Sparx Maths

Year 7 Term 2

Revision Workbook

About this workbook

This workbook supports the revision of topics covered in **Year 7 Term 2** of the Sparx Maths Curriculum.

The workbook is divided into two sections:
- **Fluency questions** on each unit to practise the key concepts.
- **Mixed questions** on all topics to strengthen and deepen understanding.
  This section contains more challenging reasoning questions, cross-topic questions and problem solving questions.

If you use Sparx Maths you can find more questions and videos by searching for the following Sparx topic codes in Independent Learning.

Topic codes are also given with each question.

Units					Sparx topic codes
Line and shape properties			M814	M276	M523
Perimeter			M920	M635	M690
Area	M900	M390	M269	M610	M996
Coordinates and shapes				M618	M230
Factors and multiples			M227	M823	M698
Primes				M322	M108
Writing and comparing fractions	M158	M939	M410	M671	M335	M601
Adding and subtracting fractions				M835	M931
Single brackets		M637	M237	M792	M100

All questions in this workbook are non-calculator
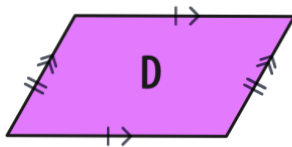
Sparx Maths

Q1

M814
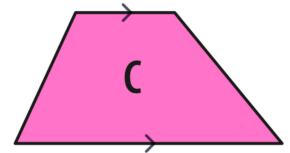
For each diagram, write down whether the line segments are marked as parallel, perpendicular, or equal length.

....
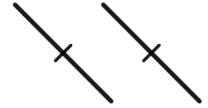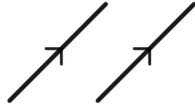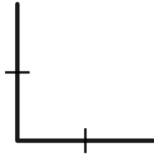
Q2

M276

Five shapes are shown below.
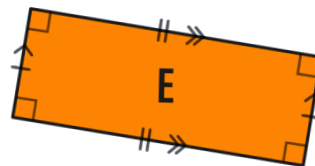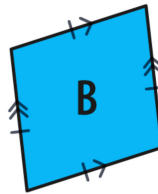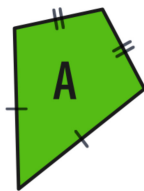
For each of the following shape names, write the letters of all the above shapes it could be.

Rectangle   Parallelogram   Rhombus

....

Kite   Trapezium

....

Sparx Maths

Q3

M276

Decide whether the triangles below are **scalene**, **equilateral** or **isosceles**.

3 equal-length sides
3 equal angles

Answer: ....

2 equal-length sides
2 equal angles

Answer: ....

no equal-length sides
no equal angles

Answer: ....

Q4

M523

Which one of these shapes has exactly one line of symmetry?

A B C

D E F
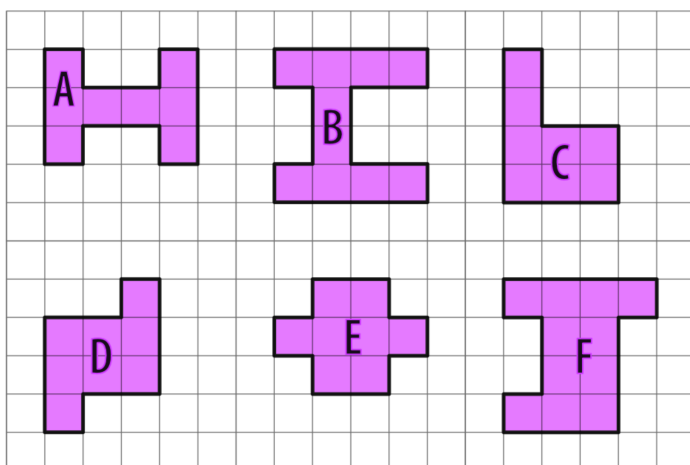
Answer: ....

Q5

M523

Draw all the lines of symmetry on the regular hexagon below.

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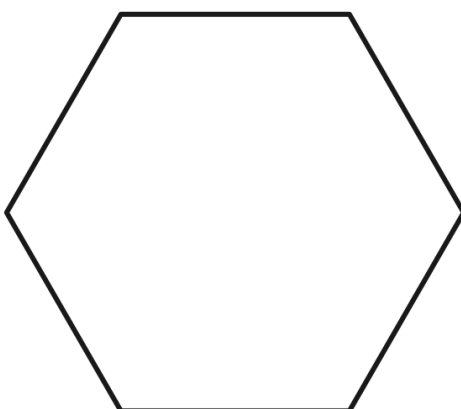
Q6

M523

Which one of these shapes has rotational symmetry of order 2?
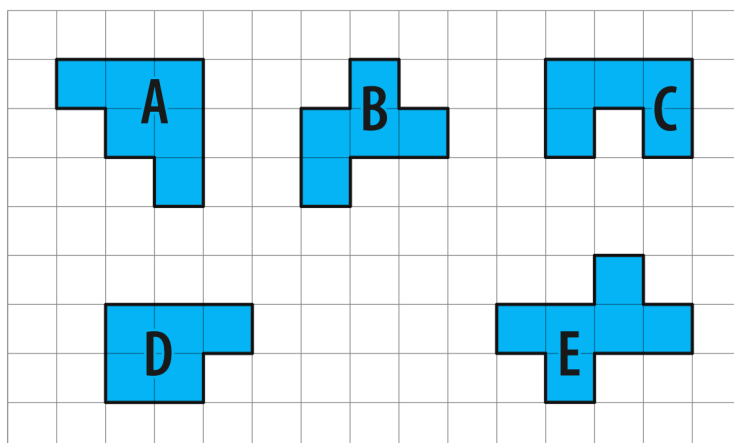
Answer: ....

Q7

M523

A shape is drawn on the grid below.
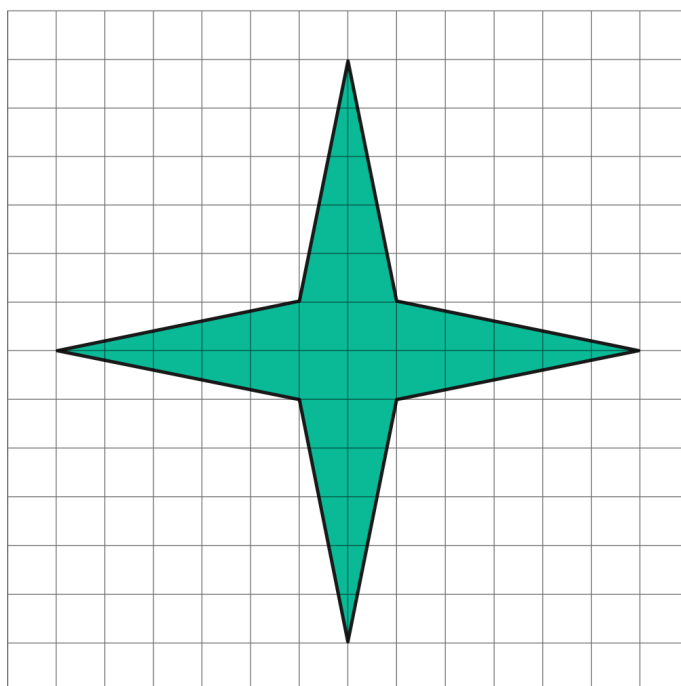
a) How many lines of symmetry does the shape have?

Answer: ....

b) What is the order of rotational symmetry of the shape?

Answer: ....

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Q1

M920

Work out the perimeter of the shape on the centimetre square grid below.
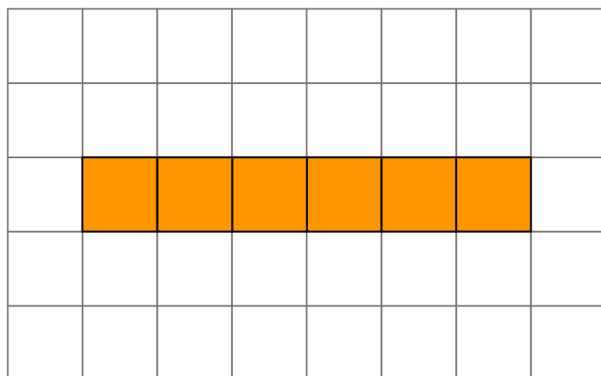
1 cm

Answer: .... cm

Q2

M635

Work out the perimeter of the triangle below.

4 mm

6 mm

7 mm
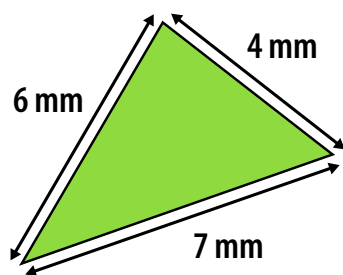
Not drawn accurately

Answer: .... mm

Q3

M635

Calculate the perimeter of the regular pentagon below.

6 cm

Not drawn accurately

Answer: .... cm

Sparx Maths
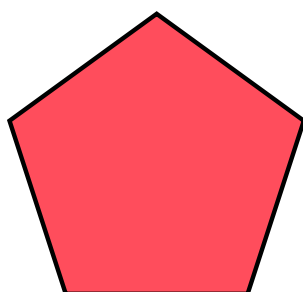
Q4

M635

M634

The perimeter of the rectangle below is 22 cm.

What is the value of k?

k cm

7 cm
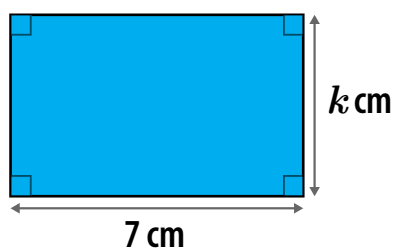
Not drawn accurately

Answer: $k =$ ....

Q5

M690

a) Calculate the unknown lengths in the shape below.

y

5 m

7 m

4 m

7 m

x
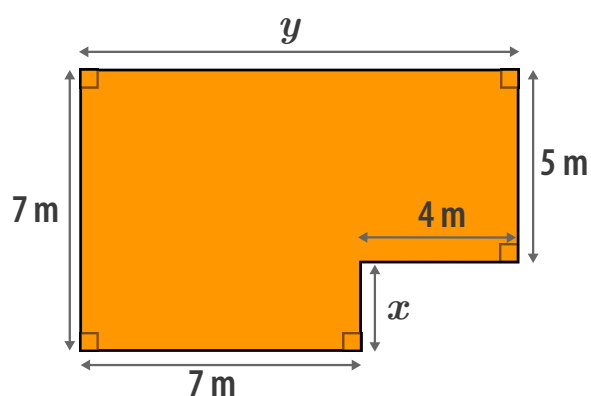
Not drawn accurately

$x =$ .... m

$y =$ .... m

b) Find the perimeter of the shape.

Answer: .... m

Q1

M900

Work out the area of the shape on the centimetre square grid below.
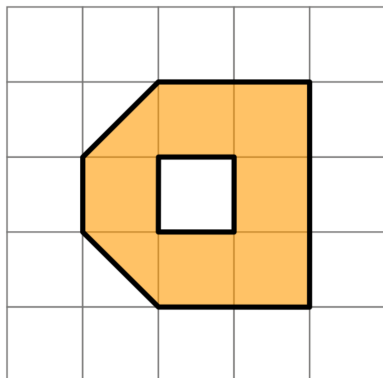
1 cm

Answer: .... cm^2

Q2

M390

M635

Work out the perimeter and area of the rectangle below.

6 mm

4 mm
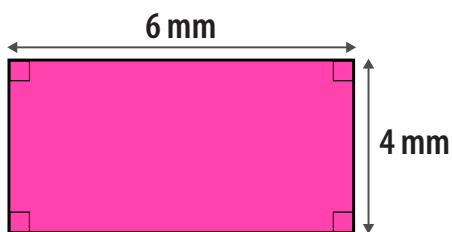
Not drawn accurately

Perimeter: .... mm

Area: .... mm^2

Q3

M390

The area of the rectangle below is 35 cm^2.

What is the value of x?

5 cm

x cm
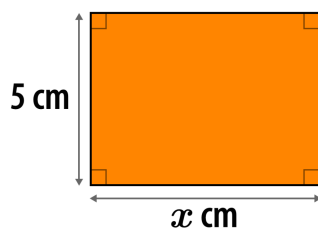
Not drawn accurately

Answer: $x =$ ....

Q4

M269

Work out the area of the compound shape below.

2 cm

4 cm

5 cm

10 cm
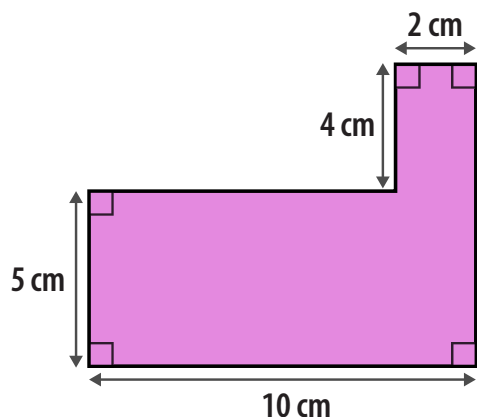
Not drawn accurately

Answer: . . . . cm²

Q5

M269

Calculate the shaded area.

9 m

2 m

2 m

5 m
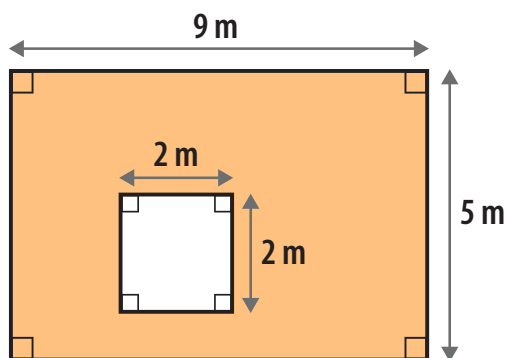
Not drawn accurately

Answer: . . . . m²

Q6

M269

Calculate the area of the shape below.

5 mm

7 mm

4 mm

4 mm
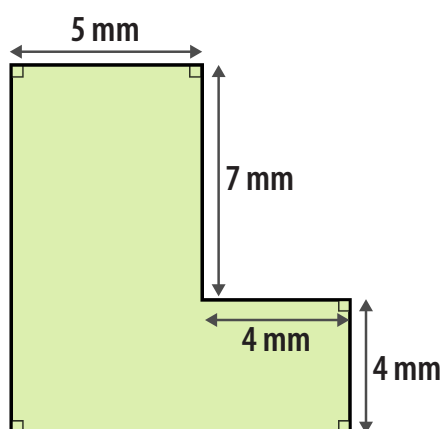
Not drawn accurately

Answer: . . . . mm²

Q7
M610

Calculate the area of the triangle below.

4 cm

9 cm
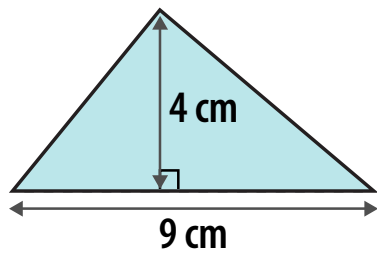
Not drawn accurately

Answer: .... cm^2

Q8
M610

Work out the area of the triangle below.

11 m

5 m

8 m
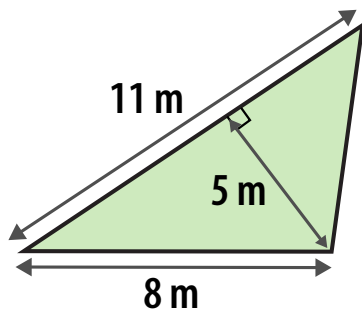
Not drawn accurately

Answer: .... m^2

Q9
M610

The area of the triangle below is 12 cm^2.

Work out its perpendicular height.

6 cm
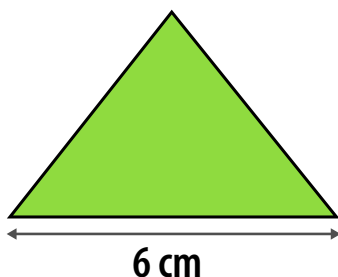
Not drawn accurately

Answer: .... cm

Q10

M996

Calculate the area of the kite below.

4 mm

8 mm

6 mm
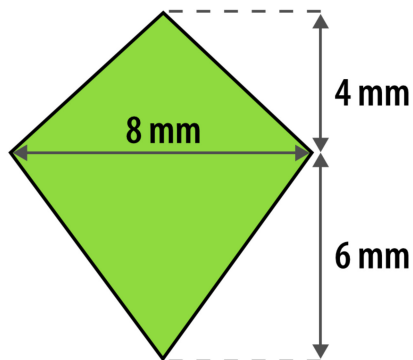
Not drawn accurately

Answer: .... mm^2

Q11

M996

Work out the area of the shape below.

5 cm

4 cm   11 cm
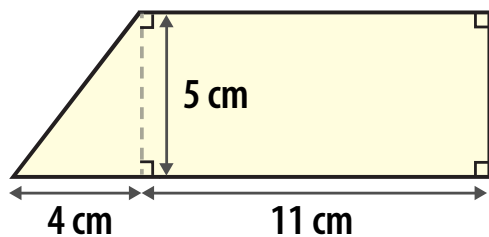
Not drawn accurately

Answer: .... cm^2

Q12

M996

Work out the area of the shape below.

11 m

8 m

17 m

Not drawn accurately

Answer: .... m^2

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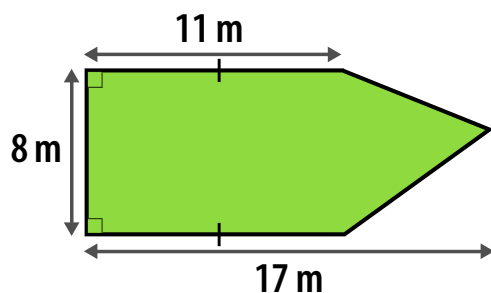
Q1

M618

The points A to G are plotted on the axes below.

a) What are the coordinates of B?

Answer: (.............. , ...)

b) Write down the letters of all the points on the grid with a y-coordinate of -4

Answer: ....

c) Plot the point with coordinates (2, 5) on the grid.
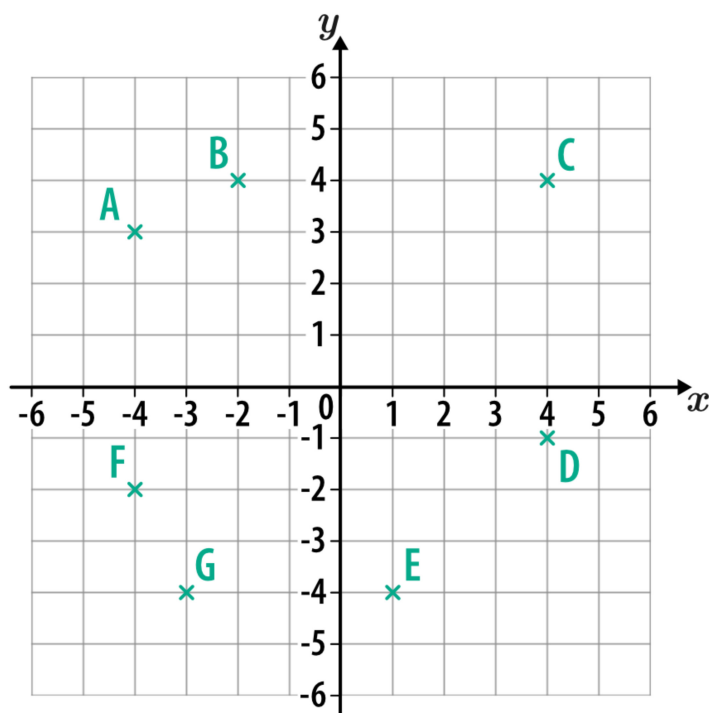
Q2

M230

The points A and C on the coordinate grid below are the vertices of a square.

Plot two more points to show the possible position of the remaining vertices.
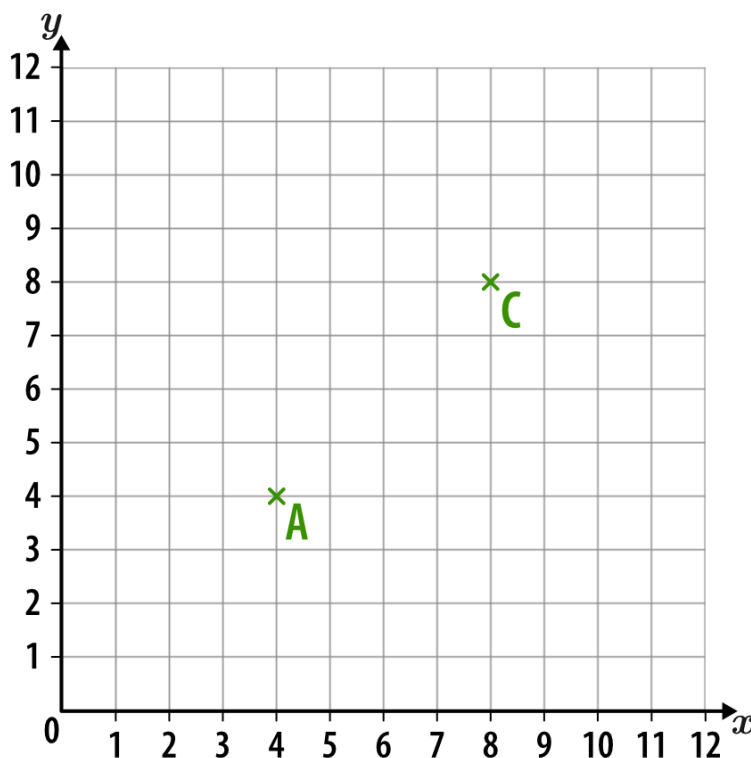
Q3

M230

The diagram below shows a square.
The sides of the square are 7 units long and each side is parallel with an axis.

What are the coordinates of point G on the square?
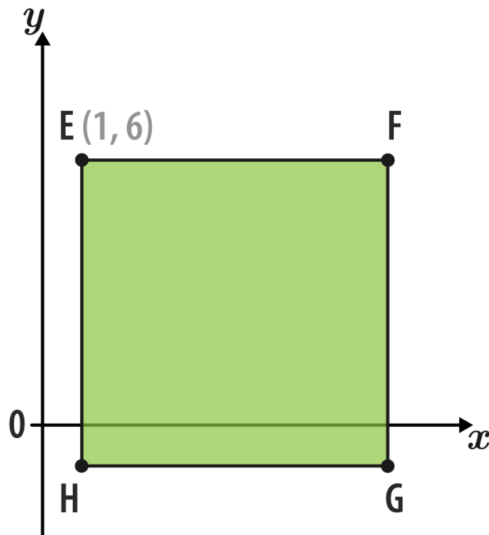
Not drawn accurately

Answer: (............. , ...)

Q4

M230

Shape EFGH below is a parallelogram.

What are the coordinates of point G?

Answer: (............. , ...)

Sparx Maths
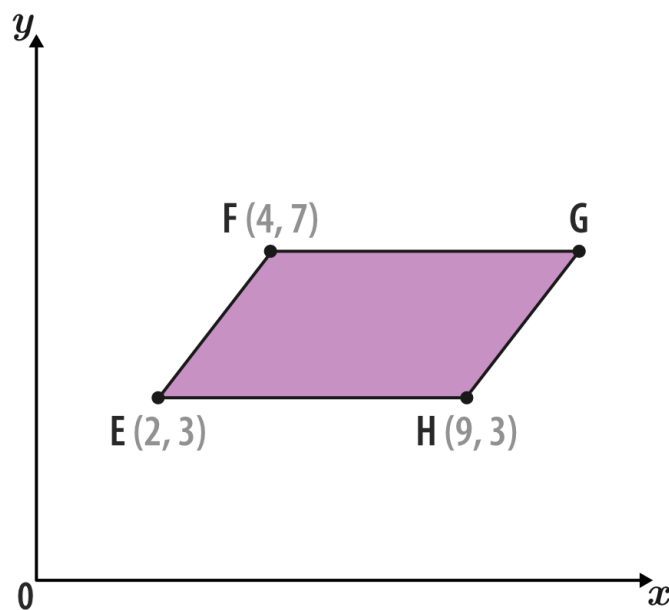
Q1

M227

Work out the 7th multiple of 3?

Answer: ....

Q2

M227

Find the lowest common multiple (LCM) of

a) 7 and 6

Answer: ....

b) 3 and 18

Answer: ....

c) 10 and 15

Answer: ....

Q3

M227

Work out the lowest common multiple of 3, 5 and 12?

Answer: ....

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Q4

M823

List all the factors of 18

Answer: ....

Q5

M698

Work out the highest common factor (HCF) of 6 and 27

Answer: ....

Q6

M698

Work out the highest common factor (HCF) of 8 and 28

Answer: ....

Q7

M698

Work out the highest common factor of 22 and 25?

Answer: ....

Q1

M322

Circle all the prime numbers in the list below.

16   1   11   30   17   15

Q2

M322

a) Fill in the box to make the statement true:

Even numbers are numbers that are divisible by ☐

b) Write a sentence to explain why 2 is the only **even** prime number.

Answer: ....

....

Q3

M108

a) Complete the prime factor tree.

75

5   15
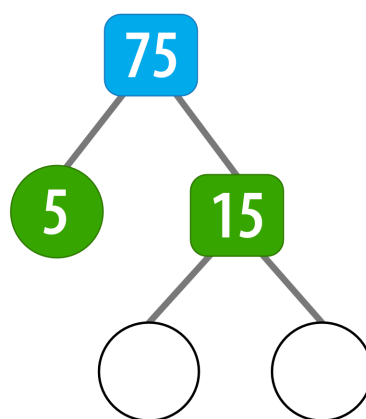
b) Use the completed prime factor tree to write 75 as the product of its prime factors.

Answer: ....

Q4

M108

Write 252 as the product of its prime factors.

Answer: ....

Q5

M108

Part of a prime factor tree is shown below.

Work out the number that should go in the box.
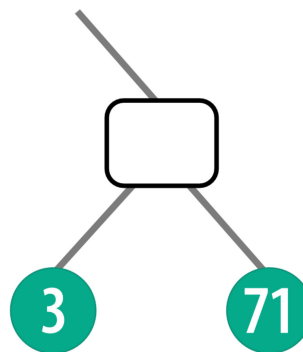
Q6

M108

What number has the prime decomposition $3^2 \times 41$?

Answer: ....

Sparx Maths

Q1

M158

a) Shade $\dfrac{4}{9}$ of the square below.
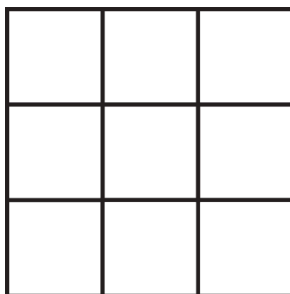
b) What fraction of the shape below is shaded blue?
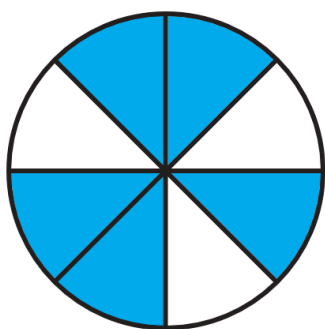
Answer: ....

Q2

M158

Write down the letters of all the grids which are divided into quarters.

A

B

C

D

E

F

Answer: ....

Sparx Maths
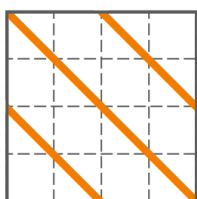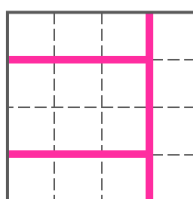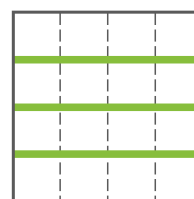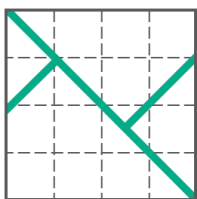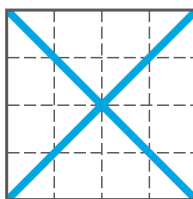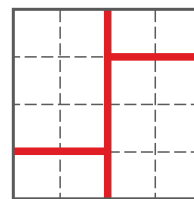
Q3

M939

Darren has a bag of 20 grapes. He eats 9 of them.

What fraction of the grapes does he eat?

Answer: ....

Q4

M410

Work out the missing number in these equivalent fractions.

$$\frac{2}{5} = \frac{\boxed{}}{30}$$

Q5

M410

Complete the equivalent fractions below.

$$\frac{1}{\boxed{}} = \frac{3}{12} = \frac{\boxed{}}{20} = \frac{6}{\boxed{}}$$

Q6

M671

Write $\dfrac{4}{10}$ in its lowest terms.

Answer: ....

Q7

M671

Write $\dfrac{36}{54}$ in its simplest form.

Answer: ....

Sparx Maths

Q8
M335

Put these fractions into ascending order (smallest to largest):

$$\frac{3}{10} \qquad \frac{2}{5} \qquad \frac{1}{5}$$

Answer: ....

Q9
M335

Put these fractions into ascending order (smallest to largest):

$$\frac{7}{10} \qquad \frac{11}{50} \qquad \frac{53}{100}$$

Answer: ....

Q10
M601

Write $\dfrac{22}{5}$ as a mixed number.

Answer: ....

Q11
M601

Write $2\,\dfrac{3}{8}$ as an improper fraction.

Answer: ....

Sparx Maths

Q1

M835

Work out $\dfrac{1}{9} + \dfrac{4}{9}$

Answer: ....

Q2

M835

a) Work out $\dfrac{3}{7} + \dfrac{5}{14}$

Answer: ....

b) Work out $\dfrac{13}{15} - \dfrac{2}{5}$

Answer: ....

Q3

M835

Work out $\dfrac{2}{5} + \dfrac{3}{8}$

Answer: ....

Q4

M835

Work out $\dfrac{5}{8} + \dfrac{1}{4} - \dfrac{7}{12}$

Give your answer in its simplest form.

Answer: ....

Sparx Maths

Q5
M931

Calculate $1\frac{2}{9} + 3\frac{5}{9}$

Answer: ....

Q6
M931

Calculate $2\frac{7}{20} + 1\frac{4}{5}$

Answer: ....

Q7
M931

Work out $1\frac{5}{7} - 1\frac{4}{21}$

Answer: ....

Q8
M931

Work out $4\frac{2}{5} - 2\frac{3}{4}$

Give your answer as a mixed number.

Answer: ....

Sparx Maths

Q1

M237

Expand

a) $4(x + 5)$

Answer: ....

b) $5(2n - 3)$

Answer: ....

c) $d(d + 8)$

Answer: ....

Q2

M792

Expand and fully simplify

a) $7(5b - 3) + 9$

Answer: ....

b) $4(3m + 7) + 5m + 8$

Answer: ....

c) $3(5y + 8) - 4(2 + y)$

Answer: ....

Sparx Maths

Q3

M100

Fully factorise

a) $3x + 24$

Answer: ....

b) $8n - 10$

Answer: ....

c) $30p + 20$

Answer: ....

Q4

M100

Fully factorise

a) $y^2 - 14y$

Answer: ....

b) $7t^2 + 21t$

Answer: ....

Sparx Maths

Q1

M227

Find three numbers which make the calculation below correct.

Multiple of 3   Multiple of 4   Multiple of 5

$$\boxed{} + \boxed{} = \boxed{}$$

Q2

M671

M774

What fraction of 1m is 40cm?

Give your answer in its simplest form.

Answer: ....

Q3

M276

A quadrilateral has two pairs of equal-length sides and no right angles.

One pair of sides is a different length to the other.

Circle all of the following shapes it could be.

Rhombus   **Parallelogram**   **Rectangle**

Square   **Kite**

Sparx Maths

Q4

M835

What fraction of this circle is not purple?
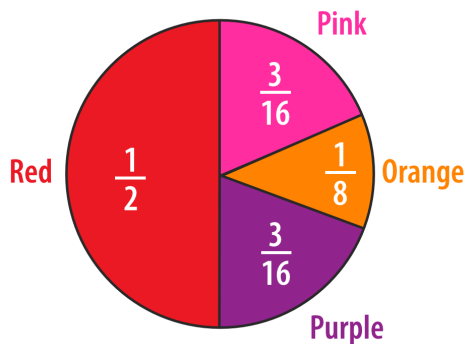
Not drawn accurately

Answer: ....

Q5

M637

What number should go in the box?

$$54 + 63 = 9 \times (6 + \boxed{})$$

Q6

M410

Pedro is thinking of a fraction equivalent to $\dfrac{5}{8}$

The numerator is greater than 13 and the denominator is less than 25

What fraction is Pedro thinking of?

Answer: ....

Sparx Maths

Q7

M900

M158

The garden below is made of a decking area and a lawn.

What fraction of the area of the garden is the decking?

1 m

Lawn

Decking

Not drawn accurately
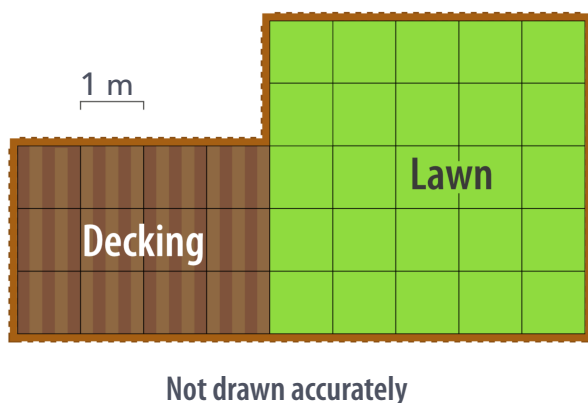
Answer: ....

Q8

M823

M227

A shop sells three types of ready-packed fruit.

Denise buys 30 pieces of fruit in total.
She only buys one type of fruit.

4 apples
in a tray

6 bananas
in a bag

7 plums
in a pack
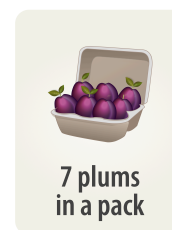
a) Which type of ready-packed fruit does she buy?

Answer: ....

b) Write a sentence explaining how you know.

Answer: ....

....

Q9

M108

The prime factor decomposition of 124 is $2^2 \times 31$.

Use this to work out the prime factor decomposition of 248.

Answer: ....

Sparx Maths

Q10

M635

M327

The diagram shows a parallelogram.

The side lengths are in centimetres.

When $n = 6$, what is the perimeter of the parallelogram?

$$n+3$$

$$n \qquad n$$

$$n+3$$

Not drawn accurately
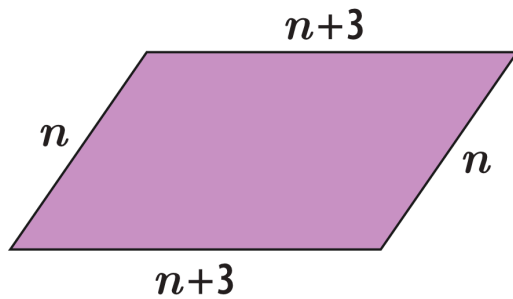
Answer: .... cm

Q11

M931

Write the answer to $2\frac{7}{9} + \frac{11}{6}$ as a mixed number in its simplest form.

Answer: ....

Q12

M390

M135

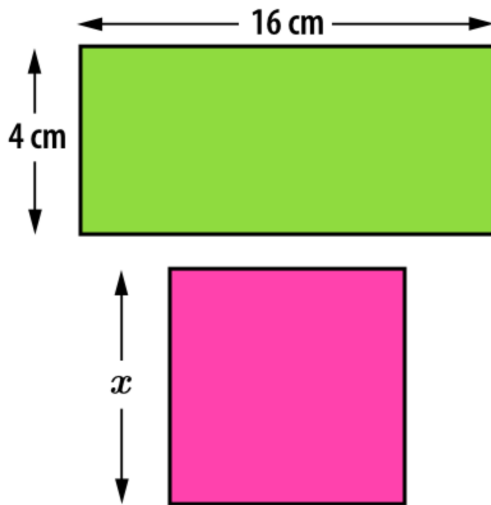The area of the rectangle is equal to the area of the square.

Calculate the side length of the square.

Not drawn accurately

Answer: $x = $ .... cm

Q13

M237

M100

a) Expand $-3y(5y - 8)$

Answer: ....

b) Fill in the gap to complete the factorisation below.

$$-35x - 15 = -5(\boxed{})$$

Sparx Maths

Q14

M269

The diagram shows four identical rectangles around a shaded square.

What is the area of the shaded square?

8 cm

3 cm
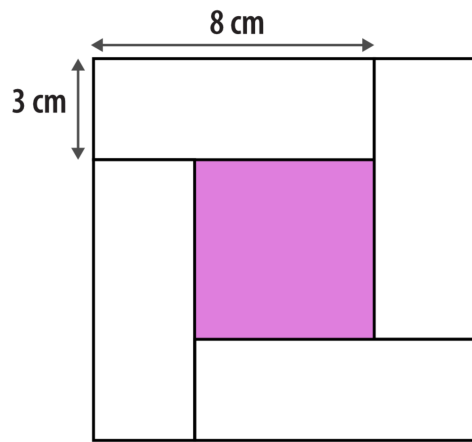
Not drawn accurately

Answer: .... cm²

Q15

M108

Two prime numbers multiply together to make 85.

What is the sum of these two primes?

Answer: ....

Q16

M230

M635

What is the perimeter of the rectangle ABCD shown below?

y

C (5, 7)

B (0, 7)

D (5, 0)

A (0, 0)

x
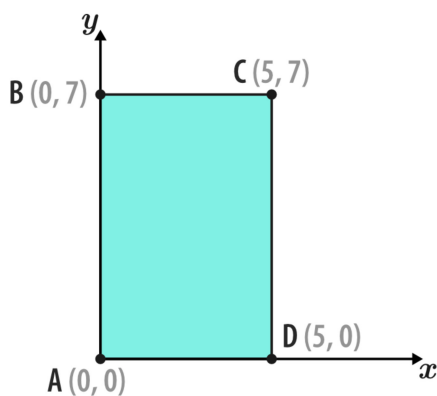
Answer: .... units

Q17

M601

How many turns of a circle does a minute hand make between 7.15 am and 9.30 am?

Give your answer as

a) a mixed number.

Answer: ....

b) an improper fraction.

Answer: ....

Q18

M635

M429

A rectangle has a length of 21.3 cm and a width of 13.8 cm.

Calculate the perimeter of the rectangle.

Answer: .... cm

Q19

M610

M635

The triangle below has an area of 24 cm² and a perimeter of 24 cm.

Calculate the length x

x

8 cm

Not drawn accurately

Answer: $x =$ .... cm

Sparx Maths

Q20

M227

A lighthouse flashes its light every 6 minutes.
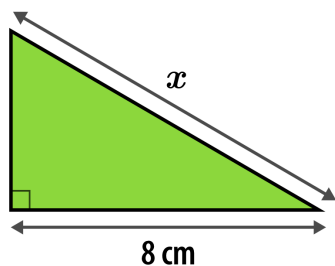A different lighthouse flashes its light every 9 minutes.

At 4.05 pm both lights flash together.

At what time will they next flash together?

Answer: ....

Q21

M269

Walter buys 24 m² of carpet to cover his bedroom floor.

How much carpet will he have left over?

2 m

6 m

Bedroom

2 m

4 m
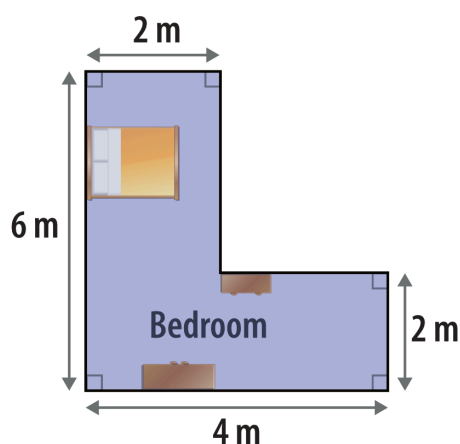
Answer: .... m²

Q22

M335

M601

M527

Put the following into ascending order.

$$\frac{3}{2} \qquad -1\frac{1}{8} \qquad -\frac{5}{4} \qquad 1\frac{3}{8}$$

Answer: ....

Q23

M276

Two right-angled triangles are joined together as shown to form triangle A.
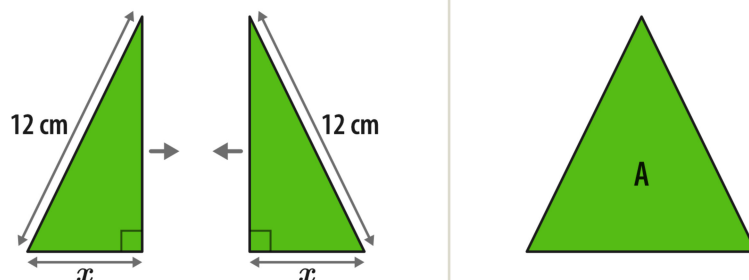
a) If triangle A is equilateral, what is the length x?

Answer: $x =$ .... cm

b) Now assume x is 5 cm. What type of triangle is triangle A?

Answer: ....

Q24

M390

M237

M634

The area of the rectangle below is 15 cm^2
All measurements are in centimetres.

Work out the value of r

$r - 4$

5
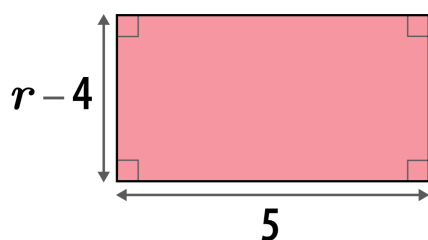
Not drawn accurately

Answer: $r =$ ....

Q25

M931

Work out the missing fraction in the calculation below.

$$2 \frac{1}{3} + \frac{13}{5} + \boxed{} = \frac{20}{3}$$

Q26

M792

M100

Expand and then fully factorise $16(t + 2) + 8(t - 2)$

Answer: ....

Q27

M610

M939

What fraction of the rectangular garden below is taken up by the patio?

Give your answer in its simplest form.

Garden

7 m

3 m

Patio

8 m

Not drawn accurately

Answer: ....

Sparx Maths

Q28

M523

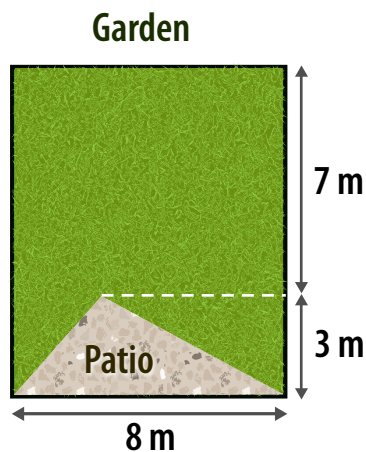Shade three extra squares on the grid below so that the resulting pattern has 4 lines of symmetry and rotational symmetry of order 4.
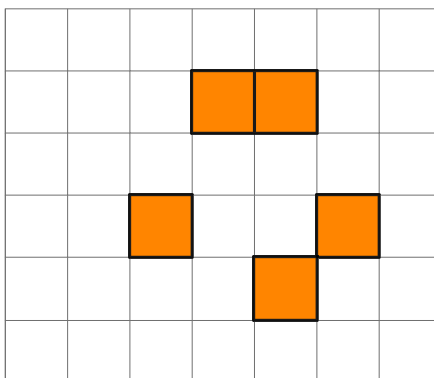
Q29

M390

M237

Write an expression for the area of the shaded section of this rectangle.

Expand any brackets in your answer.

$f + 9$

5

7

Not drawn accurately

Answer: ....

Q30

M690

The perimeter of this shape is 30 cm.

Calculate the length y

y

3 cm

7 cm

4 cm
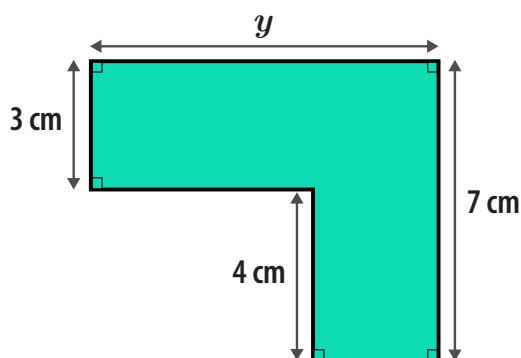
Not drawn accurately

Answer: $y =$ .... cm

Sparx Maths

Q31

M635

A rectangular photo that is 18 cm long and 15 cm wide is stuck onto a rectangular piece of card so that it has a border that is 3 cm wide.

What is the perimeter of the piece of card?

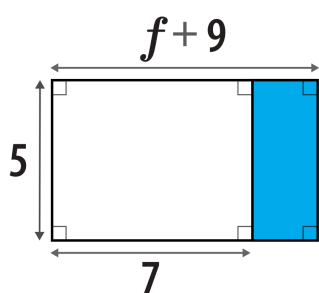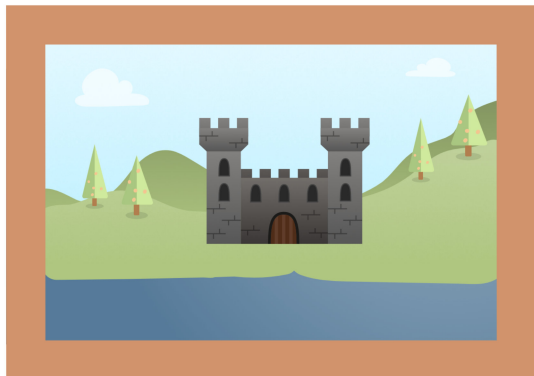Not drawn accurately

Answer: . . . . cm

Q32

M671

M835

M795

a) Simplify $\dfrac{6a}{9b}$

Answer: . . . .

b) Work out $\dfrac{a}{4} + \dfrac{2a}{4}$

Answer: . . . .

Q33

M996

M795

Find an expression for the area of the shape below.
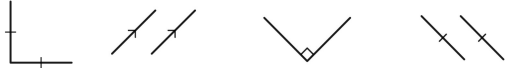
Give your answer in its simplest form.
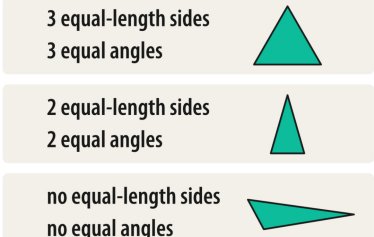
Not drawn accurately
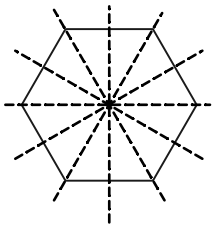
Answer: . . . .

Answers

Line and shape properties

Q1

Equal length   Parallel   Perpendicular   Equal length

Q2   Rectangle: E

Parallelogram: B, D, E

Rhombus: B

Kite: A, B

Trapezium: C

Q3

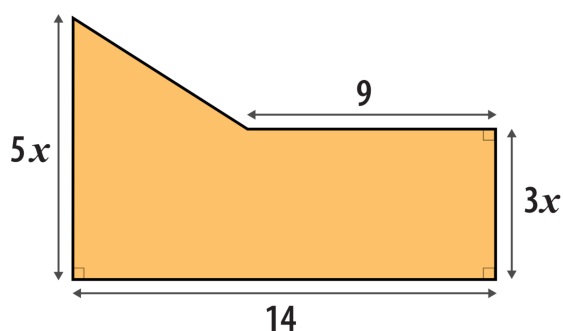|		
3 equal-length sides 3 equal angles		Equilateral
2 equal-length sides 2 equal angles		Isosceles
no equal-length sides no equal angles		Scalene

Q4   B

Q5

Q6   E

Q7a   4

Q7b   4

Perimeter

Q1   14 cm

Q2   17 mm

Q3   30 cm

Q4 $k = 4$

Q5a $x = 2$ m

       $y = 11$ m

Q5b   36 m

Area

Q1   7 cm²

Q2   Perimeter: 20 mm

      Area: 24 mm²

Q3 $x = 6$ cm

Q4   58 cm²

Q5   41 m²

Q6   71 mm²

Q7   18 cm²

Q8   27.5 m²

Q9   4 cm

Q10   40 mm²

Q11   65 cm²

Q12   112 m²

Coordinates and shapes

Q1a   (-2, 4)

Q1b   E and G

Q1c
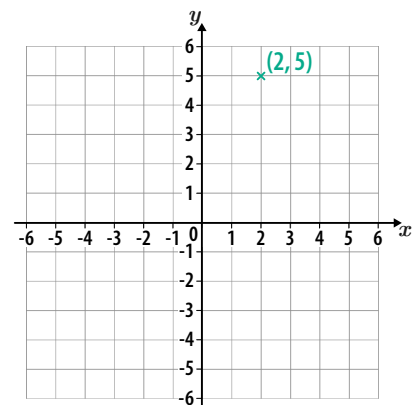
Q2   (4, 8) and (8, 4) plotted

      or (0, 8) and (4, 12) plotted

      or (8, 0) and (12, 4) plotted

Q3   (8, -1)

Q4   (11, 7)

Answers

Factors and multiples

Q1	21
Q2a	42
Q2b	18
Q2c	30
Q3	60
Q4	1, 2, 3, 6, 9, 18
Q5	3
Q6	4
Q7	1

Primes

Q1	11, 17
Q2a	2
Q2b	All other even numbers are divisible by 2
Q3a	3, 5
Q3b	3 x 5 x 5 or 3 x 5^2
Q4	2 x 2 x 3 x 3 x 7 or 2^2 x 3^2 x 7
Q5	213
Q6	369

Writing and comparing fractions

Q1a	Any 4 squares shaded
Q1b	$\dfrac{5}{8}$
Q2	C, E
Q3	$\dfrac{9}{20}$
Q4	12
Q5	$\dfrac{1}{\boxed{4}} = \dfrac{3}{12} = \dfrac{\boxed{5}}{20} = \dfrac{6}{\boxed{24}}$
Q6	$\dfrac{2}{5}$
Q7	$\dfrac{2}{3}$

Writing and comparing fractions

Q8	$\dfrac{1}{5}$, $\dfrac{3}{10}$, $\dfrac{2}{5}$
Q9	$\dfrac{11}{50}$, $\dfrac{53}{100}$, $\dfrac{7}{10}$
Q10	$4\dfrac{2}{5}$
Q11	$\dfrac{19}{8}$

Adding and subtracting fractions

Q1	$\dfrac{5}{9}$
Q2a	$\dfrac{11}{14}$
Q2b	$\dfrac{7}{15}$
Q3	$\dfrac{31}{40}$
Q4	$\dfrac{7}{24}$
Q5	$4\dfrac{7}{9}$
Q6	$4\dfrac{3}{20}$
Q7	$\dfrac{11}{21}$
Q8	$1\dfrac{13}{20}$

Single brackets

Q1a	$4x + 20$
Q1b	$10n - 15$
Q1c	$d^2 + 8d$
Q2a	$35b - 12$
Q2b	$17m + 36$
Q2c	$11y + 16$

Sparx Maths

Answers
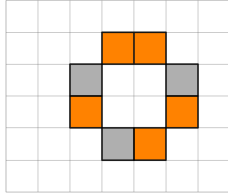
Single brackets

Q3a	$3(x + 8)$
Q3b	$2(4n - 5)$
Q3c	$10(3p + 2)$
Q4a	$y(y - 14)$
Q4b	$7t(t + 3)$

Mixed topics

Q1	e.g. 9 + 6 = 25, 18 + 12 = 30
Q2	$\dfrac{2}{5}$
Q3	Parallelogram, Kite
Q4	$\dfrac{13}{16}$
Q5	54 + 63 = 9 x (6 + $\boxed{7}$)
Q6	$\dfrac{15}{24}$
Q7	$\dfrac{12}{37}$
Q8a	Bananas
Q8b	e.g.
	6 is a factor of 30 but 4 and 7 are not
	or 30 is a multiple of 6, not of 4 or 7
Q9	2^3 x 31 or 2 x 2 x 2 x 31
Q10	30 cm
Q11	$4\dfrac{11}{18}$
Q12	x = 8 cm
Q13a	$-15y^2 + 24y$
Q13b	$-35x - 15 = -5(\boxed{7x + 3})$
Q14	25 cm²
Q15	22
Q16	24 units

Mixed topics

Q17a	$2\dfrac{1}{4}$
Q17b	$\dfrac{9}{4}$
Q18	70.2 cm
Q19	10 cm
Q20	4:23 pm
Q21	8 m²
Q22	$-\dfrac{5}{4}$, $-1\dfrac{1}{8}$, $1\dfrac{3}{8}$, $\dfrac{3}{2}$
Q23a	x = 6 cm
Q23b	Isosceles
Q24	r = 7
Q25	$1\dfrac{11}{15}$ or $\dfrac{26}{15}$
Q26	$8(3t + 2)$
Q27	$\dfrac{3}{20}$
Q28	

Q29	$5f + 10$
Q30	y = 8 cm
Q31	90 cm
Q32a	$\dfrac{2a}{3b}$
Q32b	$\dfrac{3a}{4}$
Q33	$47x$

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