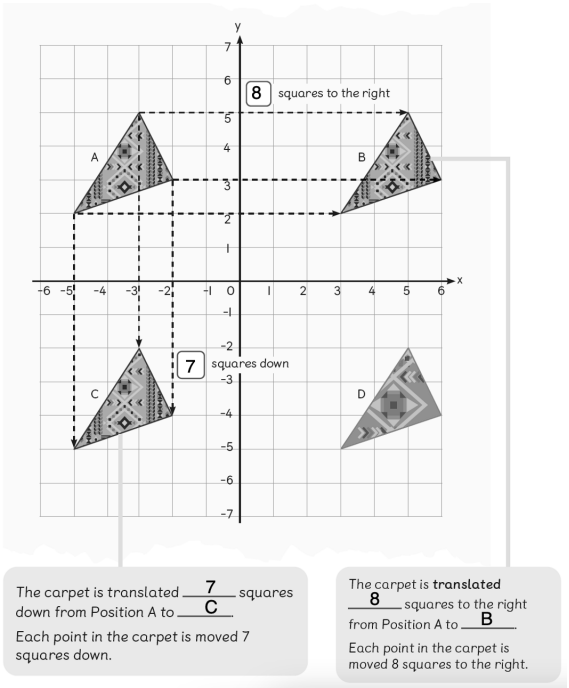
(b) (6,0). AB is parallel and equal to CE and AE is parallel and equal to BC.
(c) (5, –1)

Section C

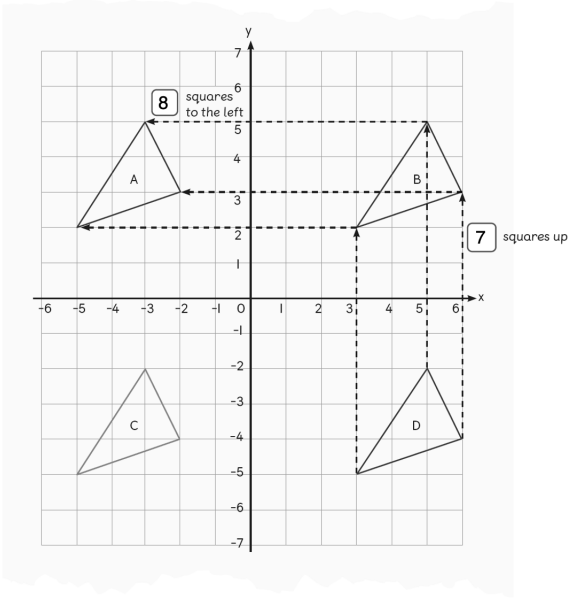
- Let's Learn

Pages 221-222

(a)



(b)

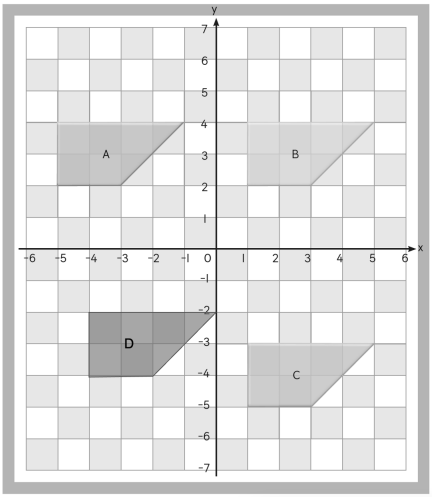


The carpet is translated diagonally from Position D to Position A by translating 7 squares up and 8 squares to the left.

- Let's Practise

Pages 223-224

1. (a) Move 6 units to the right.
   (b) Move 7 units down.
   (c) Move 7 units up and 6 units left or move 6 units left and 7 units up.
   (d)



2.

Piece	Translation
B	1 unit left, 4 units down
C	2 units up, 5 units left, 3 units down
D	2 units up, 4 units left
E	5 units left, 4 units up
F	3 units up, 4 units right

Activity Book

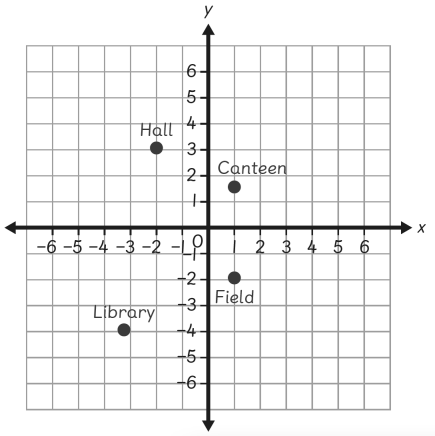
Section A

1. (a) (i) (2, 6)
   (ii) (–5, 4)

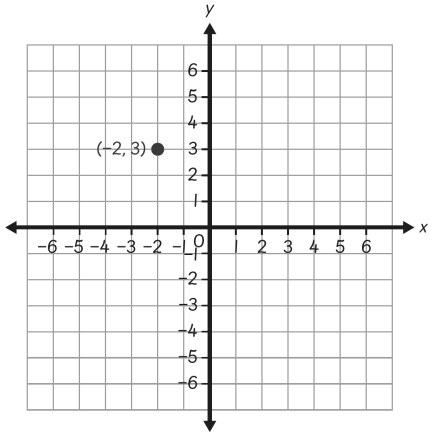
(iii) police station
(iv) restaurant

(b) Quadrant 1: Bank (2, 6); Quadrant 2: Supermarket (–5, 4); Quadrant 3: Police station (–5, –5); Quadrant 4: Restaurant (3, –2)

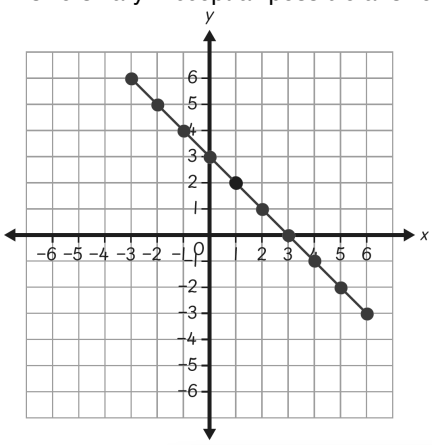
2.



3. Answers vary. For example: Point (–2, 3) has a negative x-coordinate and positive y-coordinate. This point will lie in Quadrant 2.

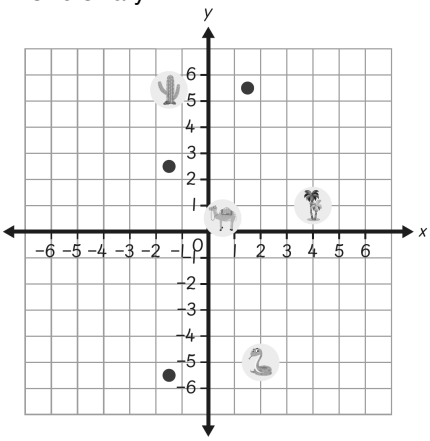


4. (a) TWM.01: Specialising
Answers vary. Accept all possible answers.



(b) TWM.02: Generalising
The points form a straight line.

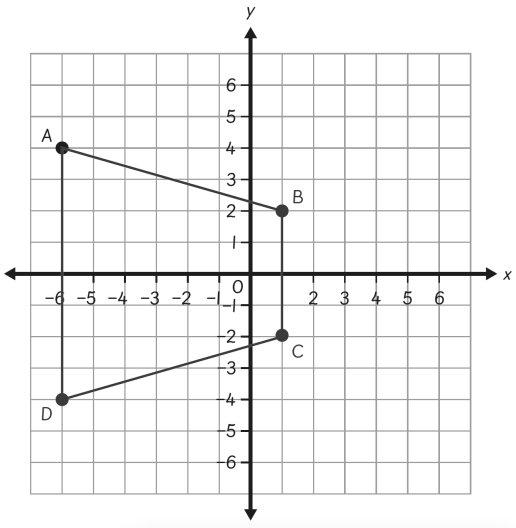
5. (a) TWM.01: Specialising
Answers vary.



(b) Answers vary. For example: (–1.5, 5.5).

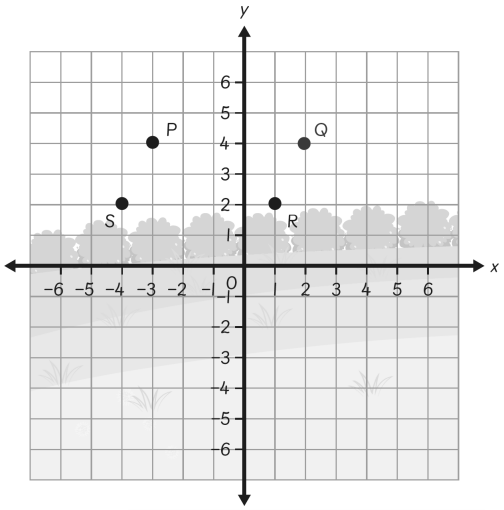
Section B

1. (a)



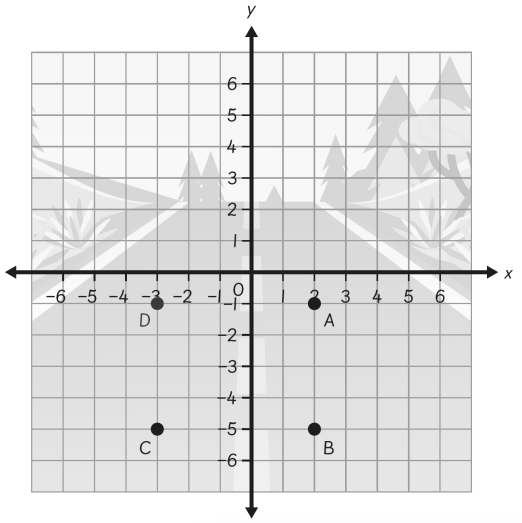
(b) Trapezium

2. (a)



(b) TWM.03: Conjecturing
Penny should place the point at (0,0) instead. At point (0,0), the opposite sides of the shape are parallel and have the same length. All corners also make 90°.

3. (a)

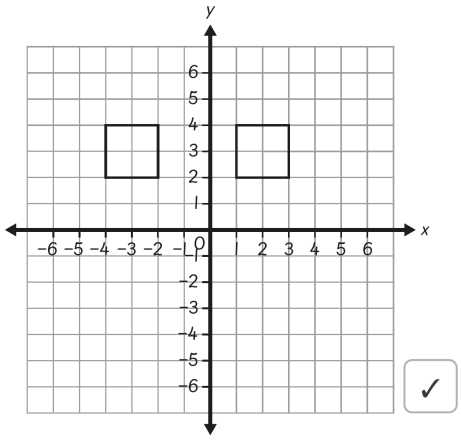


The coordinates of D are (–3,–1).

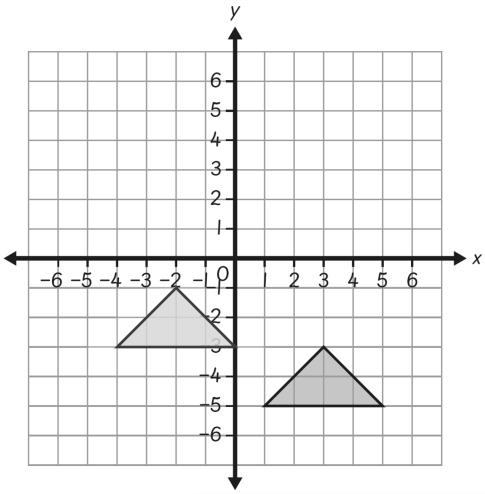
(b) (1, –3), (3, –3), (4, –3), (5,–3), (6, –3), (6, –5), (6, –1)

Section C

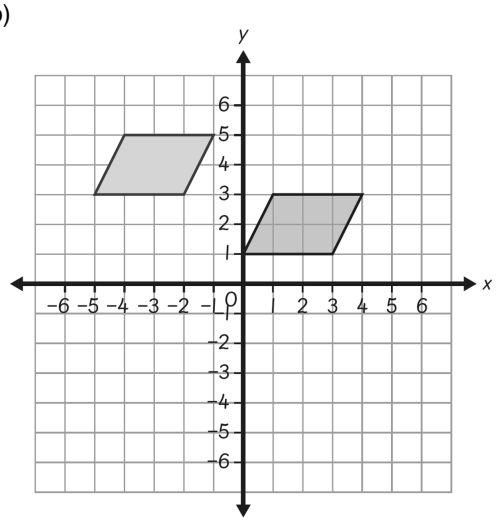
1.



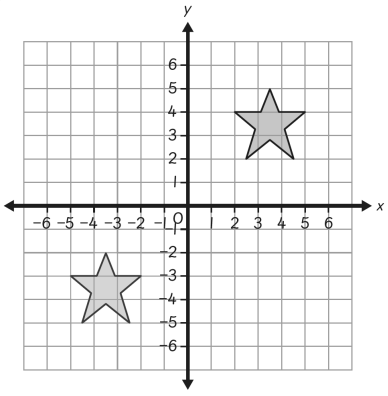
2. (a)



(b)



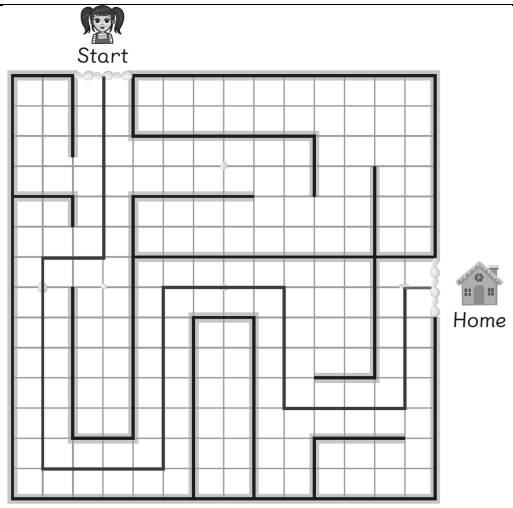
3. (a)



(b) Translate the board game piece 7 squares to the left and 7 squares down.

4. TWM.04: Convincing
No. Miho was incorrect. The table was moved 3 units to the left and 3 units up.

5. TWM.01: Specialising
Answers vary. For example:



Step	Description
1	Move 6 squares down and 2 squares to the left
2	Move 7 squares down and 4 squares to the right.
3	Move 6 squares up and 4 squares to the right.
4	Move 4 squares down and 4 squares to the right.
5	Move 4 squares up, 1 square to the right and exit

Marshall Cavendish Cambridge Primary Mathematics (2nd edition)
Stage 6

Suggested Answers

Chapter 14
Reflection and Rotation

(The following content has not been through the Cambridge Assessment International Education endorsement process.)

Student's Book

Section A

- Let's Learn

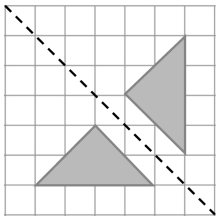
Page 229

(a) Join the vertices to form the reflected shape.
(b) In Ron's other bathroom, he makes a triangle and reflects it along a diagonal mirror line.

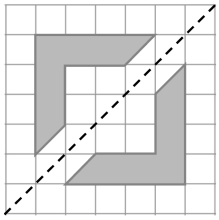
- Let's Practise

Page 230

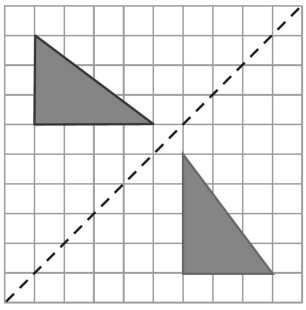
1. (a)



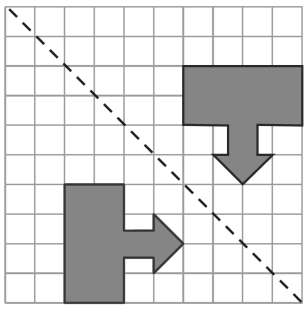
(b)



2. (a)

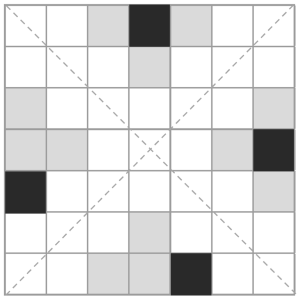


(b)



TWM.08: Improving
Answers vary. For example: You can check if the reflections are correct by drawing parallel lines from the vertices of the original shape to the reflected shape and check if those lines are perpendicular to the mirror line.

3. TWM.01: Specialising
Answers vary. For example:



Section B

- Let's Learn

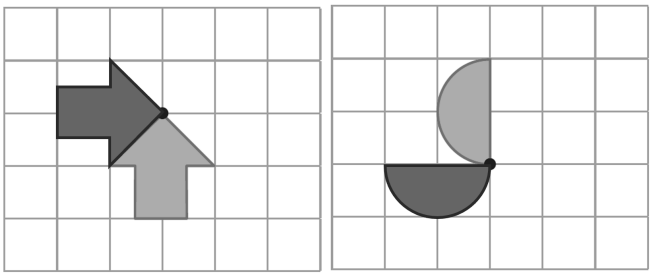
Page 232

(a) The direction is <u>clockwise</u>.
(b) He <u>rotated</u> the rectangle 90° anticlockwise around A.

- Let's Practise

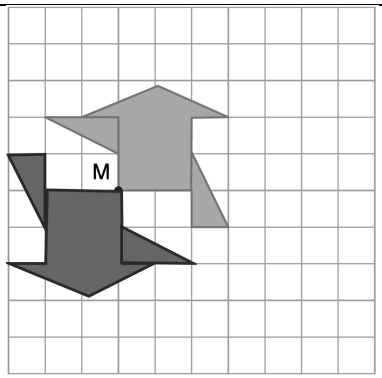
Page 233

1.



2. TWM.04: Convincing
No, Philip did not. He rotated the shape clockwise around X.

3.



Section C

- Let's Learn

Page 235

(a) This icon has a rotational symmetry of order 3.

- Let's Practise

Page 236

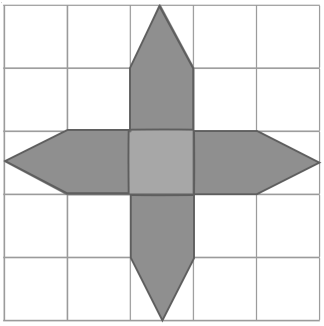
1.

The 2nd shape has rotational symmetry of order 2.
The 4th shape has rotational symmetry of order 4.

2. TWM.06: Classifying
Shapes with rotational symmetry:

Shapes without rotational symmetry:

3.

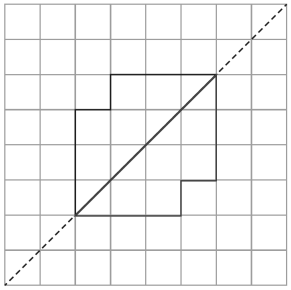


Accept all reasonable answers.

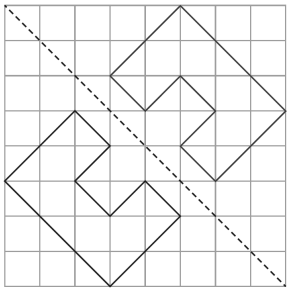
Activity Book

Section A

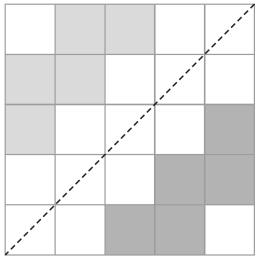
1. (a)



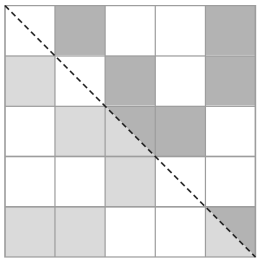
(b)



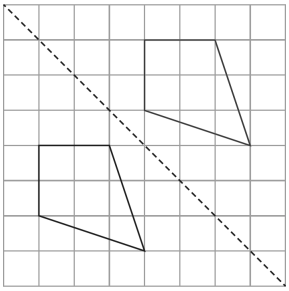
2. (a)



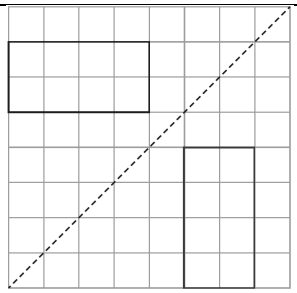
(b)



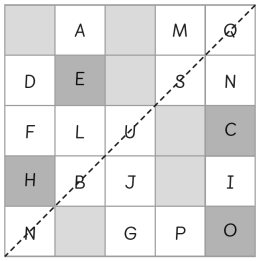
3. (a)



(b)

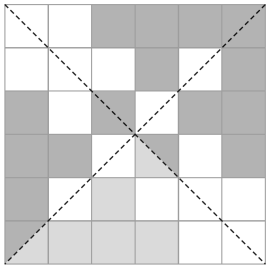


4.



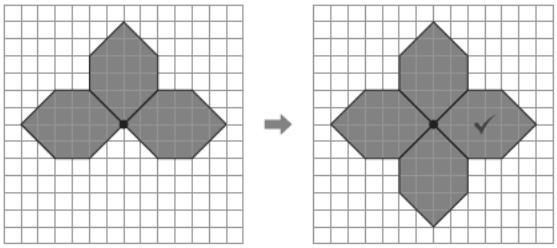
ECHO

5.

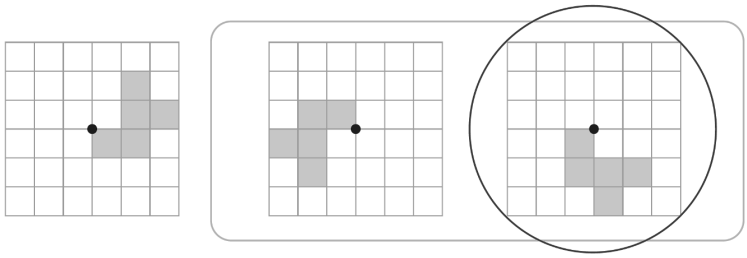


Section B

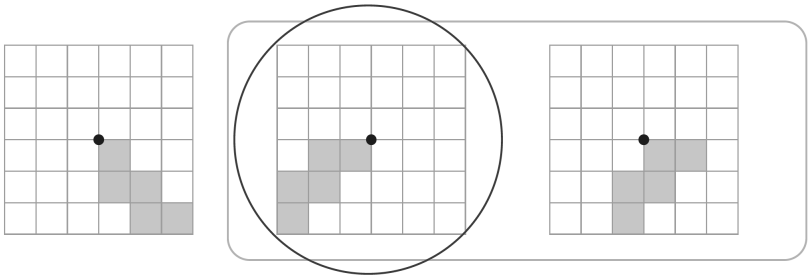
1.



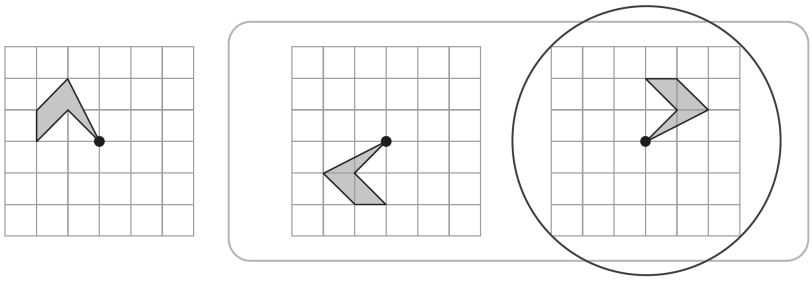
2. (a)



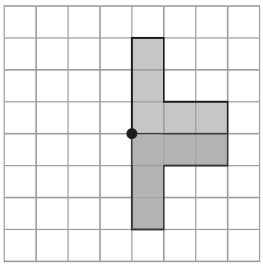
(b)



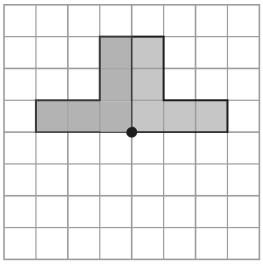
(c)



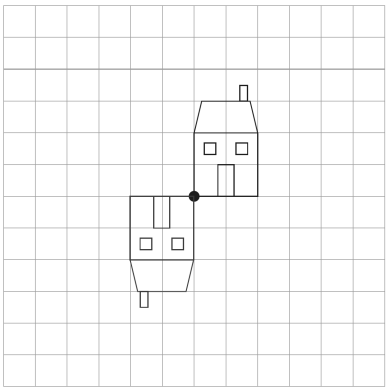
3. (a)



(b)



4. (a)



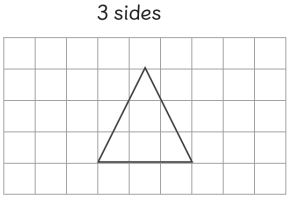
(b) Answers vary. For example: Li Min can rotate her drawing 90° anticlockwise twice.

Section C

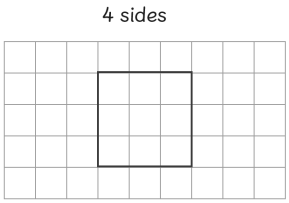
1. TWM.06: Classifying
   Has no rotational symmetry: Singapore, Brunei, Pakistan
   Has rotational symmetry: Thailand, Japan, England

2. (a) 4
   (b) 2
   (c) 1
   (d) 3

3. (a)



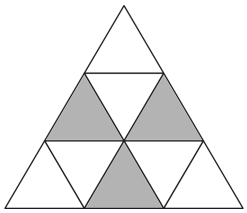
Order of rotational symmetry = 3



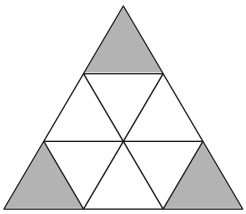
Order of rotational symmetry = 4

(b) TWM.02: Generalising
The order of rotational symmetry of a regular polygon is equal to the number of sides.

4. TWM.01: Specialising
   (a)



(b)



(c)