

Answer key

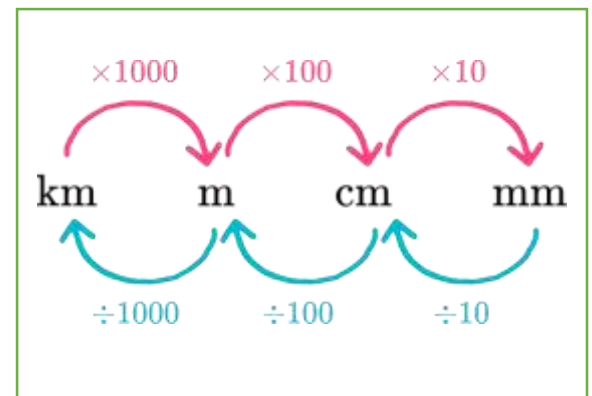
Learner's book Unit 3

Ex 3.1 Pages (66-69)

Exercise 3.1

- 1 **a** i 1000 ii one thousand
b i 100 000
ii one hundred thousand
c i 10 000 000 ii ten million
d i 10 ii ten
- 2 **a** 10^2 **b** 10^8 **c** 10^4 **d** 10^{10}
- 3 **a** 30 000 **b** 5 000 000
c 4 500 000 **d** 291 000
- 4 Yes
- 5 **a** 2300 **b** 7 680 000 **c** 9 000 000
- 6 **a** 420 **b** 65 000
c 12 700 **d** 2 870 000
- 7 **a–c** Learner's own answers.
d Marcus' method doesn't work because the number being multiplied has decimal places.
- 8 **a** 47 000
b 91 500
c 3 300 000
- 9 **a** 1500 **b** 10^2 **c** 6.12 **d** 6
- 10 **a** 8 **b** 805
- 11 Yes, as long as there are enough zeros to cross off.

16 a	80	b	150
c	7000	d	3400
e	9000000	f	600000
g	124	h	32250000



17 a 8 km
b number of km = number of mm $\div 10^6$
c **i** 90 **ii** 15.6 **iii** 0.77

Exercise 3.2

- 1** **b** 8.42 **c** 39.56 **d** 0.49
 e 138.22 **f** 0.07
- 2** **a** Sofia
- b** Arun rounded to one decimal place, as he has only written one digit after the decimal place.
- 3** Any distance from 9.545 km to 9.554999999... km.
- 4** **a** 12.894 **b** 127.997
 c 0.201 **d** 9.350
- 5** **a** Learner's own answers.
- b** Easy to follow method that shows workings. More difficult to make a mistake because the rounding is done in easy steps.
- c** Learner's own answers.
- d** Draw a line after the digit in the sixth decimal place, circle the digit in the seventh decimal place, then decide whether to increase the digit before the line by 1 (if the circled number is 5, 6, 7, 8 or 9) or leave it unchanged (if the circled number is 0, 1, 2, 3 or 4).
- 6** **a** B **b** C **c** A
- 7** **a** 126.9923 **b** 0.8
 c 782.030 **d** 3.1415927
 e 4.00 **f** 100.0
- 8** **a** A and c and iv; B and a and iii; C and e and i; D and b and vi; E and f and ii; F and d and v

Exercise 4.1

- 1** **a** 9.99 **b** 3.67 **c** 12.56
 d 127.06 **e** 0.67 **f** 3.21
 g 18.45 **h** 0.043 **i** 0.09
- 2** **a** 10.49, 10.64, 10.65, 10.73, 10.74, 10.75
 b Shelly-Ann Fraser
- 3** No; looking at the tenths, 2 is less than 4.
- 4** **a** < **b** < **c** < **d** >
 e > **f** < **g** > **h** >
- 5** **a** = **b** ≠ **c** ≠
 d = **e** = **f** ≠
- 6** **a** 2.009, 2.15, 2.7
 b 3.2, 3.342, 3.45
 c 17.05, 17.1, 17.125, 17.42
 d 0.52, 0.59, 0.71, 0.77
 e 5.199, 5.2, 5.212, 5.219
 f 9.03, 9.08, 9.7, 9.901, 9.99

Ex 4.2 Pages (83-87)

Exercise 4.2

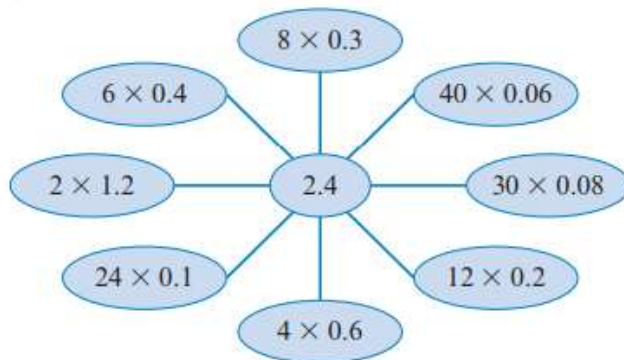
- 1** **a** 7.7 **b** 17.2
 c 3.4 **d** 8.0
- 2** Learner's own answer.
- 3** $1 - 0.36 = 0.64$, $1 - 0.78 = 0.22$, $1 - 0.44 = 0.56$,
 $1 - 0.284 = 0.716$, $1 - 0.432 = 0.568$
- 4** **a** 4.8 **b** 5.4 **c** 2.7 **d** 9.4
- 5** No, she must subtract the extra 0.2 to
 give 12.3.
- 6** **a** 12.2 **b** 18.5 **c** 26.1
 d 3.5 **e** 10.5 **f** 14.4
- 7** **a** 34.21 **b** 4.66 **c** 29.13
- 8** **a** July **b** 86.53 kg
- 9** **a** 17.28 **b** 33.342
-
- 11** **a** 3.58 **b** 7.17
 c 25.45 **d** 23.218
- 12** **a** \$7.35 **b** \$2.65
- 13** **a** 8.6m **b** 1.4m
- 14** **a** -4.14 **b** -7.28
 c -5.88 **d** -2.979
- 15** **a** -15 **b** -23.52
 c 4.14 **d** 7.28

Exercise 4.3

1 a 0.8 b 2.5 c 1.8

2 a 0.12 b 1.2 c 0.012 d 12

3



4 a 2761.3 b 276.13

5 a $52.1 \times 53 = 2761.3$, the answers are the same.

b 521 is 100×5.21 and 0.53 is $53 \div 100$, so the $\times 100$ and $\div 100$ cancel each other out.

6 a 5508

b i 550.8 ii 55.08 iii 5.508

iv 550.8 v 55.08 vi 5.508

- 8 a** 166.4; check: $3 \times 50 = 150$
b 3110.4; check: $8 \times 400 = 3200$
c 31.98; check: $0.8 \times 40 = 32$
- 9 a** An approximate answer of $50 \times 20 = 1000$.
 85.23 is too far from 1000 for it to be correct.
b 852.3
- 10** 8.28 g
- 11** He will get \$354.75, which is just over \$350, so yes he is correct.
- 12** $\$91 + \$97.75 + \$88 + \$108 = \$384.75$

Ex 4.4 Pages (93-95)

Exercise 4.4

- 1 a** 2.138 **b** 1.877 **c** 0.816
d 1.308 **e** 1.092 **f** 0.094
- 2 a** 4.327 **b** 1.487
c 6.585 **d** 7.364
- 3** \$1.16
- 4** \$3.65
- 5** \$24.25
- 6 a** 2.321 **b** 3.125 **c** 31.313
- 7 a** Lara forgot to write the '0' above the 4.
b 7.025

- 11 a i** 235 **ii** 23.5
iii 2.35 **iv** 0.235
b Learner's own answer.
c i 4.7 **ii** 0.47 **iii** 0.047

Unit 5

Ex 5.1 Pages (106+107)

Exercise 5.1

- 1 a 64° b 125° c 96° d 56°
2 a 110° b 168° c 204° d 228°
3 a 120° b 72°
4 a 74° b 62° c 117°
5 110°
6 a 92° b 223° c 53°
7 The angles must all be 90° . It must be a square or a rectangle.
-

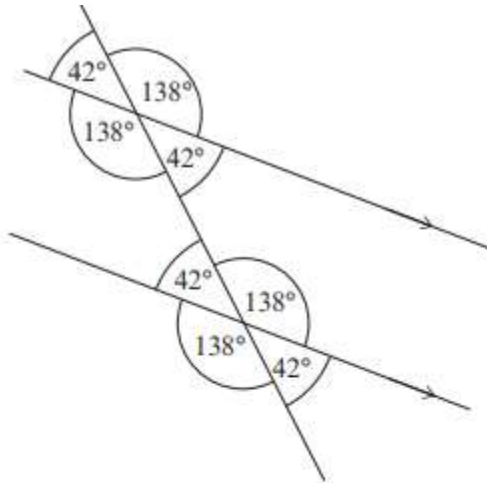
- 8 a $125^\circ + 160^\circ + 90^\circ = 375^\circ$. This is impossible. The sum of the three angles should be less than 360° .
b Learner's own answer.
9 $66\frac{2}{3}^\circ$
10 Opposite angles are equal, so $y = 68^\circ$,
 $x = z = 112^\circ$.
-

Ex 5.2 Pages (111-113)

Exercise 5.2

- 1 a $x = 53^\circ$, $y = 127^\circ$
b $w = 114^\circ$, $z = 66^\circ$
2 87° , 93° , 93°
3 $a = 180^\circ - (61^\circ + 46^\circ) = 73^\circ$, angles on a straight line; $b = 61^\circ$, opposite angle; $c = 46^\circ$, opposite angle; $d = 73^\circ$, opposite a
-

4



5 $a = 113^\circ, b = 67^\circ, c = 67^\circ$

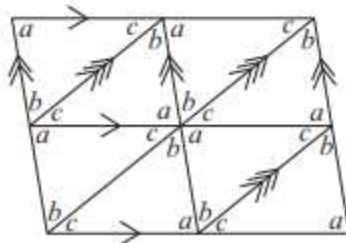
6 $a = 77^\circ, b = 77^\circ, c = 103^\circ$

7 $s = 75^\circ, t = 105^\circ$

8 a For example: If the lines are parallel, the angles add up to 180° . But $56^\circ + 126^\circ = 182^\circ$, so the lines are not parallel. Other explanations are possible.

b Learner's own answer.

9 a, b



There are three sets of three parallel lines.

- 10 a** 75°
b 30°
c 1°
d Yes; the two marked angles in the triangle must add up to less than 180° . If one angle is 60° , X must be less than 120° . This angle could be a fraction more than 119° , such as 119.5° , but it cannot be 120° or more.
- 11** $C = 113^\circ$, $D = 135^\circ$
- 12 a** The angles add up to
 $90^\circ + 90^\circ + 60^\circ + 60^\circ + 60^\circ = 360^\circ$.
-

Workbook (for more practice)

Ex. 3.1 Pages (44+45)

Exercise 3.1

- 1** A and iii because $1000 = 10^3$.
B and v because $100 = 10^2$.
C and i because $100\,000 = 10^5$.
D and ii because $10\,000\,000 = 10^7$.
E and iv because $10\,000 = 10^4$.
- 2** **a** $6 \times 10^4 = 6 \times 10\,000 = 60\,000$
b $9 \times 10^4 = 9 \times 10\,000 = 90\,000$
c $3 \times 10^4 = 3 \times 10\,000 = 30\,000$
- 3** **a** $2 \times 10^5 = 2 \times 100\,000 = 200\,000$
b $7 \times 10^5 = 7 \times 100\,000 = 700\,000$
c $5 \times 10^5 = 5 \times 100\,000 = 500\,000$
- 4** **a** B **b** A **c** C
- 5** **a** 8 **b** 20 **c** 40
d 9 **e** 3 **f** 500
-

6 a A b C c B d C

7 a 5600 b 8 770 000 c 13 000 000

d 65 000 e 33 200 f 650 000

8 a 37 000 b 10^3 c 8.9 d 10^7

9 a 9 b 52 c 80

10

	$\div 10^2$	$\div 10^3$	$\div 10^4$	$\div 10^5$	$\div 10^6$
400 000	4000	400	40	4	0.4
56 000	560	56	5.6	0.56	0.056
3000	30	3	0.3	0.03	0.003
720	7.2	0.72	0.072	0.0072	0.00072

11 a B b A c C

Exercise 3.2

- | | | | |
|----------|-------------------|-------------------|----------------|
| 1 | a 4.5 | b 3.7 | c 8.8 |
| | d 7.2 | e 2.4 | f 4.1 |
| 2 | a B | b B | c A |
| | d A | e B | |
| 3 | a 2.47 | b 8.66 | c 3.31 |
| | d 8.07 | e 1.94 | f 2.42 |
| 4 | a B | b A | c A |
| | d B | e B | |
| 5 | a 4.98 | b 9.04 | c 24.33 |
| | d 128.64 | e 0.67 | f 0.03 |
| 6 | a 7.285 | b 65.882 | |
| | c 134.903 | d 0.679 | |
| | e 300.004 | f 0.009 | |
| 7 | a 3.8826 | b 61.8902 | |
| | c 143.5623 | d 200.0068 | |
| | e 300.0006 | f 18.2525 | |
| 8 | a B | b A | c A |
| 9 | 0.00660mm | | |
-

Ex 4.1 Pages (52+53)

7 a 9.58, 9.69, 9.72, 9.78, 9.79, 9.84

b Asafa Powell

8 a < **b** > **c** < **d** >

e > **f** < **g** > **h** >

9 a = **b** ≠ **c** ≠

d = **e** = **f** ≠

10 a 2.66, 4.41, 4.46, 4.49

b 0.52, 0.59, 0.71, 0.77

c 6.09, 6.9, 6.92, 6.97

d 5.199, 5.2, 5.212, 5.219

e 42.4, 42.42, 42.441, 42.449

f 9.04, 9.09, 9.7, 9.901, 9.99

Ex 4.2 Pages (54-56)

Exercise 4.2

- | | | | | | | |
|----------|----------|--------|----------|-------|----------|-------|
| 1 | a | 97 | b | 81 | c | 132 |
| | d | 439 | e | 598 | f | 363 |
| 2 | a | 5.5 | b | 9.1 | c | 15.2 |
| | d | 76.2 | e | 82.8 | f | 9.33 |
| 3 | a | 11.8 | b | 13.1 | | |
| | c | 18.2 | d | 3.79 | | |
| 4 | a | 36 | b | 28 | c | 815 |
| | d | 5.3 | e | 3.6 | f | 2.18 |
| 5 | a | 1.4 | b | 3.6 | c | 7.62 |
| 6 | a | 7.8 | b | 17.8 | c | 15.2 |
| | d | 5.4 | e | 11.2 | f | 7 |
| 7 | a | B | b | A | | |
| 8 | a | 9.2 | b | 17.6 | c | 12.1 |
| | d | 4.4 | e | 5.1 | f | 4.7 |
| 9 | a | 7.82 | b | 13.32 | c | 30.18 |
| | d | 122.17 | e | 2.22 | f | 1.8 |
| | g | 19.08 | h | 39.04 | i | 20.73 |

-
- | | | | | |
|-----------|----------|--------|----------|---------|
| 10 | a | May | b | 8.98 kg |
| 11 | a | 6.26 | b | 6.44 |
| | c | 27.817 | d | 14.339 |
| 12 | a | \$4.10 | b | \$0.90 |
| 13 | a | 6.55 m | b | 1.45 m |
-

Exercise 4.3

- 1 a 8
b 60, 0.6
c 150, 15
d 350, 35, 3.5
e 1800, 180, 18, 1.8
f 4200, 420, 42, 4.2
- 2 Learner's own answers.
- 3 b $2 \times 8 = 16$, so $0.2 \times 8 = 1.6$.
c $4 \times 4 = 16$, so $0.4 \times 4 = 1.6$.
d $7 \times 9 = 63$, so $0.7 \times 9 = 6.3$.
e $5 \times 5 = 25$, so $0.5 \times 5 = 2.5$.
- 4 2.5, 3, 3.5, 4, 4.5, 5
- 5 a 22.4 b 9 c 7.2
d 18.4 e 44.5 f 18.4
- 6 a 0.6 b 0.8 c 2.4
d 3 e 4.9 f 4.8
- 7 a 0.18 b 1.8
c 0.018 d 18
- 8 a 0.6 b 4 c 0.5
d 6 e 3.8 f 0.4, 2
- 9 1.5g
- 10 a 6608
b i 660.8 ii 66.08 iii 6.608
iv 660.8 v 66.08 vi 6.608
-

- 11 a** $163.2, 5 \times 30 = 150$
b $999.6, 2 \times 500 = 1000$
c $22.72, 0.3 \times 70 = 21$
d $361.95, 0.6 \times 600 = 360$

12 0.77 g

13 1415.25 kg

Ex 4.3 Pages (59-60)

Exercise 4.4

- | | | | | | | |
|-----------|----------|--------|----------|-------|----------|-------|
| 1 | a | 21 | b | 2.1 | c | 0.21 |
| | d | 14 | e | 1.4 | f | 0.14 |
| 2 | a | 2.1 | b | 2.3 | c | 1.3 |
| | d | 2.8 | e | 0.7 | | |
| 3 | a | 231 | b | 23.1 | c | 2.31 |
| | d | 352 | e | 35.2 | f | 3.52 |
| 4 | a | 4.13 | | | | |
| | b | 3.11 | | | | |
| | c | 1.21 | | | | |
| | d | 3.11 | | | | |
| | e | 9.01 | | | | |
| 5 | a | 1.232 | b | 3.172 | c | 1.122 |
| 6 | a | 1.176 | b | 1.279 | c | 1.117 |
| | d | 1.788 | e | 1.369 | f | 0.256 |
| 7 | a | 2.314 | b | 1.321 | | |
| | c | 5.569 | d | 0.122 | | |
| 8 | | \$1.49 | | | | |
| 9 | | \$1.26 | | | | |
| 10 | a | 3.226 | | | | |
| | b | 7.451 | | | | |
-

Ex. 5.1 Pages (66+67)

Exercise 5.1

1 **a** 43° **b** 111°

2 **a** 195°

b 147°

c 115°

3 **a** 60° **b** 105°

4 XY is not a straight line because $54^\circ + 124^\circ \neq 180^\circ$.

5 75°

6 $a = 80^\circ, b = 65^\circ$

7 $62^\circ, 118^\circ, 118^\circ$

8 $95^\circ + 150^\circ + 125^\circ = 370^\circ$ and because this is more than 360° the diagram is impossible.

9 $y = 360^\circ - (60^\circ + 60^\circ + 90^\circ) = 150^\circ$

Exercise 5.2

- 1 **a** perpendicular
 b perpendicular
 c parallel
 - 2 $x = 38^\circ, y = 142^\circ, z = 38^\circ$
 - 3 $a = 99^\circ, b = 81^\circ, c = 99^\circ, d = 99^\circ$
 - 4 $a = 69^\circ, b = 57^\circ, c = 54^\circ$
 - 5 $a = 67^\circ, b = 64^\circ, c = 113^\circ$
 - 6 $w = 75^\circ, x = 105^\circ, y = 80^\circ, z = 25^\circ$
 - 7 $x = 60^\circ$
 - 8 Statement C is correct. You do not know the angle between EF and CD or the angle between AB and GH . The lines are parallel if these angles are 55° .
-