Unit 1 Number – Answers

Learner's Book

Pages 7–8: Practise

Learners will engage in the TWM skill of 'convincing' in question 4.

1 **a** Four point seven
b Seven point four
c Zero point four
d Four point four
e Seventy-four point nine
f Ninety-four point seven

2 **a** Question 1:
a 4
b 0.4
c 0.4
d 4 and 0.4
e 4
f 4

b Question 1:
a 0.7
b 7
c not applicable
d not applicable
e 70
f 0.7

c The first 4 is 10 times as large as the second 4.

3 **A** –0.6 **B** 0.5 **C** 1.1 **D** 1.7

4 **a** 530 ÷ 10 = **53** 53 ÷ 10 = **5.3**
b 49 ÷ 10 = **4.9** 50 ÷ 10 = **5**

Page 10: Practise

1 **a** 32.6

2 **a** 23 212 = 20 000 + 3 000 + 200 + 10 + 2
b 40 131 = 40 000 + 0 + 100 + 30 + 1
c 50.5 = 50 + 0 + 0.5
d 52.5 = 50 + 2 + 0.5

3 **a** 3 745 739 = 3 000 000 + 700 000 + 40 000 + 5 000 + 700 + 30 + 9
b 374 573 = 300 000 + 70 000 + 4 000 + 500 + 70 + 3
c 3.7 = 3 + 0.7
d 37.4 = 30 + 7 + 0.4

4 At least four of learners' own examples, for example:
a 458 399 = 458 000 + 399; 350 000 + 108 000 + 399; 450 000 + 8 399; 4 583 hundreds and 99 ones
b 4.5 = 4 + 0.5; 4 ones and 5 tenths; 45 tenths; a few learners might say 450 hundredths
c 45.8 = 40 + 5 + 0.8; 40 tens, 5 ones and 8 tenths; 45 + 0.8; 45 ones and 8 tenths; 458 tenths

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Page 13: Practise

Learners use the TWM skill of 'specialising' in question 2b.

1 **a** 3 682 × 10 = 36 820
3 682 × 100 = 368 200
3 682 × 10 × 10 = 368 200
3 682 × 1 000 = 3 682 000

b 4 561 × 100 = 456 100
4 561 ÷ 10 = 456.1
4 561 × 1 000 = 4 561 000
45 610 ÷ 100 = 456.1

c 36 802 ÷ 10 = 3 680.2
36 820 ÷ 100 = 368.2
36 820 ÷ 10 ÷ 10 = 368.2
36 800 ÷ 1 000 = 36.8

2 a Answers will vary depending on the calculations chosen, for example:

3 470 × 10 = 34 700	3 470 ÷ 10 = 347
3 479 × 10 = 34 790	3 479 ÷ 100 = 34.79
6 750 × 10 = 67 500	6 750 ÷ 10 = 675
6 705 ÷ 10 = 670.5	6 705 × 1 000 = 6 705 000
67 500 × 10 = 675 000	67 500 ÷ 1 000 = 67.5
67 050 × 100 = 6 705 000	67 050 ÷ 100 = 670.5

b 67 050 ÷ 100 = 670.5 6 705 ÷ 10 = 670.5

Pages 15–16: Practise

Learners use the TWM skills of 'generalising', 'specialising' and 'convincing' in question 2.

1 a **18**, 8, –2, –12, –22, –32 **b** **–22**, –17, –12, –7, –2, 3
c **91**, 84, 77, 70, 63, 56 **d** **–0.4**, –0.3, –0.2, –0.1, 0, 0.1
e **462**, 262, 62, –138, –338, –538 **f** **9 999**, 19 999, 29 999, 39 999, 49 999, 59 999

2 a 224, 160, 56, 0, –16
0, 56, 84, 224
224, 84

b 198 was not used.
Answers will vary in terms of the starting numbers, for example:
Count on in steps of 9 from 99.
Count back in steps of 300 from 1 698.

Page 19: Practise

Learners use the skills of 'critiquing' and 'generalising' in question 2.

1 a 3, [7], 11, [15], 19, [23] Rule is add 4

b 23, [18], 13, [8], 3, [–2] Rule is subtract 5

c [8], 15, [22], 29, [36] Rule is add 7

d 7, [12], [17], 22, [27], [32], 37 Rule is add 5

e 260, [220], [180], [140], 100, [60] Rule is subtract 40

2 a Learner's own explanation to show that they do not agree with Elok, for example:
There are four equal jumps and Elok has only made 3.
The sequence would then be 25, 17, 9, 1, 1, –7; that's incorrect because the jumps are not all equal.
The recursion rule is to subtract 6, not subtract 8.

b 25, [19], [13], [7], 1, [–5]

3 a 13, [15], 17, [19] Rule is add 2

b 70, [120], 170, [220], 270 Rule is add 50

c 9, [18], [27], 36 Rule is add 9

d 11, [33], [55], 77 Rule is add 22

Page 20: Quiz

1 **a** 9 tenths or 0.9
b 9 tens or 9
c 2 tenths or 0.2
d 2 hundreds or 200
e 9 tenths or 0.9

2 **a** 365 091 = 300 000 + 60 000 + 5 000 + 0 + 90 + 1
b 3 650 = 3 000 + 600 + 50 + 0
c 36.5 = 30 + 6 + 0.5
d 365.9 = 300 + 60 + 5 + 0.9

3 **a**

46.2	
30	**16.2**

b

465.8		
360	**105**	0.8

4 **a** True
b False: 3 790 × 100 = 379 000
c False: 125 ÷ 10 = 12.5
d True
e False: 401 × 10 = 4 010

5 **a** 38, 31, 24, 17, 10, 3, –4
b –32, –24, –16, –8, 0, 8
c 3.45, 5.45, 7.45, 9.45, 11.45, 13.45

6 **a** Rule is subtract 4: 20, [16], 12, [8], [4], [0]

b Rule is add 3 000: 2 000, [5 000], [8 000], 11 000, [14 000], [17 000]

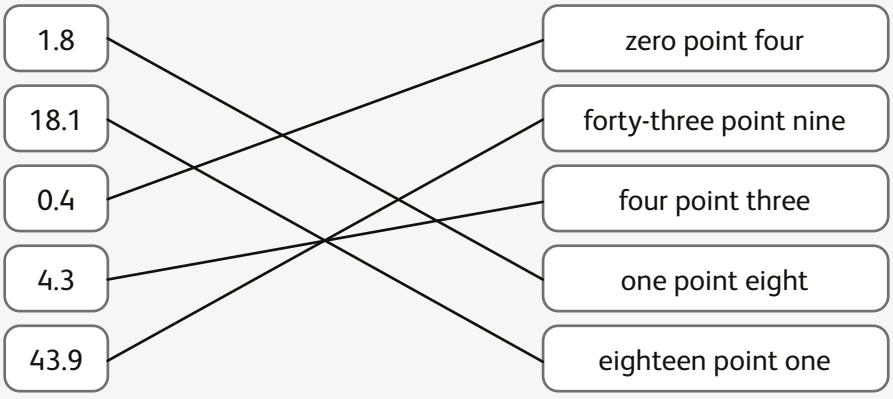
Workbook answers page 4:

Can you remember?

Learners should have circled these numbers: 45 301 and 46 100

Introducing decimal numbers

1



2 **a** 20
0.2
0.5

b 0.8
8
80

c 0.7
7
0.6

Workbook answers page 5:

Composing, decomposing and regrouping

Learners use the TWM skill of 'specialising' in question 2.

1 **a** 32.3 = 30 + 2 + 0.3
b 33.2 = 30 + 3 + 0.2
c 17.9 = 10 + 7 + 0.9
d 97.1 = 90 + 7 + 0.1
e 190.7 = 100 + 90 + 0 + 0.7

2 Learner's own regrouping wall, for example:

547 628
500 000 + 40 000 + [7 000] + [600] + [20] + 8
[500 000] + [40 000] + [7 000] + 620 + [8]
[500 000] + [40 000] + [7 600] + 28
[540 000] + [7 600] + [28]
[540 000] + [7 628]

Workbook answers pages 5–6:

Multiplying and dividing whole numbers by 10, 100 and 1 000

Learners use the TWM skill of 'conjecturing' in question 2.

1 **a** 175 × 100 = [17 500]
17 500 ÷ [100] = 175
175 × 1 000 = [175 000]
175 × 100 × [10] = 175 000

b 2 340 ÷ 100 = [23.4]
2 345 ÷ [10] = 234.5
2 345 × 100 = [234 500]
234 500 ÷ [1 000] = 234.5

2 Learner's own examples, as long as Venue C is between 5 500 and 5 750.
Also, Venue A to be 100 times as large as Venue B.
Venue B is 10 times as small as Venue C. No decimal numbers. For example:

	Spectators	**Spectators**	**Spectators**	**Spectators**	**Spectators**	**Spectators**
Venue A	55 100	55 200	56 000	56 800	57 100	57 300
Venue B	551	552	560	568	571	573
Venue C	5 510	5 520	5 600	5 680	5 710	5 730

Workbook answers pages 6–7:

Counting on and back

1 Learners can use eight possible patterns.

7, 19, 31, 43, 55	Step size: Add 12
11, 21, 31, 41, 51	Step size: Subtract 10
–7, 12, 31, 50, 69	Step size: Add 19
53, 42, 31, 20, 9	Step size: Subtract 11
–29, 1, 31, 61, 91	Step size: Add 30
49, 40, 31, 22, 13	Step size: Subtract 9
–11, 10, 31, 52, 73	Step size: Add 21
71, 51, 31, 11, –9	Step size: Subtract 20

2 **a** Count back in sixes: 13, 7, 1, –5, –11
b Count on in nines: –23, –14, –5, 4, 13
c Count back in twelves: 25, 13, 1, –11, –23

Workbook answers page 7:

Linear sequences

1 **a**	**54**, 48, **40**, **32**, 24, **16**, **8**	Rule: Subtract 8
b	2.3, **4.8**, 7.3, **9.8**, **12.3**, **14.8**	Rule: Add 2.5
c	100, **210**, **320**, 430, **540**, **650**	Rule: Add 110
2 **a**	10, 130, **250**, **370**, **490**, **610**	Rule: Add 120
	10, **70**, 130, **190**, **250**, **310**	Rule: Add 60
	10, **50**, **90**, 130, **170**, **210**	Rule: Add 40
b	10, **40**, **70**, **100**, **130**, **160**	Rule: Add 30

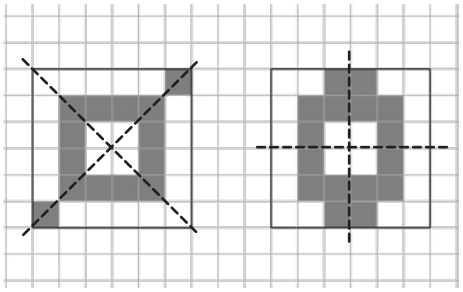
Unit 2 Angles and shapes – Answers

Learner's Book

Page 22: Practise

1 Patterns **a**, **b** and **c** show the correct lines of symmetry.

2 Learners should have drawn the following lines of symmetry:



Pages 24–25: Practise

In question 1, learners use the TWM skill of 'classifying'.

1 Angles **a** and **d** are acute; angles **b** and **e** are obtuse; angle **c** is a reflex angle.

2 **a** 100° **b** 40° **c** 89° **d** 63° **e** 169° **f** 12°

3 **a** 80° **b** 40°

Page 28: Practise

In question 3, learners use the TWM skill of 'specialising'.

1 Learners should find that triangles A and D are isosceles, B is equilateral, C is scalene.

2 Check that learners have marked each triangle correctly to show equal length sides.

3 All types of triangles tessellate.

Page 29: Quiz

1 The pattern has two diagonal lines of symmetry, but no vertical or horizontal lines of symmetry.

2 The missing angle is 95 degrees.

3 Answers will vary, but learners should be able to justify the properties based on their understanding of isosceles triangles.

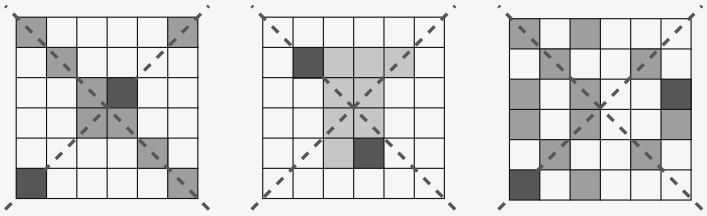
Workbook answers pages 9–10:

Can you remember?

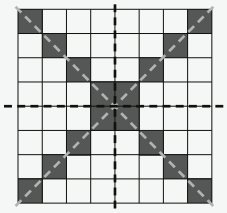
2D shape	Square	Hexagon	Octagon	Pentagon	Triangle
Number of sides	4	6	8	5	3
Number of vertices (corners)	4	6	8	5	3

Symmetrical patterns

1



2 Designs will vary. At least one design should have two correct lines of symmetry, or perhaps even four lines, for example:

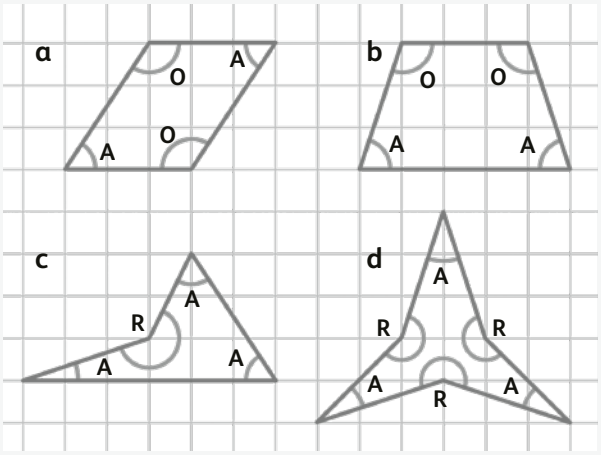


3 Games will vary. Learners should be able to predict which squares to shade to ensure that the shading is symmetrical.

Workbook answers pages 10–12:

Identifying and reasoning about angles

1



2 **a** Check learners' predictions for the number of different angles for each shape. Their predictions will depend on whether they are thinking of regular or irregular shapes.

b Learners' drawings of a kite, a triangle, a pentagon and a hexagon may vary, but each of them should have the correct number of angles.

3 Angle **a** = 105° Name: obtuse
Angle **b** = 60° Name: acute
Angle **c** = 145° Name: obtuse

4 The missing angles **b** (165°), **c** (20°), **d** (75°) and **f** (40°) are multiples of 5. Learners should have put a P on these missing angles, and then calculated to check.

Workbook answers pages 12–13:

Triangles

1 Learners should have finished drawing each isosceles triangle accurately, with equal lengths and angles marked. Observe how they use the space provided (some triangles will have to have shorter sides than others).

2 Answers will vary, but learners should be able to justify the properties of each of their triangles.

3 **a** The square splits into two isosceles triangles.
b–d The rectangle in part **b**, the trapezium in part **c**, and the parallelogram in part **d**, all split into scalene triangles.

Unit 3 Calculation – Answers

Learner's Book

Page 31: Practise

1 a –6 + 10 = 4 **b** 7 – 12 = –5

2 a
–8 + 15 = 7
–9 + 16 = 7
–10 + 20 = 10
–11 + 21 = 10

b
7 – 16 = –9
8 – 17 = –9
10 – 20 = –10
11 – 21 = –10

c
–5 + 18 = 13
13 – 18 = –5
–15 + 28 = 13
13 – 28 = –15

3 a Floor 5
b Floor –4
c Floor 8
d Floor –2

Page 31: Try this

In this activity, learners use the TWM skills of 'specialising', 'convincing' and 'conjecturing'.
Possible solutions include:

–7 + 12 = 5 4 – 7 = –3 –8 + 15 = 7 5 – 11 = –6

Page 33: Practise

1 a 94 + 2 328 + 306 = 2 728
(for example, reorder as 94 + 306 + 2 328)

b 6 345 – 90 – 255 = 6 000
(for example, regroup 90 as 45 and 45 or add 255 and 90 to subtract 345)

c 2 003 + 5 325 = 7 328
(for example, reorder as 5 325 + 2 003 and decompose 2 003 to make 5 325 + 2 000 + 3)

d 7 519 – 398 – 123 = 6 998
(for example, subtract 398 as 400 and then add 2)

2 a Answers will vary depending on the numbers chosen for the five mental calculations.
For example: 75 + 3 000 = 3 075
b Answers will vary depending on the numbers chosen for the five column calculations.
For example: 1 573 + 4 625 = 6 198

Page 34: Practise

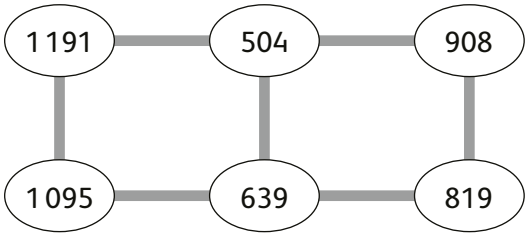
In question 2, learners use the TWM skills of 'critiquing' and 'improving'.

1 **a** 3 804 + 2 043 = **5 847**
b 7 832 – 2 067 = **5 765**
c 5 653 + 832 + 4 298 = **10 783**
d 9 523 – 2 745 – 121 = **6 657**

2 **a** Wrong: 3 249 + 1 987 = 5 236
b Wrong: 7 024 – 978 = 6 046
c Correct
d Correct
e Wrong: 2 878 – 293 – 711 = 1 874

Page 34: Let's talk

In this activity, learners use the TWM skill of 'generalising'.



Pages 36–37: Practise

1 **a** $36 ÷ (4 teddies) = $9 for each teddy
b $36 ÷ (2 computer games) = $18 for each computer game
c $36 ÷ (6 toy boats) = $4 for each toy boat

2 Check that learners have been consistent with the use of symbols.
Learners should choose their own symbols for the following items:

a $5 – $?chocolate bar – $?lolly = $2 $?lolly + $?lolly = $1
A lolly is 50 cents. A chocolate bar is 250 cents or $2.50.

b $?apple + $?orange + $?orange = $2 $1 – $?apple = $0.50
An apple is $0.50 (or 50 cents). An orange is 75 cents ($0.75).

c $20 – $?book – $?book = $7 $?book + $?torch = $15
A book is $6.50. A torch is $8.50.

d $?pen + $?pen + $?pen + $?notebook = $17.50 $5 – $?notebook = $2.50
A pen is $5. A notebook is $2.50.

3 **a** Triangle: 9 Circle: 3
b Square: 25 Star: 35
c Pentagon: 15 Rhombus: 185

Page 39: Practise

In question 1, learners use the TWM skill of 'convincing'.

1 **a** 35 × 18 = 630, for example, as (35 × 20) – (35 × 2), finding 35 × 20 as 35 × 2 × 10

b 352 × 9 = 3 168, for example, as (352 × 10) – 352, or by decomposing 352 as 300 + 50 + 2 and multiplying each part by 9

c 234 × 101 = 23 634, for example, as (234 × 100) + 234

d 234 × 99 = 23 166, for example, as (234 × 100) – 234 or use the answer to part **c** to help you

e 46 × 7 = 322, for example, as (40 × 7) + (6 × 7) or (50 × 7) – (4 × 7)

2 a 700 × 6 = 4 200 (by finding 100 × 6 × 7)

b 60 × 70 = 4 200 (by finding 10 × 6 × 10 × 7 and then 42 × 10 × 10 or 42 × 100)

c 800 × 20 = 16 000 (by finding 100 × 8 × 10 × 2 and then 16 × 100 × 10 or 16 × 1 000)

d 27 × 8 = 216 (by finding 27 × 2 × 2 × 2)

3 a 5 × 86 × 20 = 8 600 (for example, commutative law to reorder as 5 × 20 × 86 = 100 × 86)

b 23 × 4 × 5 = 460 (for example, associative law to group 4 × 5 and then find 23 × 20 but can also use factors to complete this as 23 × 2 × 10 using doubles and place value)

c 4 × 7 × 25 = 700 (for example, commutative law to reorder as 4 × 25 × 7 = 100 × 7)

d 11 × 36 × 9 = 3 564 (see example in Practise notes)

e 5 × 7 × 5 × 4 = 700 (for example, commutative law to reorder as 5 × 5 × 4 × 7 = 25 × 4 × 7 = 100 × 7 or use the associative law to group 5 × 4 and then find 5 × 7 × 20 = 35 × 20 = 35 × 2 × 10)

f 73 × 50 × 2 = 7 300 (for example, associative law to group 50 × 2 and then find 73 × 100)

Page 39: Try this

a Car park A: 80 × 6 = 10 × 8 × 6 = 480
Car park B: 80 × 3 = 10 × 8 × 3 = 240 or half the number as Car park A
Car park C: 80 × 2 = 10 × 8 × 2 = 160 or as double 80
Car park D: 80 × 7 = 10 × 8 × 7 = 560
Car park E: 80 × 5 = 10 × 8 × 5 = 400

b 9 car symbols

Pages 41–42: Practise

In question 3, learners use the TWM skill of 'specialising'.

1

a	**b**	**c**	**d**
27 × 10 = 270	43 × 20 = 860	65 × 30 = 1 950	32 × 40 = 1 280
27 × 12 = 324	43 × 22 = 946	65 × 32 = 2 080	32 × 42 = 1 344

2 a

252 × 3 = 756	345 × 3 = 1 035	597 × 3 = 1 791
252 × 4 = 1 008	345 × 4 = 1 380	597 × 4 = 2 388
252 × 6 = 1 512	345 × 6 = 2 070	597 × 6 = 3 582
252 × 7 = 1 764	345 × 7 = 2 415	597 × 7 = 4 179

b 936 + 1 380 = 2 316. The answer is the same because 234 + 345 = 579.
You can multiply each part, 234 and 345, by 4 or add the two parts together (579) and multiply the whole amount by 4. The calculations in part **a** will work in the same way, as you can multiply each part for example: 252 and 345, by 6 or add the two parts together (597) and multiply the whole amount by 6; or try 252 and 597 (847) by 6, 8, 12 or 14; or 345 and 597 (942) by a number.

3 **a** Products of less than 1 000 will vary depending on the calculations chosen.
For example: 34 × 12 = 408, 16 × 27 = 432, and so on.

b Products greater than 2 000 will vary depending on the calculations chosen.
For example, 34 × 64 = 2 176, 46 × 48 = 2 208, and so on.

Page 42: Try this

Crate 1: 495 ml × 9 = 4 455 ml
Crate 2: 275 ml × 7 = 1 925 ml
Crate 3: 360 ml × 6 = 2 160 ml
Crate 4: 360 ml × 8 = 2 880 ml, 495 ml × 4 = 1 980 ml, Total is 4 860 ml

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Page 43: Quiz

1 **a** –5 + 7 = [2]
b 3 – 11 = [–8]
c –12 + 24 = [12]
d 8 – 16 = [–8]

2 **a** 376 + 849 = [1 225]
b 784 – 215 = [569]
c 274 + 99 + 126 = [499]
d 5 832 – 600 – 232 = [5 000]

3 Star: 15 Square: 20

4 **a** 26 × 19 = [494], for example, as 26 × 20 – 26
b 600 × 7 = [4 200], for example, as 100 × 6 × 7
c 20 × 36 × 5 = [3 600], for example, as 20 × 5 × 36

5 **a** 300 × 4 = [1 200]
b 323 × 4 = [1 292]
c 23 × 40 = [920]
d 23 × 46 = [1 058]

Workbook answers pages 15–16:

Can you remember?

6 × 5 = **30**	4 × 8 = **32**	7 × 6 = **42**	9 × 4 = **36**
5 × 6 = 30	**8 × 4 = 32**	**6 × 7 = 42**	**4 × 9 = 36**
30 ÷ 5 = 6	**32 ÷ 8 = 4**	**42 ÷ 6 = 7**	**36 ÷ 4 = 9**
30 ÷ 6 = 5	**32 ÷ 4 = 8**	**42 ÷ 7 = 6**	**36 ÷ 9 = 4**

Calculating with positive and negative numbers

1 **a** $-14 + 6 =$ **−8**
$-13 + 7 =$ **−6**
$-12 + 8 =$ **−4**

b $-4 + 6 =$ **2**
$-3 + 7 =$ **4**
$-2 + 8 =$ **6**

c **−9** $+ 12 = 3$
−7 $+ 14 = 7$
$-5 +$ **16** $= 11$

Learners should spot that the first numbers in **a** get one bigger each time, as do the numbers that are added. As a result, the answers get two bigger each time. The same is true for part **b**.

2 **a** $6 - 14 =$ **−8**
$7 - 13 =$ **−6**
$8 - 12 =$ **−4**

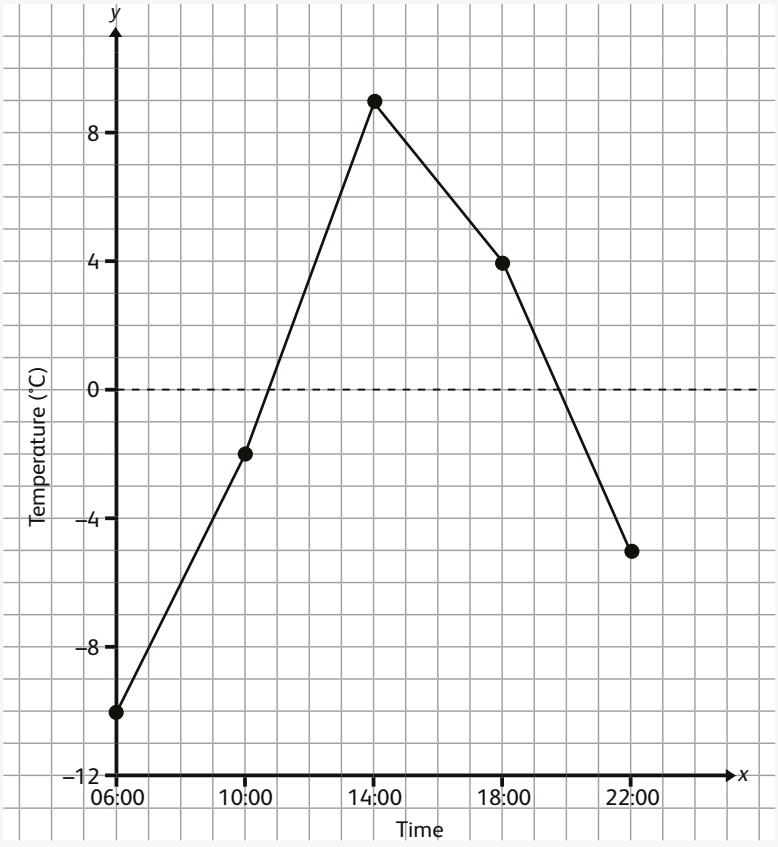
b $4 - 16 =$ **−12**
$3 - 17 =$ **−14**
$2 - 18 =$ **−16**

c **9** $- 12 = -3$
7 $- 14 = -7$
$5 -$ **16** $= -11$

Learners should spot that the first numbers in part **a** become one bigger each time, as do the numbers that are subtracted. As a result, the answers are two bigger each time.

The pattern is the opposite for part **b**, as the first numbers become one smaller each time but the numbers to subtract are one bigger each time. As a result, the answers are two smaller each time.

3



Workbook answers pages 17–18:

Addition and subtraction

1 Look at the methods learners have used.
Check they have used regrouping, reordering and decomposing at least once.

a 4 672 – 199 = **4 473**
b 2 439 – 723 – 1 439 = **277**
c 450 + 199 + 101 + 550 = **1 300**
d 1 638 + 249 = **1 887**
e 3 568 – 234 = **3 334**

2 2 491 km

3 Check learners' estimates and calculations.

	Estimate	Could the answer be correct? ✓ or ×	Your calculation
a 3 694 + 2 147 = 6 841	For example: 3 500 + 2 000 = 550	×	Answer: 5 841
b 5 248 – 2 987 = 2 161	For example: 5 200 – 3 000 = 2 200	×	Answer: 2 261
c 6 972 – 843 – 49 = 6 180	For example: 7 000 – 900 = 6 100	×	Answer: 6 080
d 609 + 488 + 1 125 = 2 222	For example; 600 + 500 + 1 000 = 2 100	✓	Answer: 2 222

Workbook answers page 18:

Missing number problems

1 **a** One notebook $1.50 **b** One pen $4

2 **a**  = 140  = 70

b  = 230  = 700

c  = 25  = 35

Workbook answers page 19:

Simplifying multiplications

Learners use the TWM skills of 'critiquing' and 'improving' in question 2.

1 **a** 300 × 5 = **1 500**
3 × 5 = **15**
500 × 30 = **15 000**

50 × 30 = **1 500**

b 300 × 4 = **1 200**
3 × 4 = **12**
30 × 40 = **1 200**

400 × 3 = **1 200**

2 **a** The third and sixth examples are correct.

b Correction for first example: 15 × 8 = 15 × 4 × 2 = 60 × 2 = 120
Correction for second example: 35 × 8 = 35 × 2 × 4 = 70 × 4 = 280
Correction for fourth example: 18 × 8 = 2 × 9 × 8 = 72 × 2 = 144
Correction for fifth example: 40 × 8 = 10 × 4 × 8 = 10 × 32 = 320

Workbook answers page 20:

Multiplying numbers up to 1 000

Learners use the TWM skill of 'generalising' in question 3.

1 Learners' must make decisions about whether to use a mental or written method.
Mental examples could include: 34 × 20 = 680, 199 × 7 = 1 393, 400 × 9 = 3 600, 460 × 2 = 920.
Written examples could include: 34 × 26 = 884, 278 × 6 = 1 668.

2 **a** Sanchia saves 3 600 cents ($36) and Pia saves 3 105 cents ($31.05).
Sanchia saves the most.

b 495 cents ($4.95)

3 Check possible answers, for example:
23 × 41 = 943
43 × 21 = 903
25 × 29 = 725
412 × 3 = 1 236
312 × 4 = 1 248
529 × 2 = 1 058

Unit 4 Time – Answers

Learner's Book

Page 45: Practise

In question 1, learners use the TWM skill of 'convincing'. In question 3, they use the TWM skill of 'conjecturing'.

1 Estimates will vary. Possible reasonable estimates could be:

a 1–2 weeks
b 1.5 hours
c 1.5 seconds (0.5–2 seconds)
d 1.5 minutes (0.5 minutes–3 minutes)

2

0.5 days = 12 hours	0.5 hours = 30 minutes	0.5 minutes = 30 seconds
1.5 days = 36 hours	1.5 hours = 90 minutes	1.5 minutes = 90 seconds
2.5 days = 60 hours	2.5 hours = 150 minutes	2.5 minutes = 150 seconds
4.5 days = 108 hours	6.5 minutes = 330 seconds	10.5 hours = 630 minutes

3 **a** Badminton and tennis last 0.5 hours.
b Swimming and gym last 1.5 hours.
c Soccer lasts more than 0.5 hour but less than 1.5 hours.

Page 45: Try this

In this activity, learners use the TWM skill of 'improving' to try to be as exact as they can.

2.5 weeks = 1 week + 1 week + 0.5 week = **17.5 days**
= 168 + 168 + 84 = **420 hours**
= **25 200 minutes**
= **1 512 000 seconds**

1.5 years = worked out as 365 days + 182.5 days = **547.5 days**
= **13 140 hours**
= **788 400 minutes**
= **47 304 000 seconds**

or = worked out as 366 days + 183 days = **549 days**
= **13 176 hours**
= **790 560 minutes**
= **47 433 600 seconds**

Pages 47–48: Practise

1 **a** 50 minutes
b 30 minutes
c 1 hour 25 minutes (or 85 minutes)
d 45 minutes

2 **a** 3 hours 10 minutes
b 3 hours 10 minutes
c 11 hours 10 minutes

Page 48: Try this

In this activity, learners use the TWM skill of 'generalising'.

a 1 hour 14 minutes
b 28 minutes
c 25 minutes, 37 minutes, 32 minutes
d Bus B

Page 49: Quiz

1 **Shortest** 2.5 seconds, 0.5 hours, 45 minutes, 30 hours, 2.5 days **Longest**

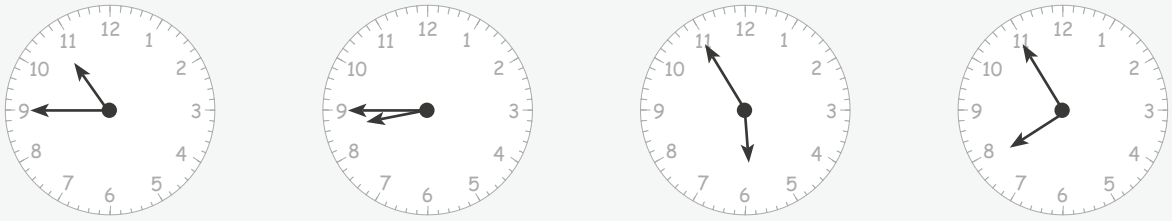
2 Learners' activity suggestions will vary. Examples are:
2.5 days = weekend away to go camping, stay at a holiday home
0.5 hour = homework, swimming, play a quick game, reading, running, cycling
45 minutes = homework, reading, play a sport or swim, running, cycling
2.5 seconds = jump on the spot, shake, lift arms
30 hours = go on a group hike (stopping to sleep over somewhere), fly from one hemisphere to another via Dubai or Doha

3 It is longer than 1.5 hours by 7 minutes.

Workbook answers page 22:

Can you remember?

a 10:45 **b** 20:45 **c** 17:55 **d** 07:55

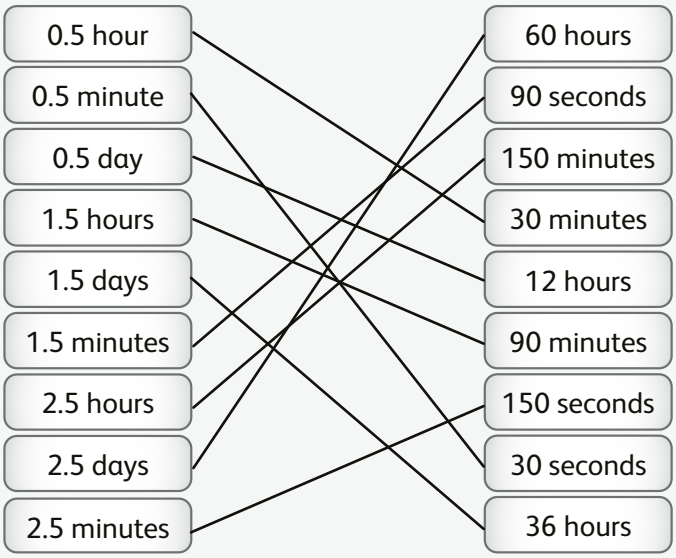


Measuring time

Learners use the TWM skills of 'critiquing' and 'convincing' in question 3.

1 **Shortest** a f c d b e h g **Longest**

2



Workbook answers page 22 *(continued)*:

3 Events will vary, but learners should be able to justify their drawings or descriptions of their events for each estimated length of time.

Workbook answers page 23:

Calculating time intervals

1 **a** 13 hours

b 1 hour longer

c $89\frac{3}{4}$ hours

2 **a** **Shortest** A C B E D **Longest**

b Programmes A and E (40 minutes + 80 minutes = 120 minutes)

3 From 16:50 to 23:20 = $6\frac{1}{2}$ hours; divide $6\frac{1}{2}$ by 2 to get $3\frac{1}{4}$ hours = halfway, so 16:50 + $3\frac{1}{4}$ hours = 8:05 p.m. or 20:05

Unit 5 Statistical methods – Answers

Learner's Book

Page 51: Practise

In question 2, learners use the TWM skill of 'critiquing'.

1 Either a bar chart or a dot plot would suit this data. The class may choose a dot plot, as this is the focus of learning.

2 Either could be a factor. Learners should be able to justify their decision.

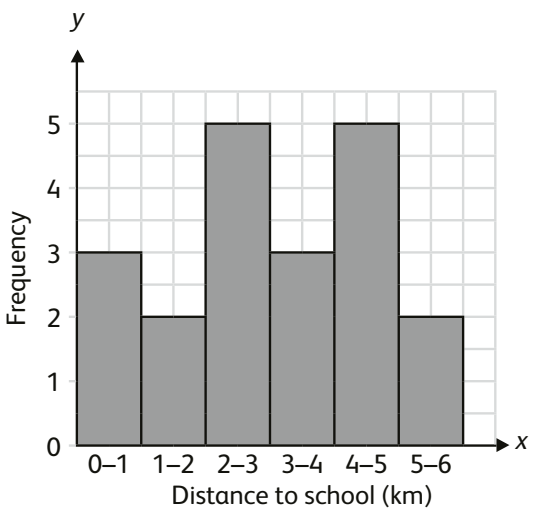
3 Check that learners' data has been presented accurately, using a suitable scale for the vertical axis.

Page 53: Practise

1

Distance to school	Frequency
0–1 km	3
1 km–2 km	2
2 km–3 km	5
3 km–4 km	3
4 km–5 km	5
5 km–6 km	2

2



3 For Class 2:
a There are two: between 2 km and 3 km, and between 4 km and 5 km
b 8 **c** 10 **d** 3

4 For Class 5:
a 1 km–2 km **b** 7 **c** 26 **d** 8

5 Similarities and differences between the Stage 2 and the Stage 5 classes:
Learners' answers will vary. Encourage them to justify their answers.

Page 55: Practise

1 **a** 15 ℓ
b 10 ℓ
c Between Day 8 and Day 20
d Approximately 28 ℓ

2 Ensure that the axes are labelled with a suitable scale to match the data.

Page 56: Quiz

1 Learner's answers should show an understanding that dot plots are used to show patterns or trends in data. Bar charts show the actual information or data.

2 Answers should show an understanding of data that is grouped.

3 **a** 'Level of water in a pond' is best shown on a line graph.
b It is the clearest way to show the information.

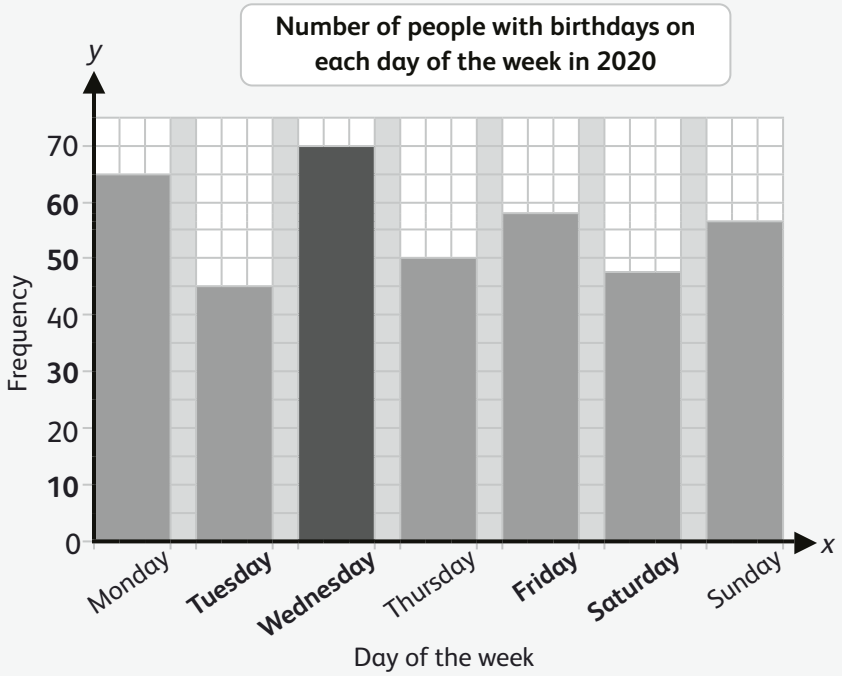
Workbook answers pages 25–26:

Can you remember?

	Story book	Science and nature book	Picture book	Total
School A	120	80	100	**300**
School B	165	140	**115**	420
School C	199	**110**	101	410

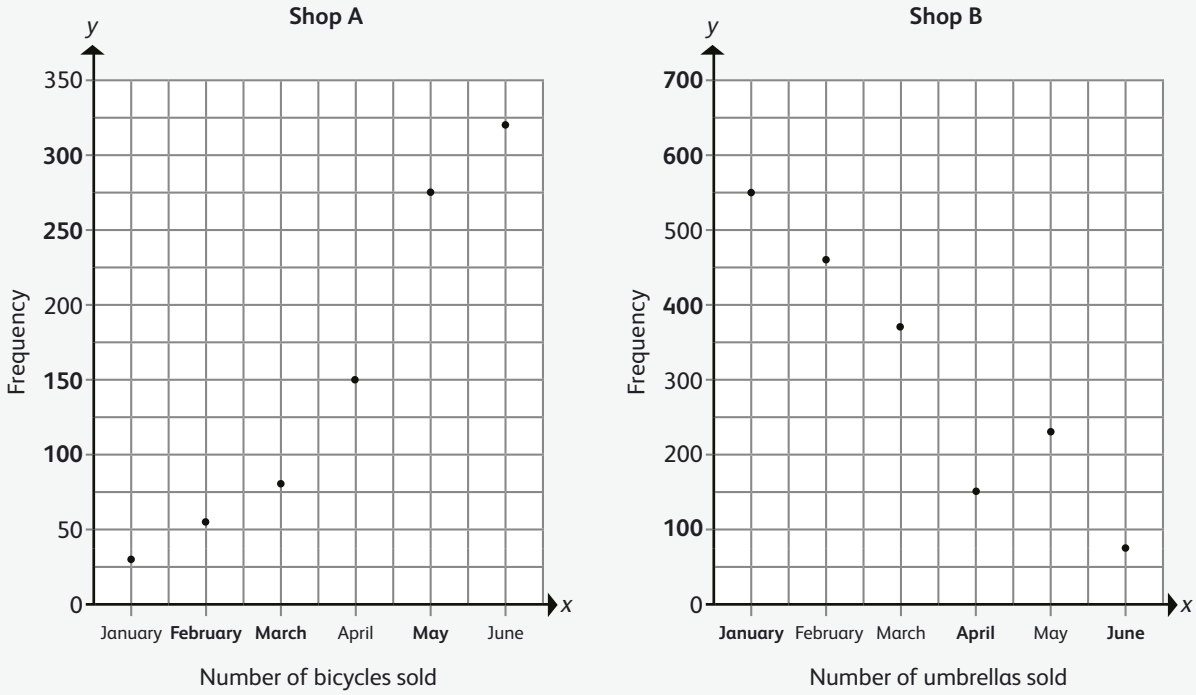
Bar charts and dot plots

1 Learners should produce an accurate bar chart for the data. For example:



Workbook answers pages 25–26 *(continued)*:

2 a Learners should produce accurate dot plots for the data, for example:



b Learners should explain any trends they see in the data, for example, more umbrellas are sold in the winter months when it rains more.

Workbook answers page 27:

Frequency charts

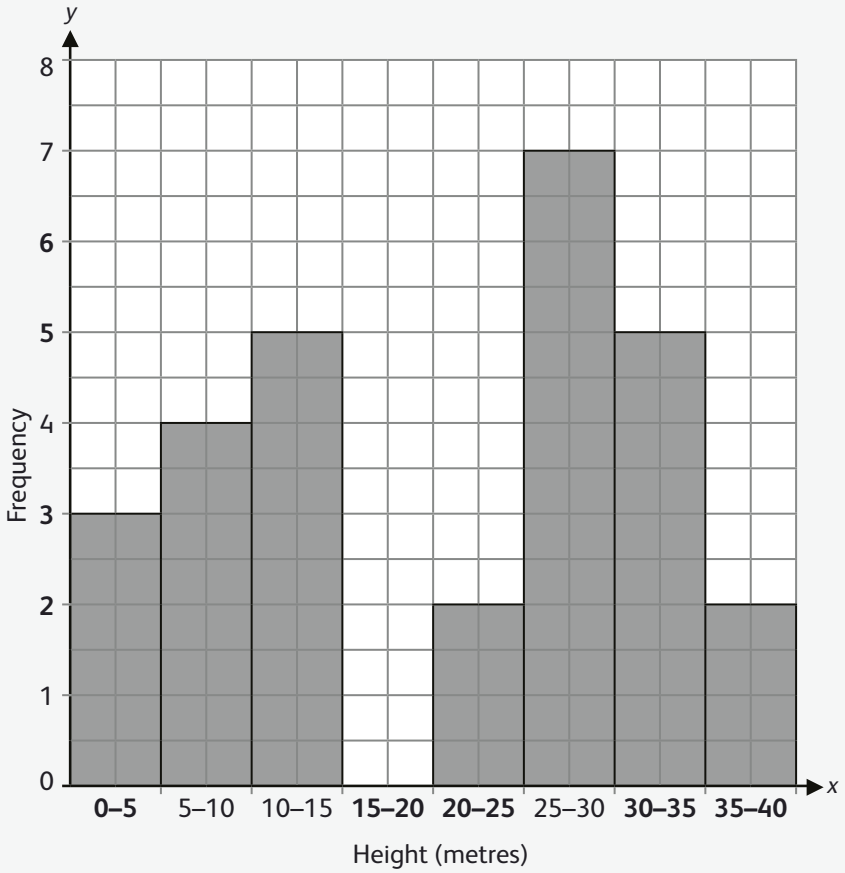
Learners use the TWM skill of 'characterising' in question 3.

1

Height	Frequency
0–5 m	3
5 m–10 m	4
10 m–15 m	5
15 m–20 m	0
20 m–25 m	2
25 m–30 m	7
30 m–35 m	5
35 m–40 m	2

Workbook answers page 27 *(continued)*:

2 Learners should produce an accurate frequency chart for the data in question 1, for example:



3 Learners should describe any patterns they see and attempt to suggest explanations for them.

Workbook answers pages 28–29:

Line graphs

1 a 6 °C warmer

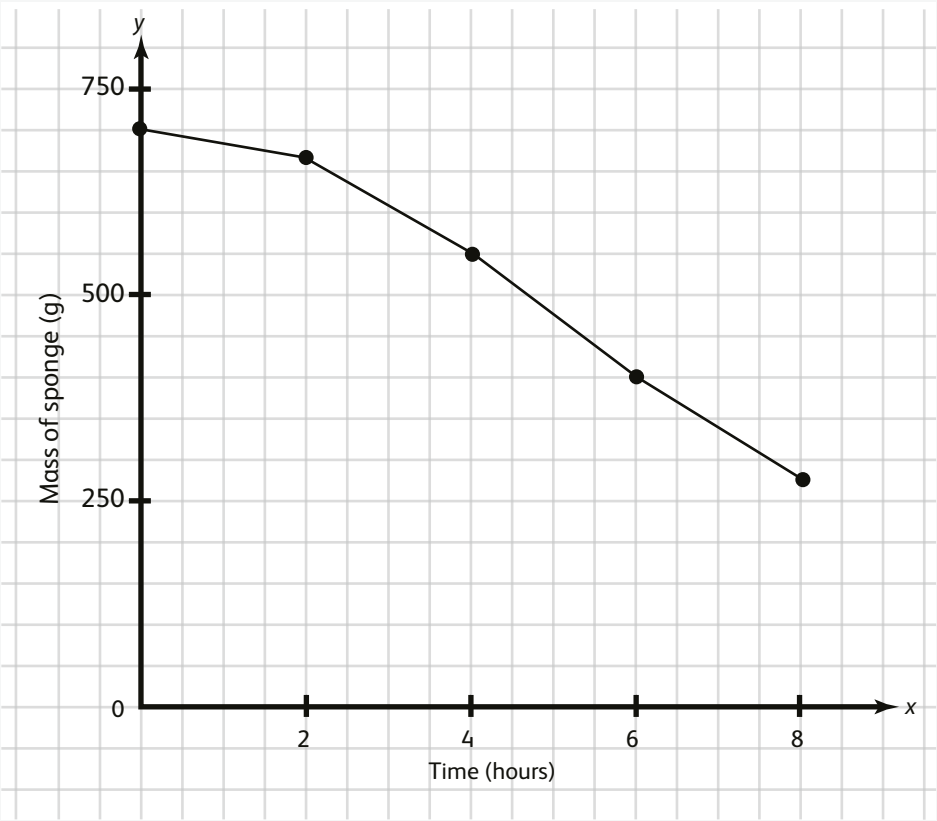
b

Time	10:15	11:00	12:30	13:00	13:30
Temperature (°C)	11	15	17	18	17

c At approximately 10:45

Workbook answers pages 28–29 *(continued)*:

2 Learners should produce an accurate line graph for the data, for example:



3 **a** Estimates will vary but should range from 670–630 g
b 4 hours **c** 225 g **d** 6 hours

Unit 6 Fractions, decimals, percentages and proportion – Answers

Learner's Book

Pages 58–59: Practise

1

	a Fraction of a litre	b Division
6 containers	$\frac{1}{6}$ litre	$1 \div 6 = \frac{1}{6}$
8 containers	$\frac{1}{8}$ litre	$1 \div 8 = \frac{1}{8}$
9 containers	$\frac{1}{9}$ litre	$1 \div 9 = \frac{1}{9}$
10 containers	$\frac{1}{10}$ litre	$1 \div 10 = \frac{1}{10}$
100 containers	$\frac{1}{100}$ litre	$1 \div 100 = \frac{1}{100}$

2

Number of fruit pies	2	4	5	7	8	10
Fraction of a whole pie on each of the 10 plates	$\frac{2}{10}$	$\frac{4}{10}$	$\frac{5}{10}$	$\frac{7}{10}$	$\frac{8}{10}$	$\frac{10}{10}$

3 **a** $\frac{10}{100}$ $\frac{18}{100}$ $\frac{25}{100}$ $\frac{50}{100}$ $\frac{75}{100}$

b 10 cents 18 cents 25 cents 50 cents 75 cents

Pages 61–62: Practise

In question 1, learners use the TWM skill of 'specialising'. In question 2, they use the TWM skills of 'classifying' and 'convincing'. In question 3, they use the TWM skill of 'convincing'.

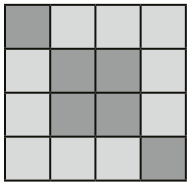
1 **a** Learners' own shapes to show equivalent fractions for: $\frac{2}{5}$ and $\frac{3}{5}$.

b Learners' own shapes to show equivalent fractions for: $\frac{3}{8}$ and $\frac{5}{8}$.

c Learners' own shapes to show equivalent fractions for: $\frac{6}{8}$ and $\frac{2}{8}$.

d Learners' own shapes to show equivalent fractions for: $\frac{6}{8}$ and $\frac{2}{8}$.

Note for parts **a** to **d**, learners should record the fractions for each colour, for example, if they choose the equivalent fraction $\frac{6}{16}$ for $\frac{3}{8}$, they would record fractions for each colour in the shape as $\frac{6}{16}$ and $\frac{10}{16}$.



2 The odd one out each time is:

a $\frac{16}{25}$ **b** $\frac{15}{20}$ **c** $\frac{7}{8}$ **d** $\frac{9}{32}$

3 Learners' own solutions, at least four are, for example:

- three in the group with one wearing a hat
- six in the group with two wearing a hat
- thirty in the group with ten wearing a hat
- eighteen in the group with six wearing a hat.

Page 64: Practise

1 **a** $1\frac{3}{5}$ **b** $2\frac{1}{4}$ **c** $3\frac{1}{2}$ **d** $2\frac{2}{10}$ **e** $3\frac{2}{5}$

2 **a** $\frac{11}{2}$ **b** $\frac{11}{4}$ **c** $\frac{19}{5}$ **d** $\frac{53}{10}$

3 A = $1\frac{1}{8}$ B = $2\frac{1}{3}$ C = $4\frac{1}{4}$ D = $4\frac{7}{8}$ E = $8\frac{2}{3}$ F = $9\frac{1}{2}$

Pages 66–67: Practise

1 **a** \$6 **b** \$12
c \$2 **d** \$10
e \$15 **f** \$21

2

Dinosaur talk	Inventions talk	Ancient Lands talk	Farming talk
80	150	120	50

3 They sold 10 more dinosaur models than soldiers.

Page 67: Let's talk

In this activity, learners use the TWM skills of 'convincing' and 'specialising'.

Solutions are:

$\frac{3}{6}$ of 24 = 12 $\frac{2}{3}$ of 18 = 12 $\frac{3}{4}$ of 16 = 12 $\frac{4}{6}$ of 18 = 12

Pages 68–69: Practise

1 **a** 150 cents **b** 240 cents **c** 750 cents **d** 240 cents

2 Pia had 180 cents.
Banko had 150 cents.
Jin had 90 cents.

Page 69: Try this

In this activity, learners use the TWM skills of 'specialising' and 'generalising'.
Learners should organise their solutions in tables:

Name of child: Elok					
Money spent	$ 1	$2	$ 3	10 cents	20 cents
Total money	$ 7	$14	$ 21	70 cents	140 cents

Name of child: Guss					
Money spent	$ 2	$4	$ 6	20 cents	40 cents
Total money	$ 14	$28	$ 42	140 cents	280 cents

Pages 71–72: Practise

In question 3, learners use the TWM skill of 'convincing'.

1 **a** $\frac{1}{3}+\frac{2}{3}=\frac{3}{3}$ **b** $\frac{3}{5}+\frac{4}{5}=\frac{7}{5}$ **c** $\frac{6}{6}-\frac{2}{6}=\frac{4}{6}$ **d** $\frac{8}{9}-\frac{5}{9}=\frac{3}{9}$

2 **a** $\frac{4}{5}+\frac{3}{10}=\frac{8}{10}+\frac{3}{10}=\frac{11}{10}$ **b** $\frac{5}{6}-\frac{1}{3}=\frac{5}{6}-\frac{2}{6}=\frac{3}{6}$ **c** $\frac{11}{12}-\frac{1}{2}=\frac{11}{12}-\frac{6}{12}=\frac{5}{12}$

d $\frac{8}{9}-\frac{2}{3}=\frac{8}{9}-\frac{6}{9}=\frac{2}{9}$ **e** $\frac{1}{2}+\frac{3}{4}+\frac{3}{4}=\frac{2}{4}+\frac{3}{4}+\frac{3}{4}=\frac{8}{4}$

3 **a** $\frac{1}{2}\text{kg}+\frac{3}{4}\text{kg}=\frac{2}{4}\text{kg}+\frac{3}{4}\text{kg}=\frac{5}{4}\text{kg}$ **b** $\frac{7}{8}\ell-\frac{3}{4}\ell=\frac{7}{8}\ell-\frac{6}{8}\ell=\frac{1}{8}\ell$

Page 73: Quiz

1 **a** $3 \div \boxed{10} = \frac{3}{10}$ **b** $\boxed{3} \div 4 = \frac{3}{4}$ **c** $18 \div 100 = \frac{\boxed{18}}{100}$

2 $\frac{20}{30}\text{km}$ is not equivalent to $\frac{4}{5}\text{km}$.

3 **a** $1\frac{3}{5}$ and $\frac{8}{5}$ **b** $1\frac{4}{8}$ and $\frac{12}{8}$ **c** $1\frac{5}{6}$ and $\frac{11}{6}$ **d** $2\frac{3}{10}$ and $\frac{23}{10}$

4 **a** $\frac{3}{4}$ of 20 **b** $\frac{7}{10}$ of $50 **c** $\frac{5}{8}$ of 80 kg

5 **a**

$\frac{3}{5}+\frac{2}{5}=\frac{5}{5}$

$\frac{4}{10}+\frac{3}{5}=\frac{10}{10}$

$\frac{5}{6}+\frac{5}{6}=\frac{10}{6}$

$\frac{10}{12}+\frac{5}{6}=\frac{20}{12}$

b

$\frac{7}{8}-\frac{4}{8}=\frac{3}{8}$

$\frac{7}{8}-\frac{1}{4}=\frac{5}{8}$

$\frac{10}{10}-\frac{6}{10}=\frac{4}{10}$

$\frac{10}{10}-\frac{2}{5}=\frac{6}{10}$

Workbook answers page 31:

Can you remember?

Learners should have ticked shapes **b** and **d**.

Fractions and division

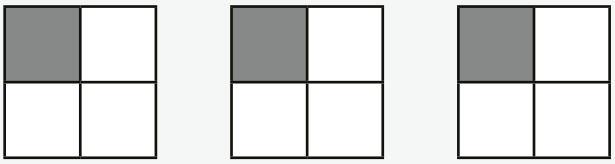
Learners use the TWM skill of 'convincing' in question 2.

1 **a** $1 \div 5 = \frac{1}{5}$ **b** $1 \div 8 = \frac{1}{8}$ **c** $9 \div 10 = \frac{9}{10}$

d $1 \div 6 = \frac{1}{6}$ **e** $19 \div 100 = \frac{19}{100}$

2 **a** Fraction of a bag of sand in each container: $\frac{3}{4}$.

b Learners should represent the problem to show $3 \div 4$, for example:



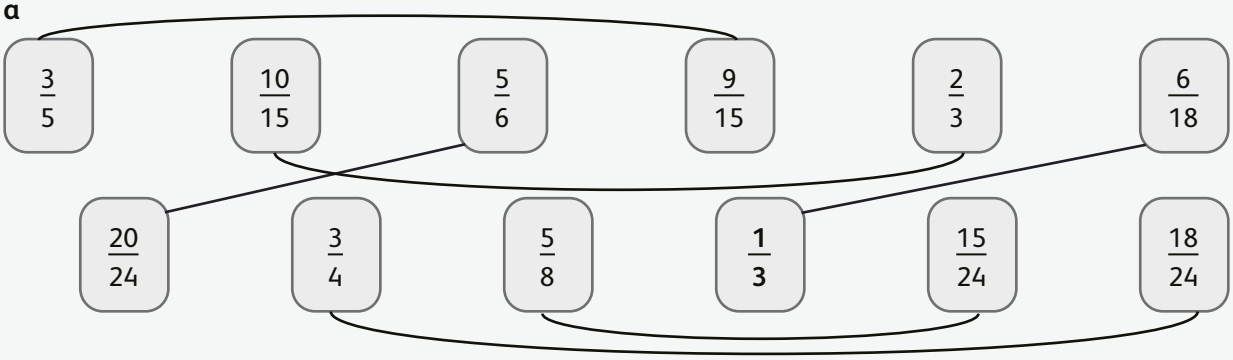
Workbook answers page 32:

Equivalent fractions

Learners use the TWM skill of 'convincing' in question 3.

1 **a** $\frac{3}{5} \rightarrow 2 \rightarrow \frac{6}{10}$ **b** $\frac{3}{10} \rightarrow 3 \rightarrow \frac{9}{30}$

2 **a**



b The left over fraction is $\frac{1}{3}$, as per the bold card in part **a**.

3 Learner's explanation or drawings should show that Banko's conjecture is not correct.

This could be examples such as $\frac{19}{30}$ where the denominator is a multiple of 5 but the fraction is not equivalent to $\frac{2}{5}$ because the numerator has not been multiplied by the same amount. Learners may sketch part of a multiplication square or draw shapes to show other incorrect examples.

Workbook answers page 33:

Improper fractions and mixed numbers

1 a $2\frac{2}{3} = \frac{3}{3} + \frac{3}{3} + \frac{2}{3} = \frac{8}{3}$

b $3\frac{3}{8} = \frac{8}{8} + \frac{8}{8} + \frac{8}{8} + \frac{3}{8} = \frac{27}{8}$

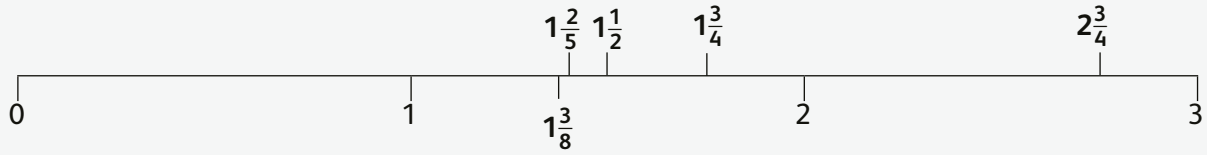
c $2\frac{4}{7} = \frac{7}{7} + \frac{7}{7} + \frac{4}{7} = \frac{18}{7}$

d $2\frac{1}{2} = \frac{2}{2} + \frac{2}{2} + \frac{1}{2} = \frac{5}{2}$

2 a

Improper fraction	$\frac{3}{2}$	$\frac{7}{4}$	$\frac{7}{5}$	$\frac{11}{8}$	$\frac{11}{4}$
Mixed number	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{2}{5}$	$1\frac{3}{8}$	$2\frac{3}{4}$

b



3 a $\frac{30}{8}$ metre **b** $\frac{28}{10}$ metre **c** $5\frac{3}{4}$ metre

Workbook answers page 34:

Fractions as operators

1 a $\frac{1}{2}$ of 75 = 37.5 $\frac{1}{2}$ of 150 = 75 $\frac{1}{2}$ of 15 = 7.5

b $\frac{3}{4}$ of 160 = 120 $\frac{3}{4}$ of 200 = 150 $\frac{3}{4}$ of 240 = 180

c $\frac{2}{5}$ of 60 = 24 $\frac{2}{5}$ of 150 = 60 $\frac{2}{5}$ of 90 = 36

2 a 80 plants with red flowers

b 75 plants with yellow flowers

c 45 plants with no flowers

3 a Jin used the larger fraction of his reel of ribbon.

b Pia: 450 cm Jin: 320 cm

Workbook answers pages 34–35:

Adding and subtracting fractions

Learners use the TWM skill of 'generalising' in question 2.

1 **a** $\frac{6}{10} + \frac{3}{10} = \boxed{\frac{9}{10}}$ **b** $\frac{3}{5} + \frac{3}{10} = \boxed{\frac{9}{10}}$ **c** $\frac{3}{5} + \frac{7}{10} = \boxed{\frac{13}{10}}$

d $\frac{\boxed{4}}{5} + \frac{7}{10} = \frac{15}{10}$ **e** $\frac{2}{3} + \frac{5}{6} = \boxed{\frac{9}{6}}$ **f** $\frac{2}{3} + \frac{\boxed{5}}{9} = \frac{11}{9}$

2 **a** $\frac{9}{9} - \frac{3}{9} = \frac{6}{9}$ **b** $\frac{7}{9} - \frac{1}{3} = \frac{4}{9}$ **c** $\frac{7}{8} - \frac{3}{4} = \frac{1}{8}$ **d** $\frac{9}{10} - \frac{3}{5} = \frac{3}{10}$

Term 1 Review – Answers

Units 1–6

Page 74

1 **a** 6 243 081 = 6 000 000 + 200 000 + 40 000 + 3 000 + 0 + 80 + 1
b 624 308 = 600 000 + 20 000 + 4 000 + 300 + 0 + 8
c 624.3 = 600 + 20 + 4 + 0.3
d 623.4 = 600 + 20 + 3 + 0.4

2 5, –1, –7

3 **a** –9 + 12 = 3
b 7 – 15 = –8
c 2 364 + 1 728 + 136 = 4 228
d 2 785 – 999 = 1 786

4 **a** 35 × 19 = 665 (for example, multiply by a near multiple of 10)
b 70 × 80 = 5 600 (for example, 7 × 8 × 100)
c 25 × 29 × 4 = 2 900 (for example, 25 × 4 × 29 = 100 × 29)
d 257 × 6 = 1 542 (for example, column method)

5 $\frac{4}{5}$ is not equivalent to the others.

6 **a** $2\frac{3}{4}$
b $\frac{18}{7}$
c $36
b $\frac{11}{8}$

7 The third angle must be acute.

8 Learner's clock times will vary. Check that they have a difference of 1.5 hours each time.

9 Answers should show some understanding of the purpose and the different presentations of each type of chart. Answers may include some of the following:
- All of the charts use a picture to represent data.
- They all have horizontal and vertical axes.
- They all use scales.
- A bar chart clearly shows a comparison between different categories of data.
- A dot plot and a line graph both show change or trends.
- A frequency chart looks very similar to a bar chart, but the horizontal axis is also a scale.

Unit 7 Number – Answers

Learner's Book

Pages 76–77

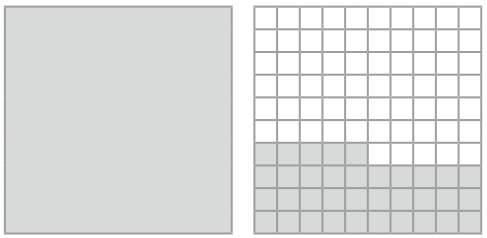
1 **a** 75.3: seventy-five point 3
b 7.35: seven point three five
c 0.75: zero point seven five or point seven five
d 90.48: ninety point four eight
e 94.08: ninety-four point zero eight
f 940.8: nine hundred and forty point eight

2

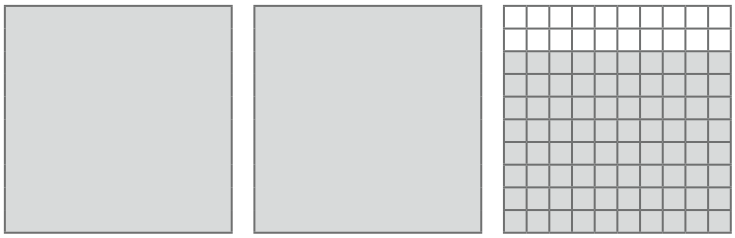
b	7	7.35	8
c	0	0.75	1
d	90	90.48	91
e	94	94.08	95
f	940	940.8	941

3 **a** 0.4
b 500 and 0.5
c 50 and 0.05
d 0.01
e 2 and 0.2

4 **a** The decimal number on the left is 2.49 and the decimal number on the right is 1.75.
b The letter C represents 2.49 and the letter B represents 1.75.
c A is 1.35:



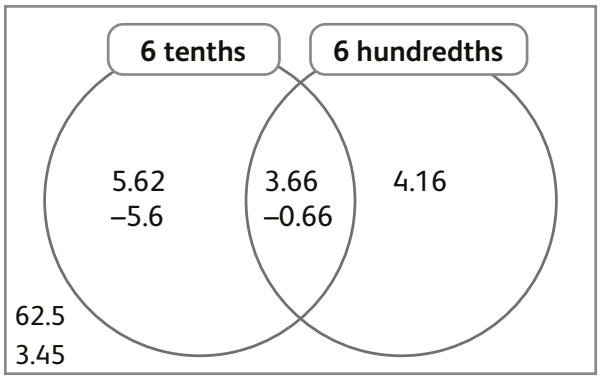
D is 2.8:



Page 77: Try this

In this activity, learners use the TWM skill of 'critiquing'.

Guss has put 62.5 in the wrong section. It should be outside the Venn diagram.



Page 79: Practise

1 **a** 3 692 = 3 000 + 600 + 90 + 2
b 369.2 = 300 + 60 + 9 + 0.2
c 36.92 = 30 + 6 + 0.9 + 0.02
d 234 045 = 200 000 + 30 000 + 4 000 + 0 + 40 + 5
e 23 404.5 = 20 000 + 3 000 + 400 + 0 + 4 + 0.5
f 2 340.45 = 2 000 + 300 + 40 + 0 + 0.4 + 0.05

2 **a** 32.54 = 30 + 2 + 0.5 + 0.04
b Learner's own regrouping into three parts, for example:
32 + 0.34 + 0.2 20 + 12 + 0.54 30 + 1.5 + 1.04

3 **a** 23.45 = 23 + 0.2 + 0.25
b 120.7 = 120 + 0.5 + 0.2
c 0.75 = 0.5 + 0.25
d 143.5 = 120 + 23 + 0.5
e 23.95 = 23 + 0.5 + 0.2 + 0.25

Page 79: Try this

Learners use the TWM skill of 'specialising'.
Possible solutions are:
13 557 described as 135 hundreds and 57 ones
15 357 described as 153 hundreds and 57 ones
31 557 described as 315 hundreds and 57 ones
35 157 described as 351 hundreds and 57 ones
51 357 described as 513 hundreds and 57 ones
53 157 described as 531 hundreds and 57 ones.

Pages 81–82: Practise

In question 2, learners use the TWM skills of 'specialising' and 'conjecturing'. In question 3, they use the TWM skill of 'classifying'. In question 4, learners use the TWM skills of 'classifying' and 'convincing'.

1 a 3.4 = 3
3.5 = 4
3.6 = 4

b 9.9 = 10
9.3 = 9
9.1 = 9

c 23.5 = 24
235.5 = 236
2 355.5 = 2 356

2 Learner's own numbers, for example:
a Any two of: 5.8, 2.5, 2.8, 4.5 4.8, 8.5
b 4.8 and 5.2

3 a 1.5 **b** 2.4 cm
c 10.5 kg **d** 15.1 ℓ

4 Sanchia's bag of apples could be from 9.25 kg to 9.34 kg.

Page 84: Practise

1 a 4.3 × 10 = 43
4.3 × 100 = 430
4.3 ÷ 10 = 0.43

b 0.43 × 10 = 4.3
0.43 × 100 = 43
43 ÷ 100 = 0.43

c 12.08 × 10 = 120.8
12.08 × 100 = 1 208
12.8 ÷ 10 = 1.28

2 a 9.7 —÷10→ **0.97** —×100→ **97** —÷10→ **9.7**

b 0.2 —×10→ **2** —÷100→ **0.02** —×100→ **2**

c **0.36** —×100→ 36 —÷10→ **3.6** —÷10→ **0.36**

3 An explanation to show that: The load on the truck is 10 times as heavy as the load on the van. The load on the van is 10 times as small as the load on the truck.

Page 84: Let's talk

In this activity, learners use the TWM skill of 'specialising'.

Learners are required to write the calculations they use each time, for example:
0.3 metres × 100 = 30 metres.

Page 86: Practise

1 **a** 12, 6, 0, –6, –12 — Rule: Subtract 6
b 12, 8, 4, 0, –4, –8 — Rule: Subtract 4
c 12, 9, 6, 3, 0, –3, –6 — Rule: Subtract 3
d –50, 100, 250, 400, 550, 700 — Rule: Add 150
e 0, 100, 200, 300, 400, 500, 600, 700 — Rule: Add 100

2 **a** Add 3
b 5 (2nd term) and 11 (4th term)
c 20

Page 87: Quiz

1 **a** 23.4 = 20 + 3 + 0.4
b 42.3 = 40 + 2 + 0.3
c 34.25 = 30 + 4 + 0.2 + 0.05
d 53.42 = 50 + 3 + 0.4 + 0.02

2 **a**

6.08	
5	**1.08**

b

12.9	
10.5	**2.4**

c

24.75		
10.1	13.6	1.05

3

Round to 8 to the nearest whole number	Round to 9 to the nearest whole number
7.5 8.2	9.3 9.1 8.5 8.8

4 **a** False (45.65 × 10 = 456.5)
b False (18.6 ÷ 10 = 1.86)
c True
d False (32 kg ÷ 100 = 0.32 kg)
e True

5 **a** 80, [90], [100], 110, [120] — Rule: add 10
b [–1], 4, [9], 14, [19] — Rule: add 5
c 90, [70], [50], [30], 10, [–10], [–30] — Rule: subtract 20

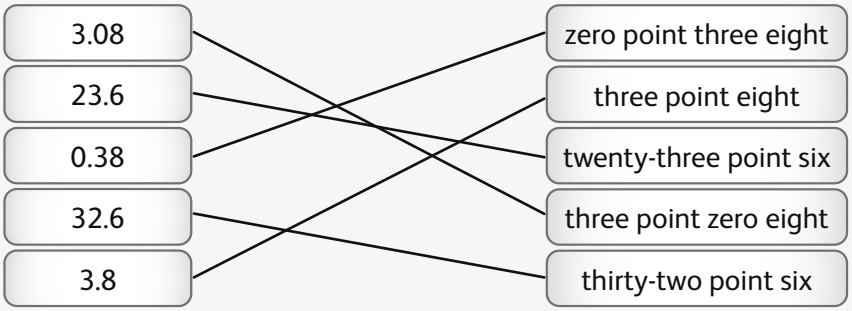
Workbook answers page 37:

Can you remember?

a	**23**	× 10	230	× 10	2 300	÷ 100	23
b	**120**	÷ 10	12	× 1 000	12 000	÷ 100	120
c	**268**	× 100	26 800	÷ 10	2 680	÷ 1 000	2.68

Decimal numbers

1



Workbook answers page 37 *(continued)*:

2

a	43.43	**40**	**b**	50.76	0.7	**c**	0.22	0.02
	43.43	0.4		57.76	7		2.22	0.2
	143.43	0.03		557.06	0.0		22.20	20

Workbook answers page 38:

Place value

Learners use the TWM skills of 'critiquing' and 'improving' in question 2.

1 Twenty-five point six is equal to 2 tens, 5 ones and 6 tenths; 25 ones and 6 tenths; 256 tenths (any two).
Two hundred and sixty-five point three is equal to 2653 tenths; 26 tens, 5 ones and 3 tenths.

2 Pia's comment:
Two point three five is equal to two ones, five tenths and three.
Improvement: 2.35 is equal to two ones, three tenths and 5 hundredths.

Banko's comment: Thirty point zero five is equal to three tens and five tenths.
Improvement: 30.05 is equal to three tens and 5 hundredths.

3 Answers will vary. For example:

a	**11.4 ℓ**	0.25 ℓ	**5 ℓ**	**0.1 ℓ**	
b	**2 ℓ**	3 ℓ	**10.75 ℓ**	**1 ℓ**	
c	**9 ℓ**	**2.6 ℓ**	0.13 ℓ	**2 ℓ**	**3.02 ℓ**

Workbook answers page 39:

Rounding to the nearest whole number

Learners use the TWM skills of 'critiquing' and 'improving' in question 2.

1

	4.8	6.3	7.5	19.2	123.4
Previous whole number	4	6	7	19	123
Next whole number	5	7	8	20	124
Rounded to the nearest whole number	5	6	8	19	123

2 **a** 12.6 metres rounds up to 13 metres. ✓
15.2 metres rounds down to 15 metres. ✓
29.8 metres rounds up to 30 metres. ✓

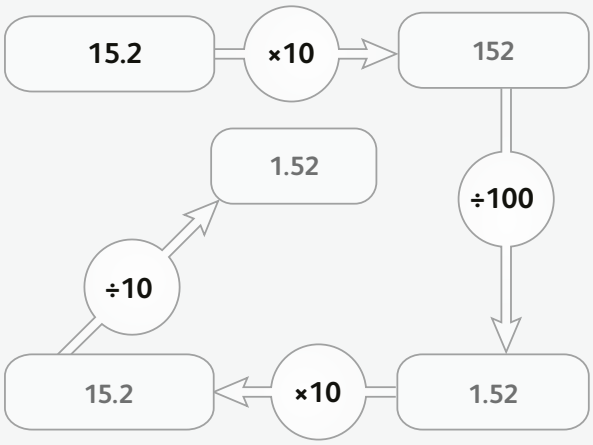
b 14.5 metres rounds up to 15 metres, not 14 metres.
76.4 metres rounds down to 76 metres, not 67 metres

c Learners' own answers.

Workbook answers page 40:

Multiplying and dividing decimals by 10 and 100

1



2

	a	b	c	d	e	f
Full-size car (metres)	4.8	**5.6**	5.1			
Model car (metres)	**0.48**	0.56	**0.51**			
Full-size boat (metres)				54	**37**	109
Model boat (metres)				**0.54**	0.37	**1.09**

Workbook answers page 40:

Patterns and sequences

Term	**1**	**2**	**3**	**4**	**5**	**8**
Total value	75 cents	125 cents	175 cents	225 cents	275 cents	325 cents

Unit 8 Probability – Answers

Learner's Book

Pages 89–90: Practise

1 **a** Probability of picking a yellow cube:
- **A** Equally likely or even chance
- **B** Equally likely or even chance
- **C** Likely, or very likely
- **D** Impossible
- **E** Certain
- **F** Likely

b A blue cube:
- **A** Equally likely or even chance
- **B** Equally likely or even chance
- **C** Unlikely
- **D** Certain
- **E** Impossible
- **F** Not very likely

2 **a** Even chance **b** Equally likely **c** Impossible
d Unlikely **e** Very likely

Pages 92–93: Practise

In question 3, learners use the TWM skills of 'conjecturing' and 'convincing'.

1 Results will vary, based on learners' choices for the cards.

2 **a** Unlikely (less likely than an odd number)
b Unlikely (less likely than even chance)
c Unlikely (less likely than even chance)
d Likely
e Very likely

3 Learners' results will vary. Make sure they use the correct probability language and can make comparisons.

Pages 94: Quiz

1 **a** The likelihood of taking a blue ball is impossible or a zero chance (0 %).
b The likelihood of taking a yellow ball is a 50 % chance.

2 This is a matter of chance. Just because there are only two sides, does not make it a 50 % chance.

3 One would expect to get the number 1 most often (3 out of 6 or a 50 % chance), then the number 2 (2 out of 6 or a 33.33 % chance) and the number 3 (1 out of 6 or a 16.66 % chance).

Workbook answers pages 42–43:

Can you remember?

Events will vary, but learners should be able to make reasoned justifications of their choices.

Equally likely, more likely, less likely

Learners use the TWM skill of 'specialising' in question 2.

1 **a** impossible **b** likely **c** certain **d** equally likely
e Answers will vary but could include 'exactly 400 g' or 'greater than 399 g'

2 **a** to **c** Answers will vary based on learners' choices, but they should be able to make reasoned justifications of their choices.

Workbook answers pages 43–44:

Probability experiments

1–3 Learners' results will vary, but they should be able to provide reasons for the results based on their understanding of probability.

Unit 9 Calculation – Answers

Learner's Book

Pages 96–97: Practise

1 **a** –5 + 120 = 115
–6 + 120 = 114
–15 + 220 = 105
–16 + 220 = 104

b 5 – 160 = –155
5 – 170 = –165
25 – 160 = –135
25 – 170 = –145

2 For example:
a 4 350 + 654 = 5 004: Regroup 654 into 650 + 4 because 350 + 650 = 1 000
b 3 554 – 654 = 2 900: Regroup 654 into 554 + 100 because 3 554 – 554 = 3 000
c 2 846 + 654 = 3 500: Regroup 654 into 600 + 54 because 46 + 54 = 100
d 9 504 – 654 = 8 850: Regroup 654 into 504 + 150 because 9 504 – 504 = 9 000

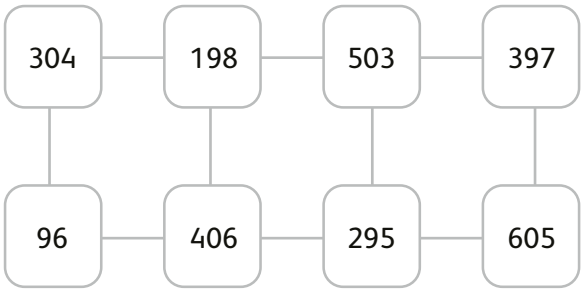
3 Learner's own estimates.
a 4 531 – 485 – 31 = **4 015**
b 5 891 + 109 + 400 = **6 400**
c 6 843 + 999 = **7 842**
d 4 632 + 875 + 125 = **5 632**
e 7 203 – 450 – 550 = **6 203**
f 4 386 – 2 432 + 116 = **2 070**

4

Holiday company	Sunny Dreams	Fly Away	Happy Holidays	Travel Time
Total cost	**$275 +** $399 = **$674**	**$275 +** $299 = **$574**	**$275 +** $249 = **$524**	**$275 +** $295 = **$570**

Page 97: Try this

The order of the pairs across the rows can be changed as long as the numbers in each row and pair remain the same. For example, the top row could be 304, 198, 503 and 397 as long as the bottom row is 96, 406, 295 and 605, as shown.



Page 99: Practise

1 **a** 0.7 + 0.2 = 0.9

b 0.7 + 0.7 = 1.4

c 0.9 – 0.3 = 0.6

d 1.3 – 0.5 = 0.8

2 Check the estimates that learners have made.

a 4.8 + 3.1 = 7.9

b 4.8 + 2.9 = 7.7

c 9.3 – 3.7 = 5.6

d 12.9 – 5.2 = 7.7

3 **a** 25.6 cm + 13.4 cm = 39 cm
25.6 cm + 16.8 cm = 42.4 cm
13.4 cm + 16.8 cm = 30.2 cm

b 25.6 cm – 13.4 cm = 12.2 cm

c 25.6 cm – 16.8 cm = 8.8 cm
16.8 cm – 13.4 cm = 3.4 cm

Page 99: Let's talk

In this activity, learners use the TWM skill of 'generalising'.

Look at strategies to break down the problem into small parts. You could also consider using the bar model below, to represent the problem.

10 kg	
Cube	Sphere

Cube	
Sphere	< 4 kg

a 7 + 3 = 10 and 7 – 3 = 4, so possible solutions are:
cube 6.9 kg and sphere 3.1 kg – difference of 3.8 kg
cube 6.8 kg and sphere 3.2 kg – difference of 3.6 kg
cube 6.6 kg and sphere 3.4 kg – difference of 3.2 kg
cube 6.4 kg and sphere 3.6 kg – difference of 2.8 kg
cube 6.2 kg and sphere 3.8 kg – difference of 2.4 kg
cube 5.1 kg and sphere 4.9 kg – difference of 0.2 kg (this is the lightest mass of the cube for it still to be heavier than the sphere).

b The greatest mass that the cube can be is 6.9 kg.

Page 101: Practise

In question 1, learners use the TWM skill of 'classifying'.

1 **a**

Products are less than 1 000	Products are greater than 1 000 but less than 3 000	Products are greater than 3 000
47 × 18	45 × 30 63 × 37 253 × 11	175 × 20

b 47 × 18 = 846
45 × 30 = 1 350
63 × 37 = 2 331
253 × 11 = 2 783
175 × 20 = 3 500

2 **a** Jin is estimating 192 × 33 because, for example, 200 × 30 = 6 000 or 200 × 33 = 6 600.
b 249 × 33 = 8 217
62 × 45 = 2 790
192 × 33 = 6 336
476 × 12 = 5 712

3 354 × 45 = 15 930 less 354 × 23 = 8 142, so 15 930 – 8 142 = 7 788 g, so 45 bags of marbles are 7 788 g heavier than 23 bags of marbles

---

Pages 102–103: Practise

1 **a** 655 ÷ 5 = 131 **b** 496 ÷ 4 = 124 **c** 192 ÷ 6 = 32 **d** 328 ÷ 8 = 41

2 **a** 182 ÷ 3 = 60 r 2 **b** 254 ÷ 5 = 50 r 4 **c** 364 ÷ 6 = 60 r 4
d 327 ÷ 8 = 40 r 7 **e** 546 ÷ 9 = 60 r 6

3 **a** The school needs to buy 30 packs.
b **i** 62 full boxes
ii 63 boxes are needed

Page 104: Practise

1

a 65 ÷ 3 = 21 r 2	**b** 66 ÷ 4 = 16 r 2	**c** 66 ÷ 5 = 13 r 1	**d** 68 ÷ 7 = 9 r 5	**e** 69 ÷ 8 = 8 r 5
$= 21\frac{2}{3}$	$= 16\frac{2}{4}$	$= 13\frac{1}{5}$	$= 9\frac{5}{7}$	$= 8\frac{5}{8}$
	$= 16\frac{1}{2}$			
Check:	Check:	Check:	Check:	Check:
21 × 3 = 63	16 × 4 = 64	13 × 5 = 65	9 × 7 = 63	8 × 8 = 64
63 + 2 = 65	64 + 2 = 66	65 + 1 = 66	63 + 5 = 68	64 + 5 = 69

2 **a** 25 ÷ 4 = 6 r 1 There are six bags of four balls.
b 48 m ÷ 5 = 9 r 3 = $9\frac{3}{5}$ The length of each piece is $9\frac{3}{5}$ m.
c 78 litres ÷ 8 = 9 r 6 = $9\frac{6}{8}\ell = 9\frac{3}{4}\ell$
There are $9\frac{3}{4}$ litres or 9.75 litres in each container.
d 94 ÷ 6 = 15 r 4 16 boxes are needed for all 94 eggs.
e 48 ÷ 5 = 9 r 3 There are three strawberries left in the basket.

Page 106: Practise

In question 2, learners use the TWM skill of 'improving'.

1 **a** 6 × 4 – 9 = 15 **b** 9 + 6 × 4 = 33 **c** 36 ÷ 4 – 5 = 4
d 8 × 4 ÷ 2 = 16 **e** 30 – 6 × 3 = 12 **f** 35 + 12 – 5 = 42

2 **a** True **b** True **c** True
d False (20 – 3 × 10 = –10) **e** False (12 + 30 ÷ 6 = 17)

Page 106: Let's talk

In this activity, learners use the TWM skills of 'specialising', 'generalising' and 'convincing'.

Possible solutions for making number sentences that are equal to 12 include:

6 + 2 × 3	2 × 3 + 6	6 ÷ 2 × 4	6 × 4 ÷ 2	7 + 10 ÷ 2	2 × 10 – 8
20 – 2 × 4	7 + 20 ÷ 4	8 + 20 ÷ 5	8 + 8 ÷ 2	7 + 8 – 3	7 – 3 + 8

Page 107: Quiz

1 **a** –8 + 80 = 72 **b** 25 – 100 = –75

c 2 672 – 999 – 672 = 1 001 **d** 6 729 + 725 + 1 275 = 8 729

e 1 215 – 221 + 106 = 1 100

2 3.2 – 1.6 = 1.6 because the others all have the answer 1.7.

3 **a** 36 × 20 = 720 **b** 36 × 23 = 828

c 236 × 20 = 4 720 **d** 236 × 23 = 5 428

4 **a** False ($26 \div 4 = 6\frac{2}{4}$ or $6\frac{1}{2}$) **b** True

c True **d** False (324 ÷ 8 = 40 r 4)

5 **a** 6 + 4 × 2 = 14

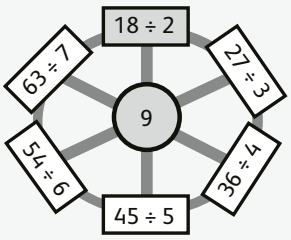
b 20 – 10 ÷ 2 = 15

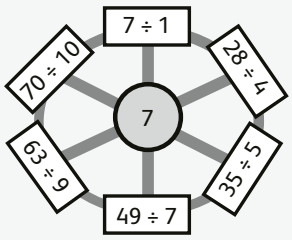
c 4 × 2 + 6 = 14

d 25 – 3 × 5 = 10

Workbook answers pages 46–47:

Can you remember?





Addition and subtraction

Learners use the TWM skill of 'convincing' in question 2, and the TWM skill of 'specialising' in question 3.

1 **a** –45 + 90 = 45 **b** 50 – 100 = –50

c –100 + 125 = 25 **d** –125 + 200 = 75

e 15 °C higher than – 4 °C is 11 °C **f** 18 °C lower than 7 °C is –11 °C

Workbook pages 46–47 *(continued)*:

2 Learners' own investigation to find that the statement is *sometimes true* because 455 g + 676 g + 877 g + 764 g is less than 2 399 g + 1 723 g + 2 080 g.

3 **a** 7 969 – 3 612 = **4 357**

b Learners choose another calculation. Check their estimates. Answers are: 9 185 – 4 212 = **4 973**, 6 127 – 1 997 = **4 130** and 5 446 – 2 979 = **2 467**

Workbook answers pages 47–48:

Adding and subtracting decimal numbers

Learners use the TWM skill of 'specialising' in question 3.

1 Check learners' estimates and decisions as to whether the actual answer will be more or less. Actual answers are:

a 9.7 – 2.2 = 7.5

b 10.4 + 5.7 = 16.1

c 13.4 – 4.7 = 8.7

d 18.2 + 3.4 + 5.9 = 27.5

2 **a** [7.6 m] is 2.5 m longer than 5.1 m.

b 9.7 cm is [3.4 cm] longer than 6.3 cm

c The difference between 4.6 ℓ and 8.1 ℓ is [3.5 ℓ]

d 0.9 kg heavier than 6.8 kg is [7.7 kg]

e 3.2 kg + 4.3 kg + [2.5 kg] = 10 kg

3

4.1		5.4
	3.7 4.8	
	5.2 6.3	
4.6		5.9

Workbook answers pages 48–49:

Multiplying by a 2-digit number

Learners use the TWM skills of 'convincing' and 'generalising' in question 3.

1

		Estimate	Answer ✓ or ×	Your calculation
a	323 × 32 = 10 336	**10 000**	✓	**10 336**
b	54 × 98 = 2 392	**5 000**	×	**5 292**
c	254 × 48 = 14 192	**12 500**	×	**12 192**

2 a

	19 ribbons	21 ribbons	38 ribbons	42 ribbons
Stars	2 755	3 045	5 510	6 090
Stripes	4 142	4 578	8 284	9 156
Spots	5 567	6 153	11 134	12 306

b 657 cm

3 Check learners' examples. They should show that Elok is incorrect, for example: 99 × 99 is much larger than 108 × 12.

Workbook answers page 50:

Division

Learners use the TWM skill of 'specialising' in question 3.

1 From top row under '648' to bottom row, the shaded blocks are: 108, 81, 216, 162

2 a 4 boxes

b 6 rows

c $12\frac{1}{2}$ cm

3 a Learners' own investigation. For example: Pick 3, 4 and 5 and arrange as 53 ÷ 4 in the calculation to give a remainder of 3, and answer recorded $15\frac{3}{5}$. All answer calculations must give rise to a remainder, so with digits 3, 4 and 5, the calculation 54 ÷ 3 cannot be used. Then learners must convert their remainder to a fraction. Check that they have done so.

b With the cards in the example above, 34 ÷ 5 will give the largest remainder.
With the cards in the example above, 53 ÷ 4 will give the smallest remainder. Learners must record their calculations.

Workbook answers page 51:

Order of operations

Learners use the TWM skills of 'critiquing' and 'improving' in question 3.

1 **a** 4 × 6 ÷ 2 = 12 **b** 100 – 300 + 500 = 300 **c** 45 + 6 × 7 = 87

d 72 ÷ 8 – 10 = –1 **e** 100 – 81 ÷ 9 = 91 **f** 200 – 25 × 4 = 100

2 **a** 70 marbles **b** 100 ÷ 2 + 20 20 + 100 ÷ 2

3 **a** **i** 12 – 4 × 5 = **8**
ii 7 × 5 – 3 = **32**
iii 40 – 35 ÷ 7 = **35** (was correct)
iv 99 + 8 × 10 = **179**
v 500 – 100 × 3 = **200** (was correct)

b Learners are asked to improve any calculations that are incorrect. This has been done in part **a**.

Unit 10 Location and movement – Answers

Learner's Book

Page 109: Practise

In question 2, learners use the TWM skills of 'specialising', 'critiquing' and 'convincing'.

1 **a** 3 right 4 up **b** 6 right **c** 4 right 3 down
d 3 right 4 down **e** 2 left 3 down **f** 1 left 7 up

2 **a** 1 left 4 down, 1 right and 4 up
b 3 right 2 down, 3 left 2 up
c 4 right and 2 up, 4 left and 2 down
Learners might say they notice that the translations are opposites/reversed.

Page 112: Practise

In question 2, learners use the TWM skill of 'specialising'.

1 **a** (1, 4) **b** (4, 2) **c** (0, 0) **d** (8, 7)

2 There are three solutions:
(6, 1) and (6, 3) or (2, 1) and (2, 3) or (3, 2) and (5, 2)

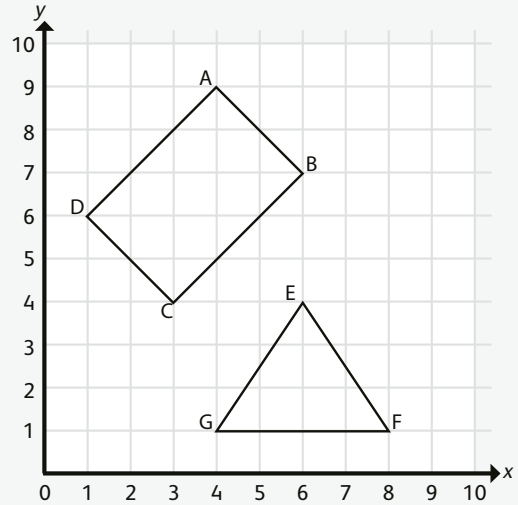
Page 113: Quiz

1 9 left and 2 down.
The translation is the reverse of Shape A to Shape B.
Some learners may be able to explain why this is the case.

2 (2, 10) and (10, 9) is one solution.

Workbook answers pages 53–55:

Can you remember?



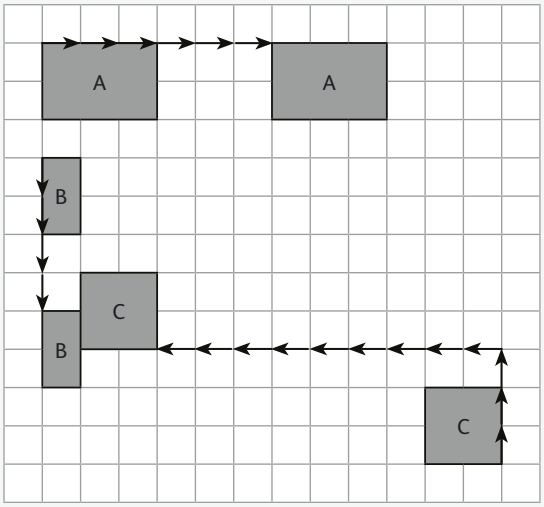
Vertices

A = (4, 9)
B = (6, 7)
C = (3, 4)
D = (1, 6)
E = (6, 4)
F = (8, 1)
G = (4, 1)

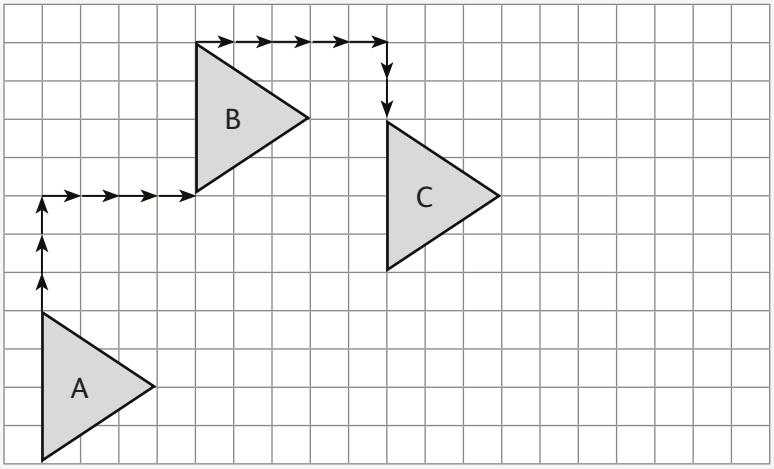
Workbook answers pages 53–55 *(continued)*:

Translations

1

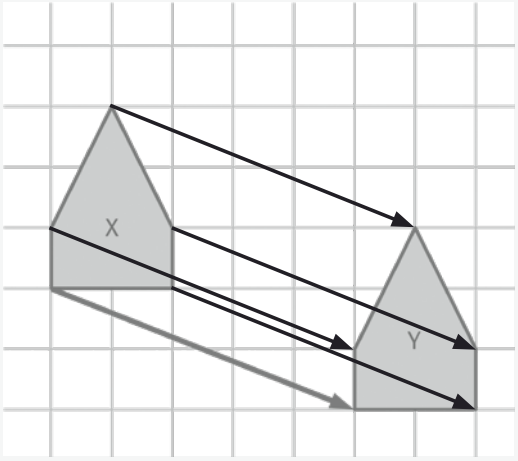


2



Shape C to Shape A is 5 down and 9 left

3 **a** and **b** The lengths should all be equal.



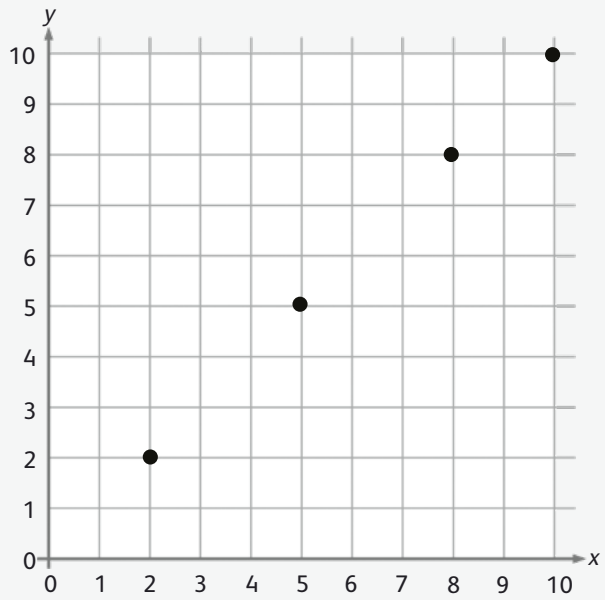
c Learners' answers about what they notice will vary, for example: X moved five squares to the right and down by two squares; all five lines are equal in length.

4 **a** and **b** Answers will vary, depending on learners' choices.

Workbook answers pages 55–56:

Shapes on a coordinate grid

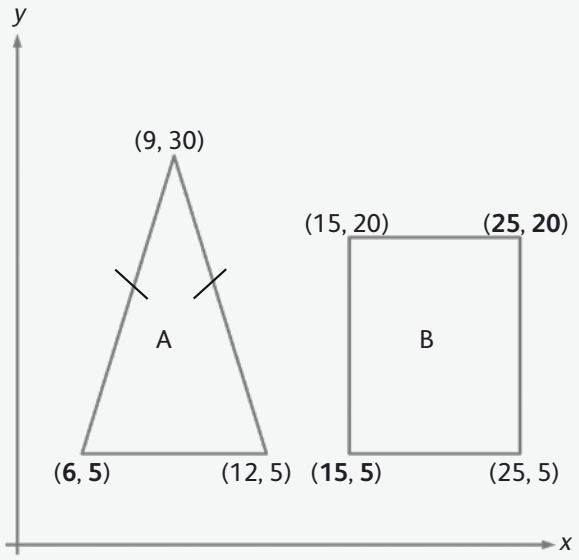
1 a Check that learners have plotted the points correctly. Each solution should have coordinates such as (5, 5) or (3, 3), with equal *x* and *y* coordinates.



b Learners' choices will vary.

2 Answers will vary, based on learners' choices.

3



Unit 11 Fractions, decimals, percentages and proportion – Answers

Learner's Book

Page 115: Practise

In question 2, learners use the TWM skill of 'convincing'.

1

Percentage	20%	**5%**	25%	**60%**	8%	**15%**
Fraction with denominator 100	$\frac{\mathbf{20}}{\mathbf{100}}$	$\frac{5}{100}$	$\frac{\mathbf{25}}{\mathbf{100}}$	$\frac{60}{100}$	$\frac{\mathbf{8}}{\mathbf{100}}$	$\frac{15}{100}$

2 **a** $\frac{1}{4}$ **b** $\frac{2}{10}$ or $\frac{1}{5}$ **c** $\frac{2}{4}$ or $\frac{1}{2}$ **d** $\frac{1}{10}$

3 25%, 20%, 50%, 10%

Page 118: Practise

In question 2, learners use the TWM skills of 'classifying' and 'convincing', and in question 3 they use the TWM skill of 'specialising'.

1 **a** $\frac{3}{10}$, 30%, 0.3 **b** $\frac{4}{10}$, 40%, 0.4 **c** $\frac{5}{10}$, 50%, 0.5

d $\frac{30}{100}$, 30%, 0.3 **e** $\frac{40}{100}$, 40%, 0.4 **f** $\frac{7}{10}$, 70%, 0.7

2 **a** $\frac{1}{5}$ **b** $\frac{3}{100}$ **c** 6% **d** 0.09

3 **a** Learners' drawing to show the given fractions, for example:

blue
yellow
yellow
red
red
red
red

b $\frac{3}{10}$, 30%, 0.3

Page 120: Practise

In question 3, learners us the TWM skill of 'convincing'.

1 **a** $\frac{1}{6}, \frac{3}{6}, \frac{4}{6}, \frac{5}{6}$ **b** $\frac{2}{8}, \frac{3}{8}, \frac{4}{8}, \frac{7}{8}$ **c** 20%, 40%, 80%, 90%

d 0.2, 0.3, 0.5, 0.7 **e** 0.6, 0.9, 1.3, 1.6, 1.9

2 **a** $\frac{3}{10} < 50\%$ **b** $0.4 > \frac{1}{10}$ **c** $30\% < 0.8$

d $0.5 > 40\%$ **e** $1.4 > 0.7$

3 **a** $0.2, \frac{4}{10}, \frac{7}{10}, 0.8$ **b** $\frac{2}{10}, \frac{4}{10}, 50\%, 90\%$

c 10%, 0.3, 40%, 0.5, 80% **d** $0.2, \frac{3}{10}, 40\%, 0.6, 70\%, \frac{9}{10}$

Page 120: Try this

In this activity, learners use the TWM skill of 'specialising'.
One possible solution is as follows but there are others:

$\frac{6}{10} > 0.5$ $\quad$ $70\% < 0.8$ $\quad$ $\frac{1}{2} > 40\%$

Page 122: Practise

In question 2, learners use the TWM skills of 'critiquing' and 'convincing'.

1 **a** 150 cents **b** 240 cents **c** 750 cents **d** 240 cents

2 **a** 60×8 **b** 480 cents

Page 123: Practise

1 **a** 0.05 kg **b** 0.2 kg **c** 0.12 kg **d** 0.08 kg

2 **a** $\frac{5}{100}$ of \$200 = \$10 **b** $\frac{9}{100}$ of \$900 = \$81 **c** $\frac{5}{100}$ of \$20 = \$1

d $\frac{9}{100}$ of \$90 = \$8.10 **e** $\frac{5}{100}$ of \$2 000 = \$100

3 2 500 cents or \$25

Page 123: Let's talk

In this activity, learners use the TWM skills of 'conjecturing' and 'generalising'.
Look for learners who record their solutions in a table, for example:

Guss	Elok	Each spend
200 cents	20 cents	2 cents
1 000 cents	100 cents	10 cents
$30	$3	30 cents
etc.		

Pages 125–126: Practise

1 **a** Proportion of apples (fraction) in each box from left to right:
$\frac{2}{4}$ or $\frac{1}{2}$ $\frac{2}{5}$ $\frac{4}{10}$ or $\frac{2}{5}$

b Proportion of bananas (fraction) in each box from left to right:
$\frac{1}{4}$ $\frac{2}{5}$ $\frac{3}{10}$

c Apples 40%, bananas 30%, oranges 20% and pineapple 10%

2 Check that learners have the correct proportion of each grid shaded:

a 50% shaded and $\frac{5}{10}$ or $\frac{1}{2}$ recorded **b** 70% shaded and $\frac{7}{10}$ recorded

c 20% shaded and $\frac{2}{10}$ or $\frac{1}{5}$ recorded **d** 90% shaded and $\frac{9}{10}$ recorded

3

	Apples	Bananas	Cherries	Plums
a	20%	50%	10%	20%
b	$\frac{20}{100}$ or $\frac{2}{10}$ or $\frac{1}{5}$	$\frac{50}{100}$ or $\frac{5}{10}$ or $\frac{1}{2}$	$\frac{10}{100}$ or $\frac{1}{10}$	$\frac{20}{100}$ or $\frac{2}{10}$ or $\frac{1}{5}$

Pages 127–128: Practise

In question 2, learners use the TWM skill of 'specialising'.

1 **a** For every 1 box of oranges, there are 4 boxes of lemons (and vice versa).
b For every 2 boxes of oranges, there is 1 box of grapes (and vice versa).
c For every 3 boxes of grapes, there are 2 boxes of limes (and vice versa).
d For every 5 boxes of lemons, there are 2 boxes of grapes (and vice versa).

2 Check that the learners' patterns match the given ratios for each question.
a 1:2 **b** 2:5 **c** 3:4

Page 129: Quiz

1 **a** 50% **b** 40% **c** 25%

2 **a** $\frac{6}{10} = \boxed{60}\ \%$ **b** $0.7 = \frac{70}{\boxed{100}}$

c $\frac{1}{2} = \boxed{50}\ \%$ **d** $0.5 = \frac{5}{\boxed{10}}$

3 **a** False (50% is < $\frac{6}{10}$) **b** True **c** False (0.3 > $\frac{4}{100}$)

d True **e** True

4 **a** $\frac{1}{10}$ of \$400 = \$40 **b** $\frac{3}{10}$ of \$400 = \$120

c $\frac{1}{100}$ of \$400 = \$4 **d** $\frac{3}{100}$ of \$400 = \$12

5 **a** $\frac{3}{10}$ **b** 70%

c For every 3 triangles there are 7 squares = 3 : 7.

Workbook answers page 58:

Can you remember?

Mixed number	$2\frac{3}{4}$	$\mathbf{2\frac{3}{5}}$	$1\frac{9}{10}$	$\mathbf{4\frac{2}{3}}$	$2\frac{5}{6}$	$\mathbf{3\frac{3}{8}}$
Improper fraction	$\mathbf{\frac{11}{4}}$	$\frac{13}{5}$	$\mathbf{\frac{19}{10}}$	$\frac{14}{3}$	$\mathbf{\frac{17}{6}}$	$\frac{27}{8}$

Percentages

1 **a** 75% **b** 30%

c 50% **d** 25%

2 **a** 6% and $\frac{6}{100}$ **b** 60% and $\frac{60}{100}$ **c** 66% and $\frac{66}{100}$

3 **5** marks

Workbook page 59:

Equivalent fractions, decimals and percentages

Learners use the TWM skill of 'characterising' in question 2.

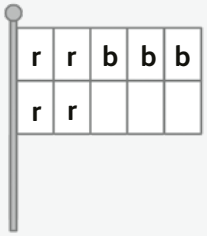
1 **a** $0.2 = \frac{\mathbf{2}}{10} = \mathbf{20}\%$ **b** $\mathbf{0.5} = \frac{\mathbf{5}}{10} = 50\%$

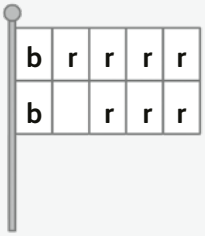
c $\mathbf{0.6} = \frac{6}{10} = \mathbf{60}\%$ **d** $0.1 = \frac{\mathbf{1}}{10} = \mathbf{10}\%$

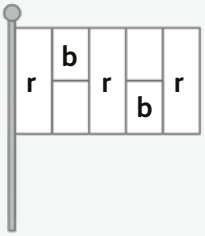
e $1.0 = \frac{\mathbf{10}}{10} = \mathbf{100}\%$ **f** $\mathbf{0.7} = \frac{\mathbf{7}}{10} = 70\%$

Workbook answers page 59 *(continued)*:

2 a Check that learners have coloured in the flags correctly.
Their designs may vary, for example:







b Flag 1: $\frac{30}{100}$ Flag 2: $\frac{10}{100}$ Flag 3: $\frac{20}{100}$

Workbook answers page 60:

Comparing and ordering quantities

Learners use the TWM skills of 'critiquing' and 'improving' in question 4.

1 a $\frac{3}{10}$ [=] $\frac{30}{100}$ **b** 70 % [>] $\frac{6}{10}$ **c** 0.8 [>] 75 %

d $\frac{20}{100}$ [=] 0.2 **e** 0.9 [<] 1.2 **f** 75 % [=] $\frac{3}{4}$

2 Smallest 0.2 $\frac{40}{100}$ 50 % $\frac{7}{10}$ 0.9 **Largest**

3 Banko's mistake is that he is only looking at the numerator. 70 % is not greater than $\frac{7}{10}$; they are equal: $\frac{70}{100} = \frac{7}{10}$

4 Learners play a game with a partner. Results will vary.

Workbook answers page 61:

Fractions as operators

1 **a** $\frac{3}{5}$ of 350 = **210** **b** $\frac{4}{5}$ of 400 = **320** **c** $\frac{3}{8}$ of 400 = **150** **d** $\frac{7}{8}$ of 480 = **420**

2

	A	B	C	D	E
Real-life measurement	4 metres	**12 metres**	15 metres	**3250 centimetres**	5325 centimetres
Measurement on plan	**0.04 metres**	0.12 metres	**0.15 metres**	32.5 centimetres	**53.25 centimetres**

3 **a** $12

b $\frac{3}{4}$

Workbook answers page 62:

Ratio and proportion

1

	Triangles	Hexagons	Circles	More than 4 sides	Squares	Not squares
Proportion	$\frac{5}{18}$	$\frac{6}{18}$ Or $\frac{3}{9}$ Or $\frac{1}{3}$	$\frac{2}{18}$ Or $\frac{1}{9}$	$\frac{8}{18}$ Or $\frac{4}{9}$	$\frac{3}{18}$ Or $\frac{1}{6}$	$\frac{15}{18}$ Or $\frac{5}{6}$

2 **a** For every **six** odd numbers there are **four** even numbers.
For every **four** even numbers there are **six** odd numbers.

b For every **four** 1-digit numbers there are **six** 2-digit numbers.
For every **six** 2-digit numbers there are **four** 1-digit numbers.

c For every **three** square numbers, **seven** numbers are not square.
For every **seven** numbers that are not square, **three** are square numbers.

3 Learners' answers will vary.

4 40 % (3, 36, 15, 9 = $\frac{4}{10}$)

Unit 12 Angles and shapes – Answers

Learner's Book

Pages 131–133: Practise

In question 3, learners use the TWM skills of 'critiquing', 'specialising' and 'generalising'.

1 **a** Blue = 30 mm × 40 mm, Area = 12 cm², Perimeter = 14 cm or 140 mm
b Green = 20 mm by 50 mm, Area = 10 cm², Perimeter = 14 cm or 140 mm
c Orange = 15 mm × 100 mm, Area = 15 cm², Perimeter = 23 cm or 230 mm

2 **a** Area = 22 cm², Perimeter = 22 cm
b Area = 22 cm², Perimeter = 24 cm
c Area = 27 cm², Perimeter = 29 cm
d Area = 25 cm², Perimeter = 33 cm

3 **a** Area = 24 cm², Perimeter = 20 cm
b Area = 18 cm², Perimeter = 22 cm
c Area = 18 cm², Perimeter = 18 cm
d Area (5.5 cm × 4.6 cm) = 25.3 cm², Perimeter = 20.2 cm

4 **a** and **b** Learners' work will vary, depending on how they cut their rectangles.

Page 136: Practise

1 Learners' sketches should match the cuboids, but may need multiple attempts.

2 A triangular prism and a triangle-based pyramid (tetrahedron)

3 Learners' sketches will vary.

Page 137: Quiz

1 Answers should be labelled with side lengths, but do not need to be drawn to exact scale. Learners should write the calculations required to demonstrate their reasoning clearly.

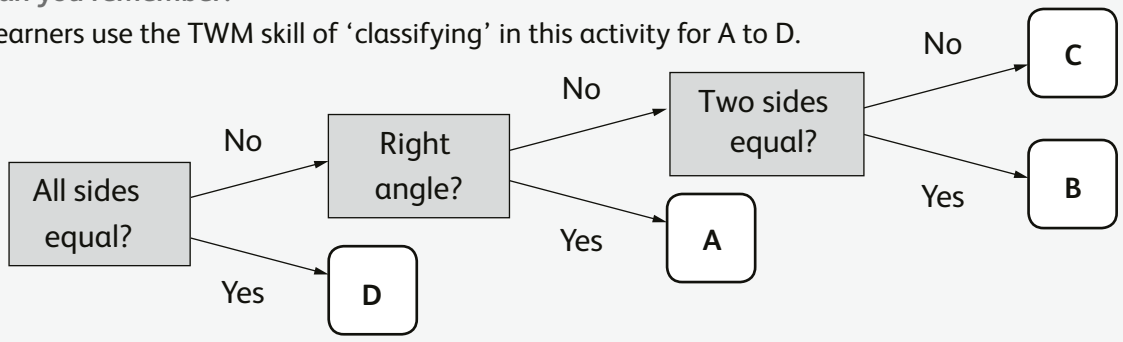
2 Check that learners' compound shapes and rectangles have the same perimeter.

3 Sketches will vary, but learners should be able to justify the number of faces required for each and explain how they can be folded.

Workbook answers pages 64–66:

Can you remember?

Learners use the TWM skill of 'classifying' in this activity for A to D.



Perimeter and area

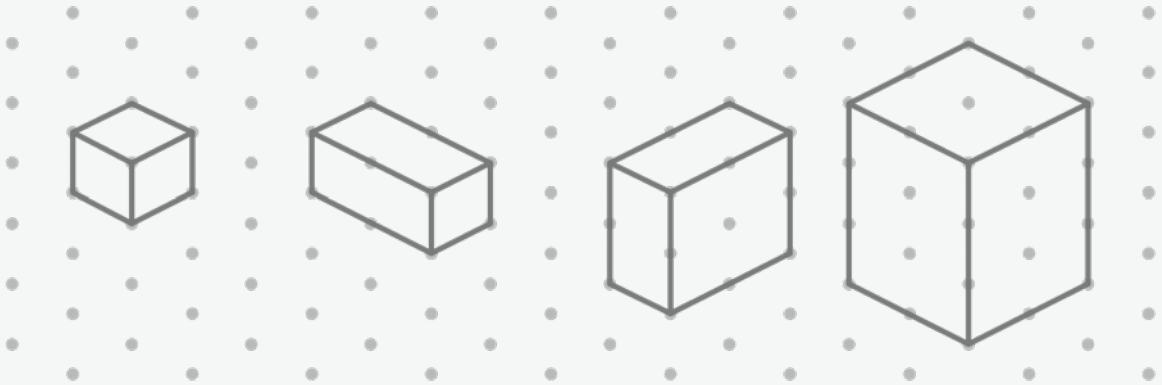
For questions 1 to 4, learners' answers will vary, but learners should be able to justify with calculations.

Workbook answers pages 66–67:

3D shapes

1 There are multiple solutions.

2



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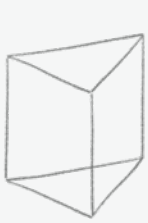
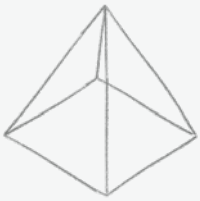


prism



pyramid

Term 2 Review – Answers

Units 7–12

Pages 138–139

1 **a** 3 **b** 12 **c** 7 **d** 14

2 **a** 3.45 × 10 = 34.5 **b** 345 ÷ 100 = 3.45

c 4.3 × 100 = 430 **d** 43 ÷ 10 = 4.3

3 **a** 4.6 + 1.2 = 5.8 **b** 3.8 – 1.2 = 2.6

c 4.6 + 2.5 = 7.1 **d** 11.3 – 2.6 = 8.7

4 **a** 423 × 30 = 12 690 **b** 423 × 34 = 14 382

c 146 ÷ 5 = 29 r 1 **d** 272 ÷ 8 = 34

e $83 \div 9 = 9\frac{2}{9}$

5 **Smallest** 10 %, $\frac{3}{10}$, 0.4, 60 %, $\frac{70}{100}$ **Largest**

6 **a** For every 3 squares, there are 2 circles = 3 : 2. **b** $\frac{3}{5}$

7 **a** Likelihood of picking a red ball: very likely or 4 in 6 chances ($66\frac{2}{3}$ %).

b Likelihood of picking a yellow ball: likely or 2 in 6 chances ($33\frac{1}{3}$ %).

c Likelihood of picking a blue ball: impossible (0 %).

8 (9, 3)

9 Answers will vary, but learners should be able to justify the area and perimeter measurements using a calculation. One example could be a 4 × 5 rectangle with a perimeter of 18 cm, and a 2 × 10 rectangle with a perimeter of 24 cm. Learners may notice that 'long and thin' rectangles tend to have an increased perimeter size.

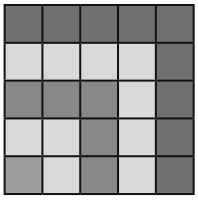
Unit 13 Number – Answers

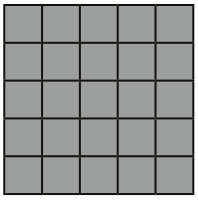
Learner's Book

Page 141: Practise

In question 3, learners use the TWM skills of 'critiquing' and 'improving'.

1 a Learners must complete the patterns up to 10^2. For example, for 5^2:





b Examples of matching number sentences: 5 × 5 = 25 and 1 + 3 + 5 + 7 + 9 = 25

2 Check that learners have used factor pairs each time.

a 9 → 1 and 9, (3 and 3) square number

b 15 → 1 and 15, 3 and 5 not a square number

c 25 → 1 and 25, (5 and 5) square number

d 40 → 1 and 40, 2 and 20, 4 and 10, 5 and 8 not a square number

e 36 → 1 and 36, 2 and 18, 3 and 12, 4 and 9, (6 and 6) square number

f 64 → 1 and 64, 2 and 32, 4 and 16, (8 and 8) square number

3 a True **b** False (25 is the square of 5 or 16 is the square of 4)
c False (7 × 7 = 49) **d** True
e False (9^2 = 9 × 9) **f** True

4 a 64 **b** 100 **c** 6th

Page 143: Practise

In question 1, learners use the TWM skill of 'generalising', and in question 3, they use the TWM skill of 'convincing'.

1 Check that learners make the patterns correctly and record the triangular numbers as:
1, 3, 6, 10, 15, 21, 28, 36, 45, 55

2 a 6 = 1 + [2] + [3]

b [10] = 1 + [2] + [3] + [4]

c [28] = 1 + 2 + [3] + [4] + [5] + [6] + [7]

d 66 = 1 + [2] + [3] + [4] + [5] + [6] + [7] + [8] + [9] + [10] + [11]

e 91 = 1 + [2] + [3] + [4] + [5] + [6] + [7] + [8] + [9] + [10] + [11] + [12] + [1 3]

3 1 or 36

Pages 145–146: Practise

In question 1, learners use the TWM skill of 'classifying'. In question 2, they use the TWM skill of 'specialising'. In question 3, learners use the TWM skills of 'critiquing' and 'convincing'.

1 a

Divisible by 4	Divisible by 8
2 976	2 976
9 352	9 352
1 200	1 200
4 324	15 336
4 164	
15 336	

b 1 426 and 1 642 are not divisible by either 4 or 8.
1 426 is not divisible by 4 because 26 is not divisible by 4
1 642 is not divisible by 4 because 42 is not divisible by 4.
As neither number is divisible by 4, they cannot be divisible by 8.

2 Learner's own examples between the range of 3 500 and 5 000, for example:
a 3 502, 3 802, 4 212, 4 528, 4 758 **b** 3 512, 3 804, 4 212, 4 528, 4 756
c 3 512, 3 808, 4 216, 4 528, 4 752

3 a Sometimes true **b** Never true **c** Always true
d Always true **e** Sometimes true

Page 146: Try this

In this activity, learners use the TWM skill of 'specialising'.

Possible solutions include: 2 000 and 1 652, 1 000 and 2 652, 2 008 and 1 644

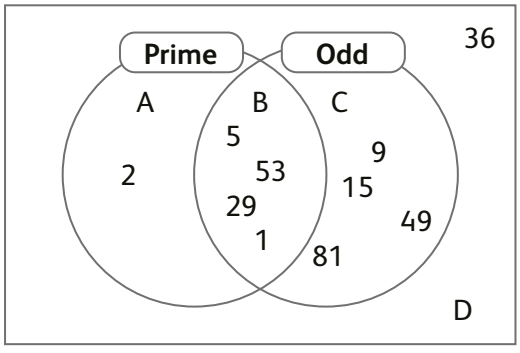
Pages 148–149: Practise

In question 1, learners use the TWM skill of 'specialising'. In question 3, learners use the TWM skill of 'classifying'.

1 Check that learners have made or sketched arrays and identified the two divisors each time.
a 1 and 2 **b** 1 and 13 **c** 1 and 17
d 1 and 23 **e** 1 and 31

2 a 44 is not a prime number, because it is an even number, and is a known times table fact, for example, 4 × 11 = 44.
b 19 is prime as it only has the divisors 19 and 1.
c 2 is prime, as it has only two divisors.
d 11 is prime, as it only has the divisors 11 and 1.
e 35 is not a prime number, as it is divisible by 5 and 7.
f 100 is not a prime number, as it is has more than two divisors.

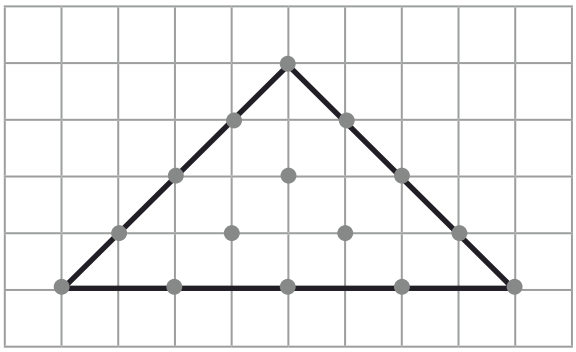
3



Page 150: Quiz

1 16 25 49 64 81

2 Learners use squared paper to continue the sequence up to the 10th term, for example, 5th term is: 15, as shown in the diagram on the grid below.



3 **a** For example: 5 326 **b** For example: 6 532 **c** For example: 6 352

4

Prime numbers				Composite numbers		
23	19	61	37	45	72	100

Workbook answers page 69:

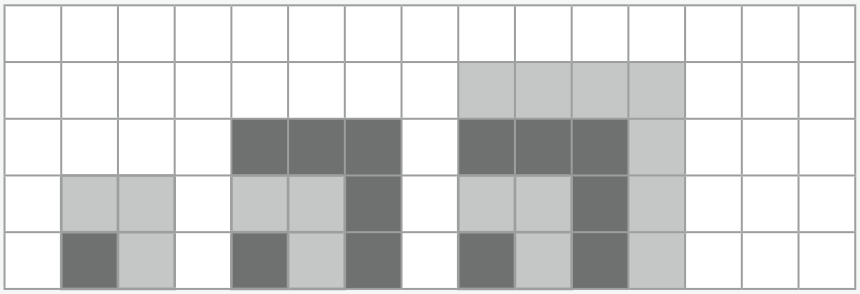
Can you remember?

Learners should have circled: 10.1, 9.9 and 9.5.

Square numbers

Learners use the TWM skills of 'critiquing' and 'convincing' in question 2.

1 Learners should shade squares to show how the square numbers 4, 9 and 16 are built from consecutive odd numbers.



2 **a** Learner's own workings and diagrams to show that square numbers do have an odd number of factors, for example, a list of the factors each time.

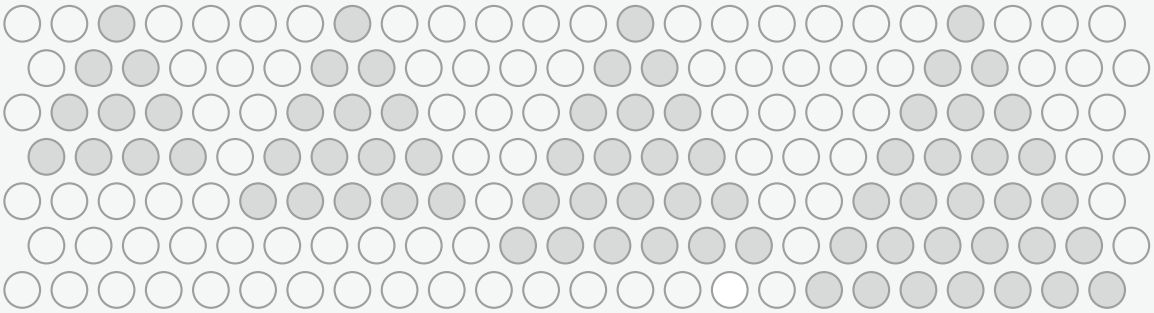
b An explanation that 24 is not a square number, for example, this could be all the arrays for 24 or an incomplete square. An explanation could include factor pairs where none use the same number twice, for example: 1 and 24, 2 and 12, 3 and 8, 4 and 6.

Workbook answers page 70:

Triangular numbers

Learners use the TWM skill of 'critiquing' in question 2.

1 Check that learners have shaded circles to show the next four triangular numbers.



b The numbers in the sequence are 1, 3, 6, then: 10, 15, 21, 28.

2 Check that learners have placed the three remaining numbers correctly: 21 (triangular), 36 (triangular) and 57 (not triangular). Explanation to show why 21 and 36 are triangular and 57 is not. This could be a diagram or an addition of consecutive numbers, for example, 1 + 2 + 3 + 4 + 5 + 6 = 21.

Workbook answers page 71:

Tests of divisibility

Learners use the TWM skills of 'critiquing' and 'improving' in question 1, and they use the TWM skills of 'classifying' and 'characterising' in question 2.

1 Learners should have given an explanation to show how to use the tests of divisibility for 4 and 8.

2 a

	Divisible by 4	**Not divisible by 4**
Divisible by 8	1 200 3 656	
Not divisible by 8	300 2 428 428	134 3 134 738

b Learners should add their own numbers to go in each section.

c Learners should have given an explanation that all numbers that are divisible by 8 must also be divisible by 4.

Workbook answers page 72:

Prime numbers

Learners use the TWM skills of 'convincing' and 'classifying' in question 1.

1 Learners should show in their own way that 5 and 11 are prime numbers (only divisible by itself and 1), and 12 and 16 are composite numbers, for example, using arrays.
(2 × 6 or 3 × 4 for 12; 2 × 8 or 4 × 4 for 16)

2 Learners should have circled: 7, 17, 37, 47, 67, 97

3

Number	I made it by adding these two or three prime numbers:
8	5 + 3
11	Can't be done
15	2 + 13
20	3 + 17 and 7 + 13
25	2 + 23

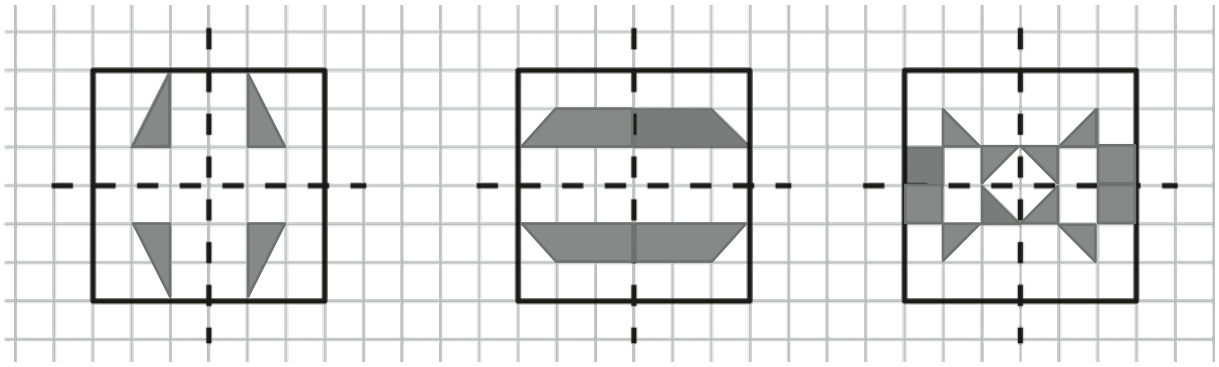
Unit 14 Location and movement – Answers

Learner's Book

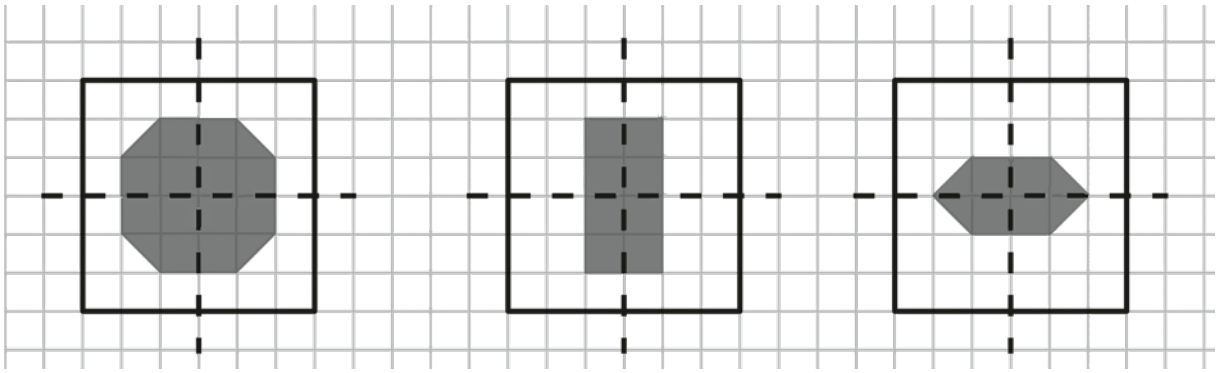
Page 152: Practise

In question 3, learners use the TWM skill of 'conjecturing'.

1



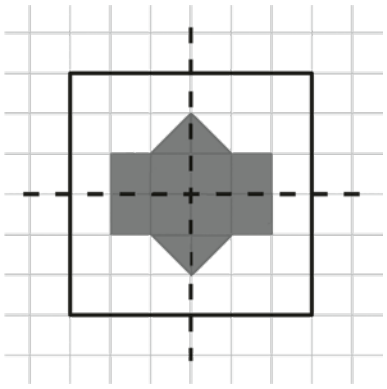
2 Learners should have formed an octagon, a rectangle and a hexagon:



3 Investigations will vary, but learners should discover that in a reflection, each corresponding reflected vertex is equal distance from the mirror line. However, each vertex may be reflected a different distance from another vertex on the same original shape. In a reflection, the lines joining the corresponding vertices are all parallel. In a translation, each line joining corresponding vertices is parallel, and of equal distance.

Page 154: Quiz

1



2 The diagrams that can be formed using one, two or more lines of symmetry are: c, d, e and f. Check that learners have drawn each one to convince others.

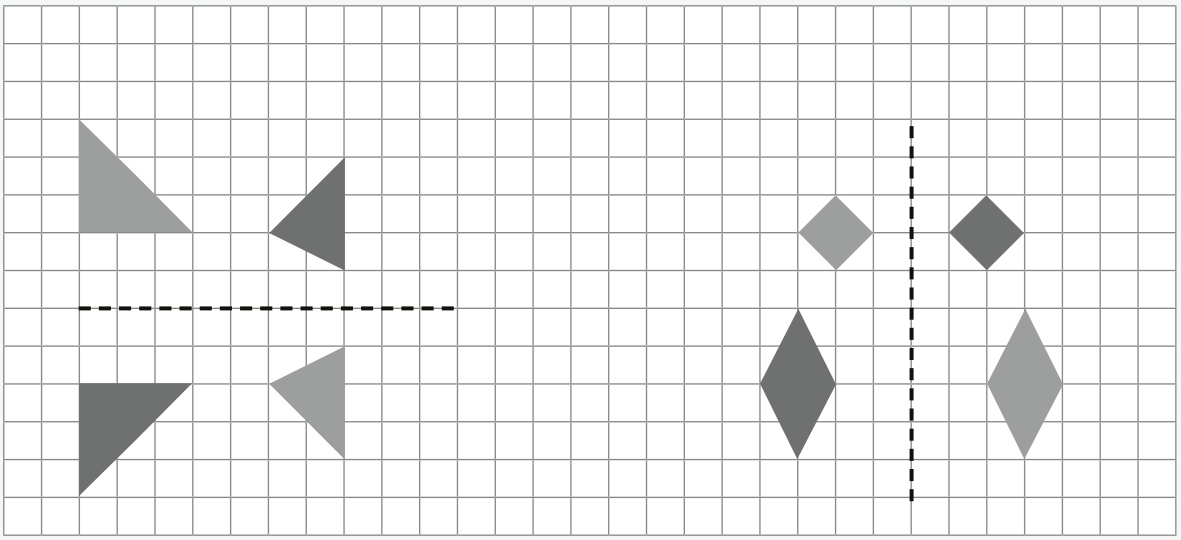
Workbook answers pages 74–75:

Can you remember?

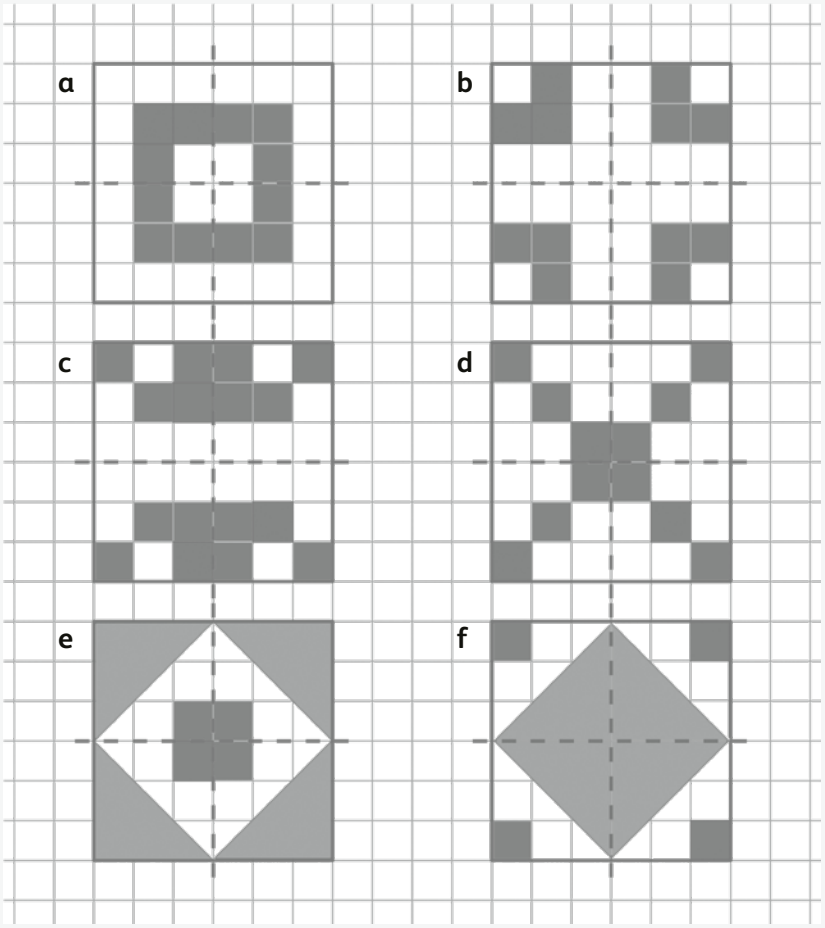
Learners' shapes will vary, but they should be able to justify symmetrical properties of the shapes.

Reflection and translation

1

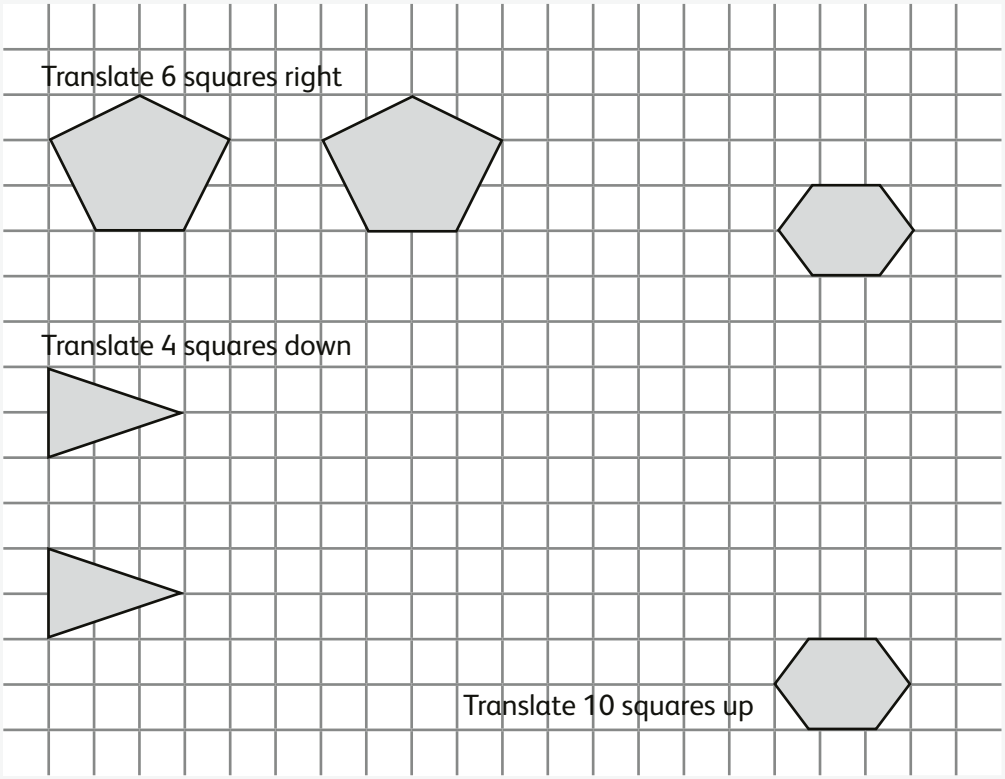


2



Workbook pages 74–75 *(continued)*:

3



Unit 15 Calculation – Answers

Learner's Book

Pages 156–157: Practise

1 Learners' symbols will vary, as they must choose their own, for example:
50c – ○ = 5c (The apple was 45c)
○ + ○ + ○ + △ = $2 (45c + 45c + 45c + △ = $2, so the orange was 65c)

2 **a** 40 cm each **b** $18 each
c Bottles 250 ml each, glasses 200 ml each

3 **a** Triangle 10, ovals 15 each (15 + 10 + 15 = 40 and 50 – 10 = 40)
b Hexagons 25 each, star 55 (25 + 25 + 25 + 25 = 100 and 80 – 55 = 25)
c Trapezium 9 each, rhombus 23 (45 – 9 – 23 = 13 and 9 + 9 = 18)

Page 159: Practise

In question 1, learners use the TWM skill of 'critiquing'.

1 **a** 9 × 10 ÷ 5 = 18 **b** 9 + 10 ÷ 5 = 11 **c** 20 – 3 × 3 = 11
d 36 – 18 + 17 = 35 **e** 5 × 3 – 6 = 9 **f** 6 – 5 × 3 = –9

2 **Smallest** 50 – 8 × 4 = **–18**, 20 + 1 ÷ 3 = **19** $\frac{2}{3}$, 6 ÷ 2 × 7 = **21**, 23 + 15 – 13 = **25**, 40 – 18 ÷ 3 = **34**, 4 + 7 × 5 = **39** **Largest**

3 **a** 100c – 30c × 3 = 10c change
b 20 + 800 ÷ 4 = 220 ml (800 ÷ 4 + 20 = 220 ml)

Pages 161–162: Practise

In questions 1 and 2, learners use the TWM skill of 'critiquing'.

1 **a** 71 **b** 50 **c** 53
d 99 (2 days left over) **e** 8 (2 days left over)

2 **a** 273 × 8 = 2 184 **b** 273 × 28 = 7 644 **c** 73 × 28 = 2 044
d 536 × 7 = 3 752 **e** 536 × 37 = 19 832 **f** 36 × 37 = 1 332

3 $2 265 (8 × $124 = $992 + 19 × $67 = $1 273, so $992 + $1 273 = $2 265)

4 **a** 744 g ÷ 6 = 124 g, 648 g ÷ 4 = 162 g, 560 g ÷ 8 = 70 g
b 162 g × 24 = 3 888 g, 162 g × 56 = 9 072 g, 162 g × 21 = 3 402 g

---

Page 164: Practise

In question 2, learners use the TWM skill of 'critiquing'.

1 Start number is: 2.43
a 3.68 **b** 1.11 **c** 4.9
d 1 **e** 4.12 **f** 1.81

2 **a** 4.35 + 2.21 = 6.56 **b** 4.21 + 2.35 = 6.56 **c** 4.35 + 2.77 = 7.12
d 6.48 – 3.25 = 3.23 **e** 6.48 – 3.29 = 3.19 **f** 6.25 – 3.48 = 2.77

3 **a** 3.77 m 4.7 m 6.03 m 4.18 m
b 3 kg 4.3 kg 4.7 kg 1.5 kg

4 **a**

	Week 1	Week 2	Week 3	Total
Guss	6.35 litres	8.42 litres	3.65 litres	**X = 18.42 litres**
Sanchia	5.85 litres	**Y = 7.34 litres**	6.97 litres	20.16 litres

b Learners' own statements, for example: Sanchia collected 1.74 litres more than Guss.

Page 164: Try this

In this activity, learners use the TWM skill of 'generalising'.
Examples of possible choices are:
$0.99 + $1.01 + $1.40 + $0.60 = $4
$1.25 + $1.25 + $1.25 = $3.75
$2.75 + $0.23 + $0.37 + $0.6 = $3.95
$1.40 + $0.60 + $1.63 + $0.37 = $4
$1.25 + $1.25 + $1.40 = $3.90

Pages 166–167: Practise

In question 2, learners use the TWM skills of 'generalising' and 'convincing'.

1 **a** 5 tenths × 3 = 15 tenths or 1.5 **b** 7 tenths × 3 = 21 tenths or 2.1
c 4 tenths × 4 = 16 tenths or 1.6 **d** 8 tenths × 4 = 32 tenths or 3.2

2

a	**b**	**c**	**d**	**e**
3 × 5 = 15	7 × 4 = 28	6 × 8 = 48	9 × 7 = 63	12 × 2 = 24
0.3 × 5 = 1.5	0.7 × 4 = 2.8	0.6 × 8 = 4.8	0.9 × 7 = 6.3	1.2 × 2 = 2.4
5 × 3 = 15	4 × 7 = 28	8 × 6 = 48	7 × 9 = 63	24 × 2 = 48
0.5 × 3 = 1.5	0.4 × 7 = 2.8	0.8 × 6 = 4.8	0.7 × 9 = 6.3	2.4 × 2 = 4.8

3 **a** False (4.4 litres is less than 4.8 litres, not greater than)
b True
c True

Page 168: Quiz

1 **a** Stars = 7 each **b** Square = 53, triangle = 35

2 **a** 12 + 6 × 4 = 36 **b** 8 × 3 + 12 = 36
c 100 – 20 × 4 = 20 **d** 100 – 20 ÷ 4 = 95

3 **a** $15\frac{2}{3}$ km per journey **b** $7 700

4 **a** 5 ones and 81 hundredths or 5.81
b 5.83
c 3 ones and 61 hundredths or 3.61
d 3.59

5 **a** 0.3 × 5, the rest equal 1.2 **b** 0.8 × 4, the rest equal 3.6 **c** 0.4 × 7, the rest equal 2.4

Workbook answers page 77:

Can you remember?

a 2.35 = **2** + **0.3** + **0.05**
b 3.52 = **3** + **0.5** + **0.02**
c 3.02 = **3** + **0.02**
d 5.3 = **5** + **0.3**
e 0.99 = **0.9** + **0.09**

Missing number problems

1 Check that symbols are consistent. Learners can choose which symbol to use for which item.
For example (one T-shirt and two caps): △ + ○ + ○ = $25
$20 – △ = $9, so the T-shirt is $11
Caps are $25 – $11 = $14 for both, so $7 each

2 4 cylinders = 500 g, so 500 ÷ 4 = 125 g per cyclinder
300 g – 125 g = 175 g
Cuboid = **175** g
Cylinder = **125** g

Workbook answers page 78:

Order of operations

Learners use the TWM skill of 'specialising' in question 1.

1 30 – **18** ÷ 3 = 24
16 + 4 × 2 = 24
20 + 32 ÷ **8** = 24
8 × **9** ÷ 3 = 24
14 – **15** + 25 = 24

2 **a** **110** cents, 20 + 10 × 9 = 110 or 10 × 9 + 20 = 110 (also accept factors reversed, for example, 20 + 9 × 10)
b **7** songs (15 × 4 = 60 – 32 = 28 ÷ 4 = 7)

Workbook answers pages 78–80:

Multiplication and division

Learners use the TWM skill of 'convincing' in question 3, and they use the TWM skill of 'specialising' in question 5.

1 **a**

	1000s	**100s**	**10s**	**1s**
		3	4	**2**
×				7
	2	**3**	**9**	**4**

b

	1000s	**100s**	**10s**	**1s**
		2	4	6
×			2	**3**
		7	3	8
	4	9	2	0
	5	6	5	8

2 **a** 312 more small tents (24 × 6.5 = 156; 39 × 12 = 468; 468 – 156 = 312)
b 759 tents in total (39 × 12 = 468; 15 × 9 = 135; 24 × 6.5 = 156. 468 + 135 + 156 = 759)
c 864 to 936 is the greatest number of people who can sleep in the tepees.
(6.5 × 24 = 156 tepees × 6 people per tepee = 936 people)
d 13 large tents are needed for 90 children (one tent will have 1 child less in it).

Workbook answers pages 78–80 *(continued)*:

3 This statement is false. The large tents and the tepees will have people left over.

4 **a** 693 cents (99c × 7)

b $15\frac{1}{5}$ cm (93 divided by 6 – the spaces between the seven flowers)

5 **a** 1, 6 and 5 can be used for both calculations.

b **165 ÷ 6** = 27 r 3 **164 ÷ 5** = 32 r 4

Workbook answers pages 80–81:

Adding and subtracting decimal numbers

Learners use the TWM skill of 'generalising' in question 1.

1 **a** 13 cm

b 6.92 cm

c 21.11 cm

d 11.34 cm

2 **a** 3.2

b 41.25 cm

3 **a**

	Board game	Computer game	Total
Kids' Fun	$8.79	$19.79	**$28.58**
Go game!	$7.95	$20.45	**$28.40**
Let's Play	$9.75	$18.29	**$28.04**

b $0.84 or 84 cents cheaper

c $2.16 more expensive

d Sanchia cannot buy both games in the same shop, as all totals are more than $28. For the best deal, she should buy the board game at *Go game!* for $7.95 and the computer game at *Let's Play* for $18.29. These games cost a total of $26.24, so she will get $1.76 in change. (She would only get 92c change if she buys the board game from *Kids' Fun* and the computer game from *Let's Play*.)

4 **a** For example:

46.32 + 19.72 = 66.04 46.32 + 36.29 = 82.61

27.95 + 36.29 = 64.24 17.54 + 47.61 = 65.15

b For example:

46.32 – 36.29 = 10.03 47.61 – 36.83 = 10.78

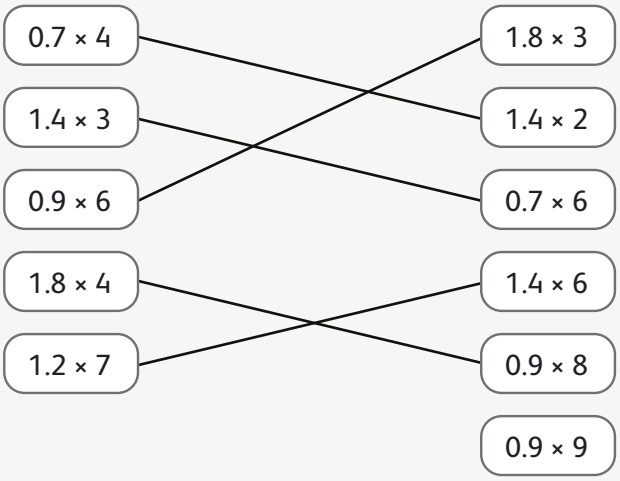
36.83 – 19.72 = 17.11 27.95 – 20.68 = 7.27

Workbook answers page 82:

Multiplying decimal numbers

Learners use the TWM skills of 'convincing' and 'conjecturing' in question 3.

1



2 55.3 kg (4.6 × 4 = 18.4; 12.3 × 3 = 36.9. 18.4 + 36.9 = 55.3)

3 **a** Learners' explanations and examples should show that Jin is correct, for example, 0.6 × 3 = 1.8 and 6 × 3 = 18 and then show on a place value grid that 1.8 is ten times as small as 18.

b Learners' own conjectures, for example: *I conjecture that when I multiply 0.5 by each of the numbers from 1 to 10, all the products will be 10 times as small as the products in the multiplication table of 5.*

Unit 16 Statistical methods – Answers

Learner's Book

Page 170: Practise

In question 3, learners use the TWM skills of 'specialising' and 'generalising'. In question 4, they use the TWM skill of 'critiquing'.

1 Mode 10 Median 9

2 Class A: Mode 1, Median 1
Class B: Mode 1, Median 1

3 **a** Mode 3 Median 3
b Mode 4 Median 4
c Mode 3 Median 3
d Mode 4 Median 4
e Mode 0 Median 3

4 It is likely that Group A was a family, or a random group from a setting such as a shop.
Group B is likely all from one class or sports team, or club.

Page 172: Practise

1 **a** The waffle diagram must have 20 boxes and should show the data clearly.

b $\frac{1}{2}$, or 50 % like soccer best

c Swimming

d

Hobby	Frequency	Proportion
Swimming	5	$\frac{5}{20}$, $\frac{1}{4}$, 25 %
Video games	2	$\frac{2}{20}$, $\frac{1}{10}$, 10 %
Skate park	1	$\frac{1}{20}$, 5 %
Reading	2	$\frac{2}{20}$, $\frac{1}{10}$, 10 %
Soccer	10	$\frac{10}{20}$, $\frac{1}{2}$, 50 %

2 **a** Strongly agree 30 % Agree 45 %
Disagree 5 % Strongly disagree 20 %

b Overall, parents agreed that homework should be increased (45 % agreed and another 30 % strongly agreed). That's 75 % or $\frac{3}{4}$ of the total.

3 Results will vary depending on learner/class information.

Page 173: Quiz

1 This question requires learners to choose items and then adapt their choices to meet the criteria. One possible solution is: 5, 7, 10, 20, 20.

2 **a** and **b** Learners' answers should demonstrate understanding that a bar chart is useful for comparing the frequency of different categories, but a waffle diagram is more useful to see the proportions of the whole, such as in a vote.

Workbook answers pages 84–85:

Can you remember?

50 % of 40 = **20**
10 % of 80 = **8**
10 % of 40 = **4**
50 % of 800 = **400**
50 % of 80 = **40**
10 % of **8 000** = 800

Mode and median

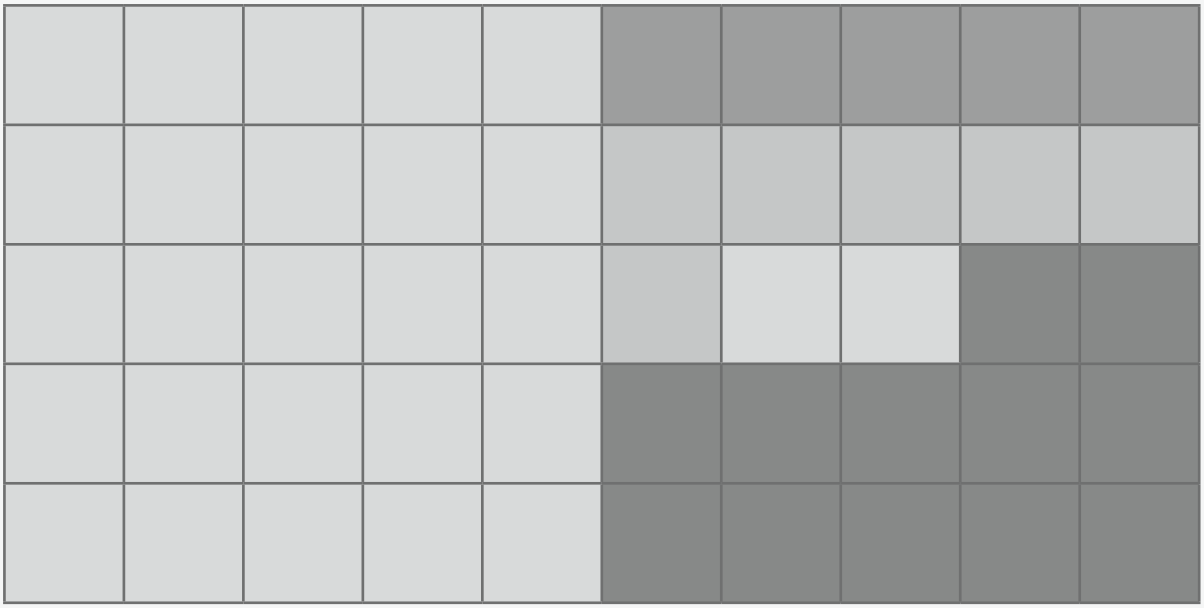
1 **a** Median 3 Mode 4
b Median 1 Mode 1
c Median 4 Mode 5
d Median 6 Mode 7

2, **3** and **4** Learners' results will vary depending on the books they choose. Learners should be able to justify findings showing clear understanding of how to find the median of a set of data.

Workbook answers pages 85–86:

Proportion of the whole

1 Pattern of colours may vary, but should show the same proportions as in the waffle diagram below.



2 and **3** Learners' results will vary, depending on their results.

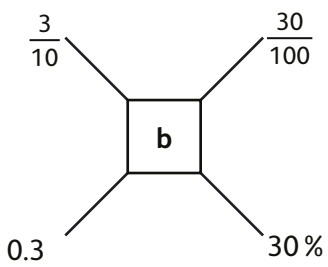
Unit 17 Fractions, decimals, percentages and proportion – Answers

Learner's Book

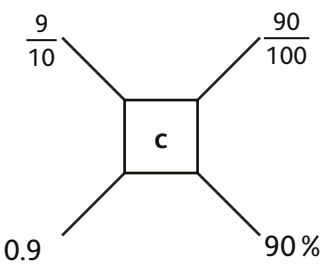
Page 175: Practise

In question 3, learners use the TWM skills of 'critiquing' and 'improving'.

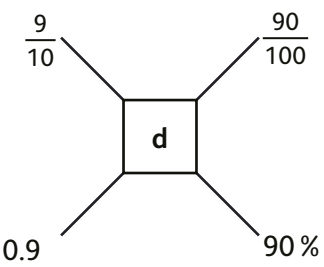
1 b



c



d



2 a $0.8 < 1.3$ **b** $70\% > \frac{7}{100}$ **c** $\frac{1}{2} < 0.6$

d $7\% < \frac{9}{100}$ **e** $\frac{3}{5} > 50\%$

3 a $0.6, \frac{7}{10}, \frac{9}{10}, 1.3$ **b** Correct **c** Correct

d Correct **e** $\frac{1}{4}, 30\%, \frac{2}{4}, 70\%, \frac{3}{4}$

Pages 177–178: Practise

1 Missing numbers in set **c** may be different, as long as they are equivalent, for example, the answer for $\square + \frac{3}{5} = \frac{45}{50}$ is based on this calculation being carried out using Jin's method.

However, this could be $\frac{30}{50} + \frac{3}{5} = \frac{45}{50}$ using Pia's method.

a $\frac{7}{8} + \frac{3}{8} = \boxed{\frac{10}{8}}$

$\frac{7}{8} + \frac{2}{4} = \boxed{\frac{11}{8}}$

$\frac{7}{8} + \frac{1}{2} = \boxed{\frac{11}{8}}$

b $\frac{5}{6} - \frac{2}{6} = \boxed{\frac{3}{6}}$

$\frac{5}{6} - \frac{2}{3} = \boxed{\frac{1}{6}}$

$\frac{5}{6} - \frac{7}{12} = \boxed{\frac{3}{12}}$

c $\frac{6}{10} + \boxed{\frac{4}{10}} = \frac{10}{10}$

$\frac{9}{10} - \boxed{\frac{5}{20}} = \frac{13}{20}$

$\boxed{\frac{3}{10}} + \frac{3}{5} = \frac{45}{50}$

2 a $\frac{1}{3} + \frac{3}{6} = \frac{5}{6}$ **b** $\frac{4}{5} - \frac{3}{10} = \frac{5}{10}$

c Check that learners have sketched bar diagrams correctly. Answers are as follows:

i $\frac{1}{2} + \frac{3}{8} = \frac{7}{8}$ **ii** $\frac{8}{10} - \frac{3}{5} = \frac{2}{10}$

iii $\frac{3}{4} + \frac{5}{8} = \frac{11}{8}$ **iv** $\frac{5}{6} - \frac{1}{12} = \frac{9}{12}$

3 a $\frac{9}{8}$ litres **b** $\frac{3}{10}$

Pages 180–181: Practise

In question 1, learners use the TWM skill of 'specialising'.

1 **a** $\frac{1}{2} \div 4 = \frac{1}{8}$ **b** $\frac{1}{3} \div 4 = \frac{1}{12}$ **c** $\frac{1}{3} \div 5 = \frac{1}{15}$ **d** $\frac{1}{4} \div 5 = \frac{1}{20}$

2 Check that learners have sketched diagrams correctly.

a $\frac{1}{3} \div 2 = \frac{1}{6}$ **b** $\frac{1}{3} \div 6 = \frac{1}{18}$ **c** $\frac{1}{4} \div 2 = \frac{1}{8}$

d $\frac{1}{4} \div 4 = \frac{1}{16}$ **e** $\frac{1}{2} \div 6 = \frac{1}{12}$

3 $\frac{1}{10}$ metre

Page 182: Practise

In question 1, learners use the TWM skill of 'characterising'.

1 **a** $\frac{1}{5} \times 4 = \frac{4}{5}$ **b** $\frac{1}{6} \times 5 = \frac{5}{6}$ **c** $\frac{1}{3} \times 2 = \frac{2}{3}$ **d** $\frac{1}{8} \times 3 = \frac{3}{8}$

2 Check that learners have drawn a suitable diagram for each.

a $\frac{1}{3} \times 2 = \frac{2}{3}$ **b** $\frac{1}{3} \times 3 = \frac{3}{3}$ **c** $\frac{1}{5} \times 2 = \frac{2}{5}$

d $\frac{1}{5} \times 3 = \frac{3}{5}$ **e** $\frac{1}{5} \times 4 = \frac{4}{5}$

3 $\frac{5}{8}$ kg

Page 184: Practise

In question 2, learners use the TWM skill of 'classifying'.

1 **a** Check that learners have described the ratios using 'for every' and written them with the ratio symbol.
For every 1 triangle there are 3 hexagons → 1 : 3
For every 3 hexagons there is 1 triangle → 3 : 1
For every 4 circles there are 3 squares → 4 : 3
For every 3 squares there are 4 circles → 3 : 4

b 1 in every 4 shapes is a triangle → $\frac{1}{4}$
3 in every 4 shapes are hexagons → $\frac{3}{4}$
4 in every 7 shapes are circles → $\frac{4}{7}$
3 in every 7 shapes are squares → $\frac{3}{7}$

2 **a** 6 odd to 4 even numbers → 6 : 4
3 even to 3 prime to 4 square numbers → 3 : 3 : 4
3 even to 3 prime to 4 square numbers → 3 : 3 : 4
5 positive to 2 zero to 3 negative numbers → 5 : 2 : 3

b Proportion each time as a percentage:
60 % and 40 %
30 %, 30 % and 40 %
30 %, 30 % and 40 %
50 %, 20 % and 30 %

3 **a** $\frac{3}{6}$ or $\frac{1}{2}$ or 50 % **b** $\frac{3}{6}$ or $\frac{1}{2}$ or 50 %

c

Child 1	Child 2	Child 3
$\frac{12}{20}$ or $\frac{6}{10}$ or $\frac{3}{5}$ or 60 %	$\frac{14}{20}$ or $\frac{7}{10}$ or 70 %	$\frac{15}{20}$ or $\frac{3}{4}$ or 75 %

Child 4	Child 5	Child 6
$\frac{10}{20}$ or $\frac{5}{10}$ or $\frac{1}{2}$ or 50 %	$\frac{16}{20}$ or $\frac{8}{10}$ or $\frac{4}{5}$ or 80 %	$\frac{11}{20}$ or 55 %

Page 185: Quiz

1 **a** $\boxed{30}$ % = $\frac{3}{10}$ **b** 60 % = $\frac{\boxed{60}}{100}$

c 80 % = $\frac{8}{\boxed{10}}$ **d** $\frac{1}{\boxed{2}} > \frac{4}{10}$

2 **a** $\frac{3}{5} + \frac{7}{10} = \frac{13}{10}$ **b** $\frac{8}{8} - \frac{3}{4} = \frac{2}{8}$

c $\frac{7}{9} + \frac{1}{3} = \frac{10}{9}$ **d** $\frac{9}{10} - \frac{7}{20} = \frac{11}{20}$

3 **a** $\frac{1}{6} \times 3 = \frac{3}{6}$ **b** $\frac{1}{8} \times 3 = \frac{3}{8}$

c $\frac{1}{10} \times 3 = \frac{3}{10}$ **d** $\frac{1}{3} \div 6 = \frac{1}{18}$

e $\frac{1}{3} \div 8 = \frac{1}{24}$ **f** $\frac{1}{3} \div 10 = \frac{1}{30}$

4 **a** 3 : 4 : 4 **b** $\frac{4}{11}$

Workbook answers page 88:

Can you remember?

$\frac{3}{5} + \frac{\mathbf{2}}{\mathbf{5}} = \frac{7}{10} + \frac{\mathbf{3}}{\mathbf{10}} = 1$ $\frac{\mathbf{3}}{\mathbf{8}} + \frac{5}{8} = \frac{\mathbf{7}}{9} + \frac{\mathbf{2}}{9} = 1$ (Accept any correct combination.)

Greater than, less than, equal

Learners use the TWM skills of 'generalising' and 'specialising' in question 3.

1 Learners should have circled the following quantities:

a $\frac{60}{100}$

b 30%

c 1.1

d 10%

2 **Smallest** Circle 30%, Triangle 0.5, Hexagon $\frac{70}{100}$, Pentagon $\frac{9}{10}$, Rectangle 100%, Square 1.3 **Largest**

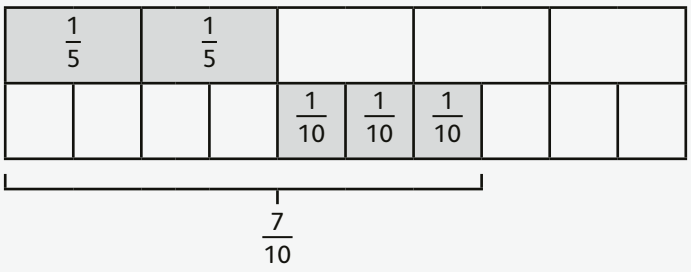
3 50%, 60% or 70%

Workbook answers page 89:

Adding and subtracting fractions

Learners use the TWM skills of 'critiquing' and 'improving' in question 1.

1 Learners should notice that the top row does not show 5 equal parts, so Pia has shown two parts of $\frac{1}{5}$ as $\frac{3}{10}$, and completed the calculation as $\frac{5}{10} + \frac{3}{10} = \frac{8}{10}$. Learners should draw a correct diagram to show the answer as $\frac{7}{10}$.



2 **a** $\frac{3}{4} + \frac{3}{8} = \frac{\mathbf{9}}{\mathbf{8}}$ **b** $\frac{3}{4} - \frac{3}{8} = \frac{\mathbf{3}}{\mathbf{8}}$ **c** $\frac{2}{3} + \frac{5}{12} = \frac{\mathbf{13}}{\mathbf{12}}$ **d** $\frac{11}{12} - \frac{2}{3} = \frac{\mathbf{3}}{\mathbf{12}}$

3 Sanchia: $\frac{13}{8}$ km Elok: $\frac{3}{8}$ km

Workbook answers pages 89–90:

Multiplying and dividing unit fractions by a whole number

Learners use the TWM skill of 'convincing' in question 3.

1 **a** $\frac{1}{6} \times 5 = \frac{5}{6}$ **b** $\frac{1}{4} \div 5 = \frac{1}{20}$

2 **a** $\frac{1}{4} \times 2 = \frac{\mathbf{2}}{\mathbf{4}}$ **b** $\frac{1}{4} \div 2 = \frac{\mathbf{1}}{\mathbf{8}}$

c $\frac{1}{5} \times 3 = \frac{\mathbf{3}}{\mathbf{5}}$ **d** $\frac{1}{5} \div 3 = \frac{\mathbf{1}}{\mathbf{15}}$

e $\frac{1}{6} \times 4 = \frac{\mathbf{4}}{\mathbf{6}}$ **f** $\frac{1}{6} \div 4 = \frac{\mathbf{1}}{\mathbf{24}}$

3 Learners should sketch diagrams and write the following divisions to show that:

$\frac{1}{3} \div 2 = \frac{1}{6}$ $\frac{1}{3} \div 3 = \frac{1}{9}$ $\frac{1}{3} \div 4 = \frac{1}{12}$

4 $\frac{7}{8}$km

Workbook answers page 91:

Ratio and proportion

1 **a** Learners should colour in either: 2 red, 5 yellow, 2 red, 5 yellow *or* 4 red and 10 yellow.

2 **a** 4:6 **b** 6:4

c $\frac{4}{10}$ **d** $\frac{6}{10}$

e 40 % and 60 % (or vice versa)

3 **a** 16
b 6
c 4

Unit 18 Time – Answers

Learner's Book

Pages 187–188: Practise

1

Time in New York	Time in Lagos	Time in Perth
07:00	12:00	**20:00**
07:45	12:45	**20:45**
08:45	13:45	**21:45**
09:00	**14:00**	**22:00**
09:30	**14:30**	**22:30**
10:30	**15:30**	23:30
09:45	**14:45**	22:45

2 **a** 12:45 **b** 10:45
c Quarter past 3 in the afternoon (15:15) **d** Quarter past 3 in the morning (03:15)
e Half-past one in the morning **f** Half-past seven in the evening

3 **a** Mumbai or Delhi **b** Cape Town, Johannesburg, Cairo
c Buenos Aires
d Answers will require looking for cities not labelled on the map but could include North America.

4 **a** Learners' answers will vary. You could check that they are correct as a class.
b Learners' answers will vary. You could check that they are correct as a class.

Page 190: Practise

In question 2, learners use the TWM skills of 'generalising' and 'conjecturing'.

1

Lesson	Start Time	End time
Art	09:30	**10:15**
Maths	11:20	**12:05**
PE	**12:30**	13:15
Science	**13:20**	14:05
History	14:20	**15:05**
Computers	**15:30**	16:15

2 **a** 08:31, 10:29 **b** 20:31, 22:29 **c** 09:36, 11:34
d 21:36, 23:34 **e** 10:51, 12:49 **f** 22:51, 00:49
Learners' explanations of what they notice will vary, but they should say something about noticing that there is a difference of two minutes in the minutes of each set of times.

3 Answers will vary, but learners should be able to justify their responses.

Page 191: Quiz

1 Jin finishes the race at 13:35.

2 When it is 09:30 in New York, it is 16:30 in Cairo.

Workbook answers pages 93–94:

Can you remember?

a Learners should circle these dates on the calendar: 7, 14, 21, 28
b 25 March
c 6 May
d May 5, 12, 19 and 26

Time zones

1 Answers will vary according to learners' choices, but they should be able to justify their answers based on annotations on the time zone map.

2

a Tokyo

b Buenos Aires

c Stockholm

d Delhi

e Johannesburg

f Guangzhou

g Nuuk

h Ontario

Workbook answers pages 94–95:

Calculating start and end times

1 a

a.m.

b

a.m.

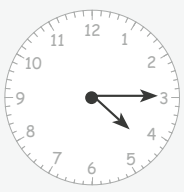
c

a.m.

d

p.m.

e



a.m.

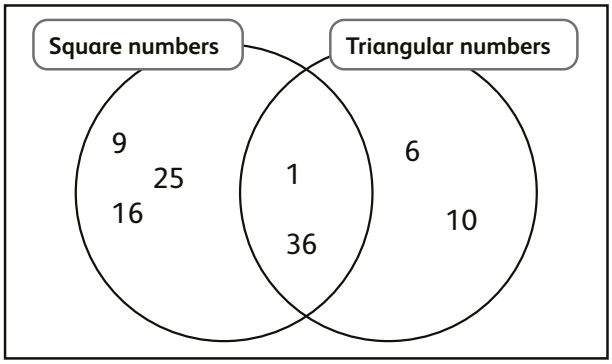
2 Learners' game-playing will vary. Learners should record their results in the table.

Term 3 Review – Answers

Units 13–18

Page 192

1



2 **a** Check that learners have drawn why 7 is a prime number as a 1 × 7 and a 7 × 1 array.
b Check that learners have drawn a 2 × 4 array or a 4 × 2 array to show that 8 has factors other than itself and 1.

3 **a** Divisible by 4: 824, 200, 548, 2 616
b Also divisible by 8: 824, 200, 2 616

4 Star = 15 each Cloud = 85

5 **a** 4.36 + 1.47 = 5.83 6.75 – 1.53 = 5.22

b 7 × 4 = 28 0.7 × 4 = 2.8 0.4 × 7 = 2.8

6 **a** $\frac{1}{5} \times 5 = 1$

b $\frac{1}{8} \times 6 = \frac{6}{8}$

c $\frac{1}{4} \div 3 = \frac{1}{12}$

d $\frac{1}{10} \div 4 = \frac{1}{40}$

7 Answers will vary. Learners should be able to use a mirror or tracing paper to check and justify their reasoning.

8 Median: 16 years Mode: 12 years

9 13:15, or 1:15 p.m.

Stage 5

Online resources – Answers

Unit 3: Calculation

Worksheet 1: Always, sometimes, never

Step 1: Learners' 4-digit numbers will vary, but we will use, for example: 3 198
Step 2: Largest number is 9 831; smallest number is 1 389.
Step 3: 9 831 – 1 389 = 8 442
Step 4: Largest number is 8 442; smallest number is 2 448.
Step 5: 8 442 – 2 448 = 5 994
Step 6: Largest number is 9 954; smallest number is 4 599.
9 954 – 4 599 = 5 355
Is the sentence always true, sometimes true or never true?
Decision: In this case, the answer was **never true** because the answer was never 6 174.

Worksheet 2: Products

Learners' 4-digit numbers will vary, but we will use, for example: 8 479

1 Largest product, for example: 974 × 8 = 7 792 or 98 × 74 = 7 252

2 Smallest product, for example: 478 × 9 = 4 302 or 47 × 89 = 4 183

3 Learners' four digits to get a product that is as close to 3 000 will vary, for example: 341 × 9 = 3 069

Unit 6: Fractions, decimals, percentages and proportion

Worksheet 3: What's the problem?

1 Learners' problem will vary, for example:
The diagram shows that 40% ($\frac{40}{100}$ or $\frac{4}{10}$ or $\frac{2}{5}$) of the 100 seats were filled.
How many seats were empty? (60% or $\frac{60}{100}$ or $\frac{6}{10}$ or $\frac{3}{5}$)

2 Observe learners as they try to convince their partner that the diagram represents their problem.

Worksheet 4: Mixed numbers

Learners' numbers, improper fractions and mixed numbers will vary.
Check that they understand what they need to do and offer help if needed.
Check that learners place five of their numbers correctly on the number line.

Unit 7: Number

Worksheet 5: Decimal digits

Check that all learners are able to make decimal numbers and position them correctly on the number line.

Worksheet 6: Secret sequences

Learners' sequences will vary. Check that everyone knows what they must do to play the game.

Unit 9: Calculation

Worksheet 7: Theatre tickets

	My calculations	Total
Week 1	6 × 325	1 950
Week 2	8 × 325	2 600
Week 3	3 × 325	975
Week 4	9 × 325	2 925
Four-week total	**26 × 325**	**8 450**

Worksheet 8: Shape puzzle

Total area of shaded shape is:
Big square is 16 squares + 1 (outside the two large squares) + 8 = 25 squares in total
So 25 × 25 cm^2
= 625 cm^2

Worksheet 9: Spin to win

The results of learners' spinning during the game will vary.
Make sure that they take turns with their partner to spin the three spinners and use their results to make a three-digit number.
Then they must multiply their three-digit number by 26, and repeat these steps five times. Each time, they must add their total to the number they made on their previous turn. They should record all their numbers in the table provided.
Make sure all learners understand that the winner is the player with the total that is closest to 40 000 after the five turns. (The winning total can be more or less than 40 000, as long as it is the closest.)

Worksheet 10: 268

1 268 ÷ 8 = 33.5 groups of eight chairs

2 268 ÷ 8 = 33.5 tents, so 34 tents will be needed to sleep 268 people (some learners may say that the 34th tent will only have four people in it; it will be half-full)

3 268 ÷ 8 = 33.5 eight-litre containers; there will be four litres of water in the last container

Unit 11: Fractions, decimals, percentages and proportion

Worksheet 11: Percentages problem

Pia is wrong. There are 12 squares in the shape.
Five of the 12 squares are shaded = $\frac{5}{12}$.
As a decimal, this is 41.67. As a percentage: 41.67%.

Unit 13: Number

Worksheet 12: Multiplication and division

1

1 287		
429	429	429

2

276					
46	**46**	**46**	**46**	**46**	**46**

3

2 000				
535	535	**310**	**310**	**310**

Worksheet 13: Adding fractions

Total is less than 1	Total is equal to 1	Total is greater than 1
$\frac{4}{9} + \frac{3}{9} = \frac{7}{9}$	$\frac{3}{4} + \frac{1}{4} = \frac{4}{4} = 1$	$\frac{4}{9} + \frac{9}{9} = \frac{13}{9} = 1\frac{4}{9}$
$\frac{3}{10} + \frac{1}{10} = \frac{4}{10}$	$\frac{7}{8} + \frac{1}{8} = \frac{8}{8} = 1$	$\frac{6}{12} + \frac{8}{12} = \frac{14}{12} = 1\frac{2}{12} = 1\frac{1}{6}$
$\frac{11}{20} + \frac{7}{20} = \frac{18}{20} = \frac{9}{10}$	$\frac{5}{8} + \frac{3}{8} = \frac{8}{8} = 1$	

Check that learners add some more additions to go in each group.
Observe learners as they convince their partner of their choices.

Unit 18: Time

Worksheet 14: Time zones

Encourage learners to use this worksheet as support during the *Time zones* sub-unit in the Learner's Book.

Worksheet 15: Calendar clues

1 Check that learners have completed the calendar correctly by following the clues.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

2 All the months of the year that have 30 days are: April, June, September, November.

3 Check that all learners were able to give their own clues and challenge a partner to complete their calendar.

Stage 5

ESL online resources – Answers

ESL Worksheet 1: Number and calculation

Using the comparative and superlative form

1 **a** The length of a Northern bottlenose whale rounds to **9** m (to the near**est** whole number).
b The Pygmy right whale is the short**est**. Its length rounds to **6** m (to the near**est** whole number).
c The Pygmy right whale is **shorter** than the Blue whale.
d The Blue whale is the **longest**.
e The sound of Sperm whale song travels for more than (round 99.7) **100** thousand km.
The song travels far**ther** than the song of a Northern bottlenose whale.
f The song of the Blue whale travels the **farthest**.

2 Check the sentences that learners write, to compare the whales.

ESL Worksheet 2: Probability

Using the present continuous tense with a future meaning

1 **a** I **played** soccer after school today.
What is the probability that it is a weekday? **Likely**

b We **are going** to school tomorrow.
What is the probability that it is a weekday? **Certain**

c I **am having** my birthday party this afternoon.
What is the likelihood that it is Saturday? **Certain**

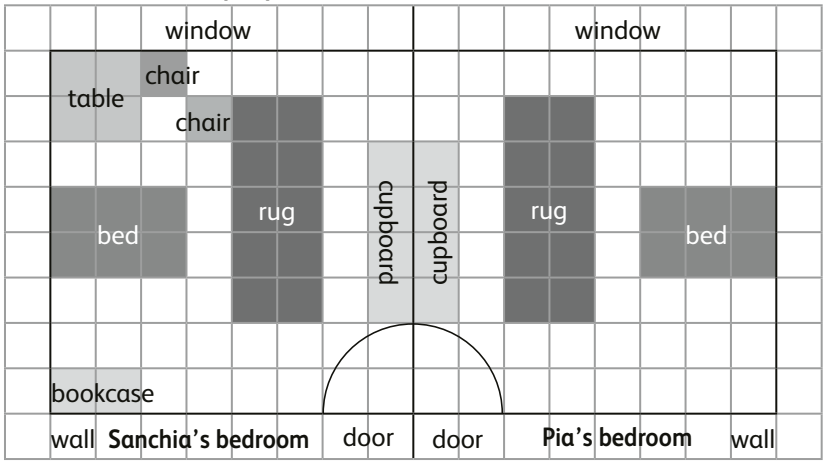
d We **are playing** a sports match the day after tomorrow.
How likely is it that today is a weekday? **Very likely**

e My family **are taking** a hot-air balloon ride this afternoon.
What is the likelihood that it is a weekday? **Impossible**

2 Learners must write their own sentence about Banko's week. Check that the sentences make sense.

ESL Worksheet 3: Angles and shapes, location and direction

Instructions and prepositions of location



1 As shown in the grid above

2 As shown in the grid above

3 No. The rug will not fit between her cupboard and her bed.

4 Learners' suggestions will vary. For example, Sanchia could put her table in the corner where the window is, one square to the left of her bed.

5 The chair is marked on the grid.

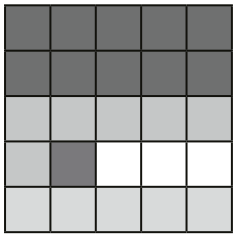
6 The new position of the chair is marked on the grid.

7 Learners' instructions will vary, depending on where they think Pia is, in the room.

ESL Worksheet 4: Statistical methods

Using question words

1 Learners' colouring in of the waffle diagram will vary. This is an example.



2 **a** **Who conducted** the class survey?
b **When** did they record the class survey?
c **How many** learners **took** part in the survey?
d **Which** type of chart did Sanchia and Jin use to record their results?
e **Why did** they ask learners these questions?

2 **a** **What** proportion of the learners **liked** chocolate the best? Answer: **$\frac{10}{25}$ or $\frac{2}{5}$ or 40%**

b **What** flavour was **chosen** by 24% of the learners? Answer: **Strawberry**

3 Check that learners come up with mathematical questions about the waffle diagram that make sense. Listen and observe as they ask their partner to answer them.

ESL Worksheet 5: Fractions, decimals, percentages and proportion

Explaining concepts

1 **a** The whole rectangle consists of **5** blocks.
b The blue part is **2** blocks. Write this as a fraction. $\frac{2}{5}$
c The orange part is **3** blocks. Write this as a fraction. $\frac{3}{5}$

2 $\frac{2}{5}$ or 40%

3 2 : 3

4 **a** There are 40 squares in total. So:

Bed = $\frac{6}{40} = \frac{3}{20}$ = 15%

Rug = $\frac{4}{40} = \frac{2}{20} = \frac{1}{10}$ = 10%

Cupboard = $\frac{4}{40} = \frac{2}{20} = \frac{1}{10}$ = 10%

Desk = $\frac{2}{40} = \frac{1}{20}$ = 5%

Total is $\frac{16}{40}$ or 40%

ESL Worksheet 6: Time

Time zones and zero conditionals

1 Learners must use the map to calculate the correct time zones.

a If it is 8 o'clock in Sydney, the time in Buenos Aires is **19:00 the previous day**.

b If it is 11 o'clock in Los Angeles, the time in Johannesburg is **20:00**.

c If it is 10 a.m. in Stockholm, the time in Nuuk is **6** a.m.

d If it is 3 p.m. in Beijing, it is **9 a.m.** in Cairo.

e If it is 12 o'clock in Moscow, it is **6** o'clock in Tokyo.

2 Check learners' two sentences in which they must use the zero conditional and time zones.