

53 a

Distance from home in km (d)	Time of Journey in hours (t)
17	1
19	2
21	3
23	4
25	5
37	11

- b gradient 2, travel at a speed of 2 km/h
 c intercept is 15, start at a distance 15 km from home
 d $d = 2t + 15$

54 a $1\frac{1}{9}$ b 18

55 You can't fit the angles of a pentagon together to make 360° , since the interior angle of a regular pentagon is 108° ($3 \times 108^\circ = 324^\circ$ and $4 \times 108^\circ = 432^\circ$).

56 a 1.41 cm b 14.1 cm c 141 cm

57 a $P = 37.7$ cm, $A = 102.5$ cm²

b $P = 27.9$ cm, $A = 44.6$ cm²

58 a 0.84 b 0.21

59 5.83 m

60 a 5 b 3.2

Chapter 11

Check in

1 a mm, cm, m, km b g, kg, t c ml, l

2 a Unlimited number of answers, for example 10 : 6, 15 : 9, 500 : 300

b Unlimited number of answers, for example 8 : 14, 16 : 28, 40 : 70

3 a 5 : 8 b 2 : 3 c 4 : 5 d 4 : 1 : 3

Exercise 11A

1 a 189 cm, 216 cm b \$95, \$19, \$114
 c 90 g, 150 g d 32 cm, 48 cm
 e 390 ml, 520 ml f 24 mins, 56 mins, 40 mins

2 $A = 45^\circ$, $B = 75^\circ$, $C = 60^\circ$

3 a she has divided by the total number of shares not just the shares there are more of

b $56 + 2 = 28$
 Kamil gets $3 \times 28 = \$84$
 Sean gets $5 \times 28 = \$140$
 (Check $140 - 84 = 56$)

4 3

5 1400 g

6 117, 52

7 306

8 Isosceles

9 a i 0.5 ii 0.5
 b 15 red, 40 blue, 25 black

10 \$120, \$84

11 30° , 165° , 105° , 60°

12 165

13 2 and 0.72

14 12 : 5

15 a False. The proportion of women is $\frac{15}{39}$

b False. The correct ratio is 14 : 15

c True

d Not possible to say, because we don't know the actual numbers of people in the group. The 3 : 2 : 3 ratio would apply only if there were 40 people in total, including the additional child.

Investigation

Amira \$480, Beth \$400, Cassie \$320

Exercise 11B

1 a

x	6	30	1
y	24	120	4

b

x	2	9	8
y	14	63	56

c

x	5	8	11
y	1.5	2.4	3.3

d

x	12	3.6	-2
y	18	5.4	-3

2 a \$122.50

b \$9.03

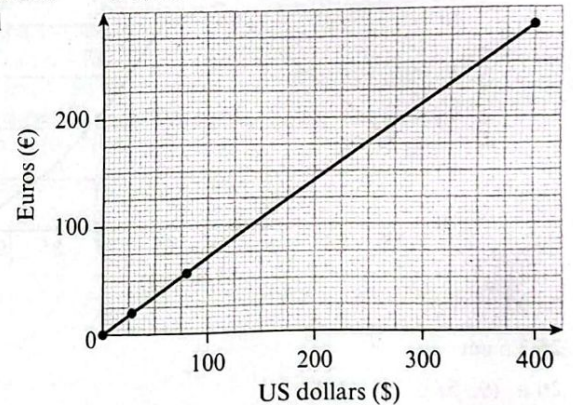
c 3.375 kg

d 105 m²

3 a €21.60

b \$400

c, d



e yes f €53

4 \$4.22

5 a

US dollars (\$)	70	82	104
British pounds (£)	46.20	54.12	68.64

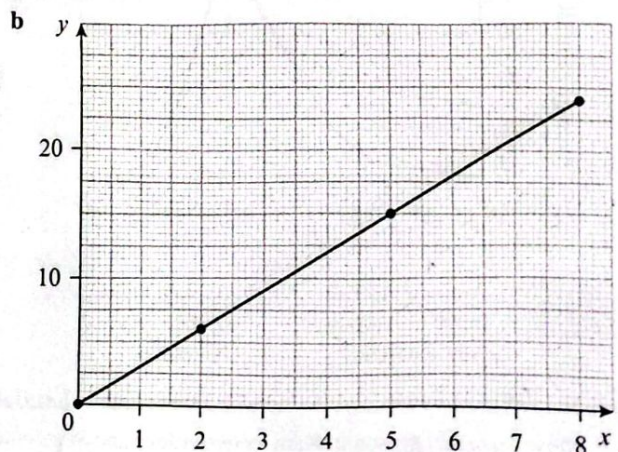
b i \$350 ii R4149

6 83.2 litres

7 2.4 cm

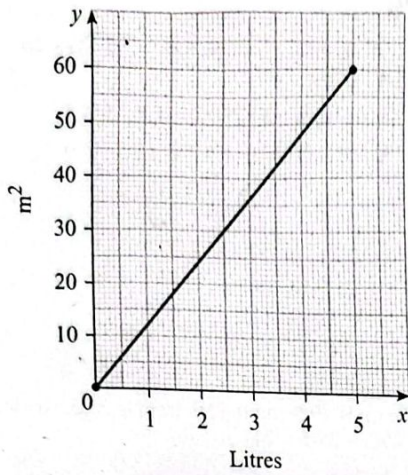
Exercise 11C

1 a 3



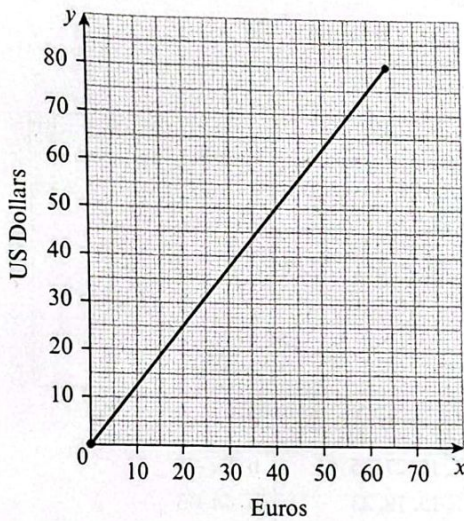
c yes d 3 e yes f $y = 3x$ g 21 h 11

2 a



- b $y = 12x$ c $96m^2$ d $4l$
 e $12m^2$ f same

3 a



- b $y = 1.25x$
 c i €58 ii \$39
 d i €58.40 ii \$38.75; equation more accurate

4 a $y = 2.5x$

- b i 12.5 ii 9.2

5 Barrel B was not full. Line 1 is barrel B, line 2 is barrel A. It takes 35 seconds to fill barrel A and 18 seconds for barrel B to have 80 cm of water in it. Barrel A is 80cm tall. Water fills barrel B at a rate of 4.4 cm per second and barrel A at a rate of 2.3 cm per second.

Exercise 11D

- 1 a 45 hours b 9 hours
 2 a direct proportion, variables are in the same ratio
 b inverse proportion, variables have the same product
 c inverse proportion, variables have the same product
 3 15 days
 4 a inversely b directly c directly d inversely
 5 4 minutes
 6 10 buckets
 7 5 chapters
 8 20 minutes
 9 length \times width = area and this is constant

10 a

m	20	5	12
b	36	144	60

b $m = \frac{720}{b}$

11 50 minutes

12 $hk = 8$

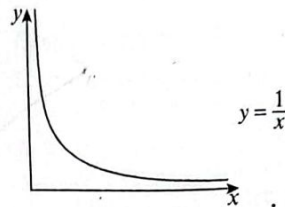
13 51 days

14 24 days

15 18

Investigation

The graph would look like this:



Consolidation

Exercise 11

- 1 a 4 : 7 b 7 : 6 c 2 : 5 : 7
 2 a \$90, \$150 b 35g, 40g
 c 14cm, 56cm d 700m, 3500m, 2100m
 e 48 mins, 36 mins, 96 mins
 3 a 2 : 5 b 5 : 6 c 4 : 7 : 1 d 2 : 3 : 6
 4 208
 5 a 7 : 10 b 5 : 8 c 35 : 1 d 2 : 1
 6 255
 7 a 6kg
 b i 2.34kg ii 3.9kg
 8 no
 9 Amir 39, Rita 91
 10 a \$17.82 b 9
 11 90ml acid, 495ml water

12 a

x	3	4	20
y	81	108	540

b

x	8	10	22
y	28	35	77

13 12 : 20 : 21

14 0.5 and 0.08

15 10 days

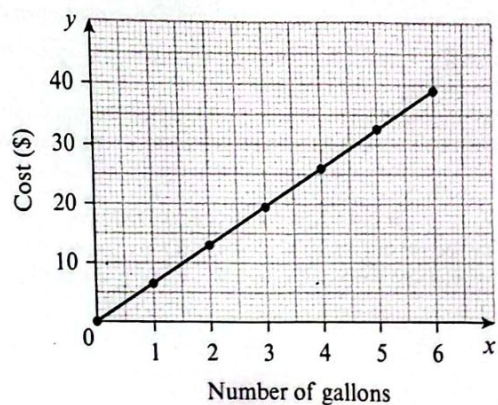
16 3 slices

17 9 minutes (6 taps would take 36 minutes, so $36 - 27 = 9$)

18 a $y = 3.5x$ b gradient 3.5, intercept 0

19 a 19.50, 26.00, 32.50, 39.00

b



c i \$29.25 ii a little more than 3 gallons

d $c = 6.5g$

e yes, as it is a straight line passing through the origin

Check out

1 a i 40° ii 80° b Gill \$96, Nat \$36

2 a ₹11 946 b \$900

3 $y = 4.5x$ is a straight line of gradient 4.5 passing through the origin

4 a 30 b 10 c 4