

A Answer


- Write down the remainder when 85 is divided by 9. r
- $(45 \div (3 \times 3)) + (2 \times 3) =$ _____
- $27 = 3^x$. Find x . _____
- Divide 300 in the ratio 1:5. :
- Add 20% of 30 to 40% of 50. _____
- $8 \div 0.25 =$ _____
- $(0.5 \times 0.2) + (0.5 \div 0.2) =$ _____
- Round 9.997
 - a to 2 decimal places a
 - b to 2 significant figures. b
- $5 < \frac{3603}{61 \times 9} < 10$ True or false? _____
- If $h = 2$, $k = 3$, find the value of $hk^2 + h^2k$. _____
- $2k - 5 = k$ so $k =$ _____
- List those numbers (except 1) that are factors of both 18 and 30. _____


B Answer

- I buy three ice-cream sundaes for £2.80 each. How much change do I get from £10? £ _____
- A £150 bicycle is reduced by 12% in a sale. Find the new price. £ _____
- 80in is approximately _____ m
- 1g = _____ mg
- How many minutes in one day? _____ min
- How long will it take to travel 84km at 48km/h? h _____ min _____
- Find the area of a circle whose radius is 10mm.

$A = \pi r^2$

$\pi = 3.14$

_____ mm²
- 

If O is the centre of the circle, what size is angle x ? _____ °
- 

What is the number of axes of symmetry of this road sign? _____
- Approximate 12lb 13oz to the nearest stone st _____

C Answer

The diagram shows a plan of Mountjoy Park. The gridlines are spaced 1cm apart.



Scale 1 : 1000


- What distance in metres is represented by 1cm on the plan? _____ m
- Estimate the area used for the swings. _____ m²
- Estimate the area used for crazy golf. _____ m²
- Estimate the area of the office. _____ m²
- Estimate the area of the pond to the nearest 100m². (Hint: count part squares equal to half or more as full squares and ignore squares less than half.) _____ m²
- If the pond has a mean depth of 60cm estimate the volume of water to the nearest 100m³. _____ m³
- Estimate to the nearest 10m the length of the path around the pond. _____ m
- Estimate the diameter of the flower bed. _____ m
- Estimate the area of the flower bed to the nearest 100m². _____ m²
- Estimate the width of the straight paths. (Hint: look carefully at the paths near the café and the crazy golf.) _____ m
- Estimate to the nearest 10m the total length of the straight paths. _____ m
- Estimate to the nearest 10m the distance along paths by the shortest route from the main gate to the flower bed. _____ m

A Answer

- Multiply the sum of 36 and 25 by their difference.
- $(45 \div (2 + 3)) \times (3 + 3) =$
- $32 = 2^x$. Find x .
- Divide 200 in the ratio 3:7.
- Divide 33 in the ratio 8:3.
- $0.7 - 7 =$
- $\frac{6.5}{0.6 + 0.7} =$
- Round 0.0909 to
 - 3 decimal places
 - 1 decimal place.
- Estimate to the nearest thousand.
 $\frac{(4.01 \times 10^3) \times (2.98 \times 10^3)}{1.99 \times 10^3}$
- If $p = 4$, $r = 3$, find the value of $\frac{p^2 + 8}{2r}$.
- $\frac{4}{n} = 2$ so $n =$
- What is the largest number that is a factor of both 45 and 72?

B Answer


- I buy a season ticket for £80 and make 32 journeys. How much per journey? £
- I pay for a £182 camera in 52 equal instalments. How much is each payment? £
- $2.2\text{lb} \approx 1\text{kg}$. $4\frac{1}{2}\text{lb}$ is approximately kg
- $65\text{kg} \times 20 =$ t kg
- Write in 24-hour clock time seven minutes past midnight.
- Change 1m/s to metres per hour. m/h
- How many tiles 20cm square are needed to cover a floor measuring $4\text{m} \times 3\text{m}$?

- 

Find

 - the area of the end of the cylinder
 - its volume.

$\pi = 3.14$

- 

What is the number of axes of symmetry of this shape?
- Find the area of a carpet measuring 290cm long and 88cm wide to the nearest m^2

C Answer

The map shows some of the main roads in Cumbria and the Lake District. The gridlines are spaced 1cm apart.



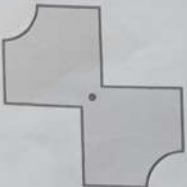
Scale 1 : 1 000 000

- What distance in kilometres is represented by 1cm on the map? km
- The distance from Gosforth to Carlisle in a straight line is 65km . How far apart are these two towns on the map? cm

Estimate to the nearest 10km the distances along the following routes. You may use a ruler to help you.

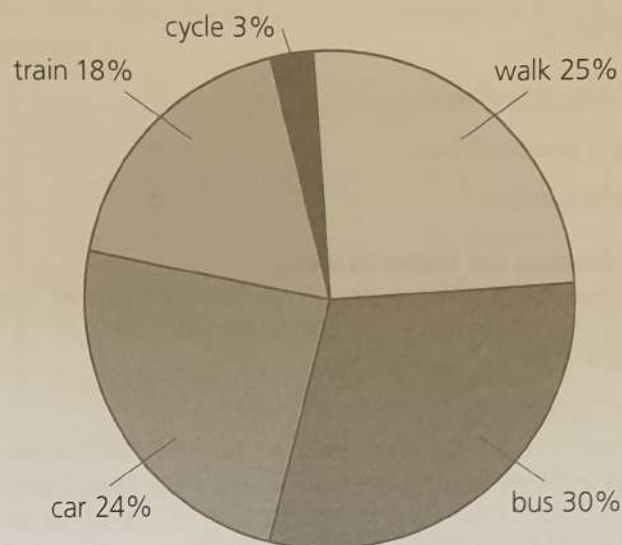
- Carlisle to the seaside town of Maryport. km
- Penrith to St. Bees via Cockermouth. km
- Coniston to Carlisle by the shortest route. km
- Kendal to Aspatria in a straight line. km
- What area (in km^2) is represented by 1cm^2 on the map? km^2
- What area is represented by the whole map? km^2
- By counting squares estimate what area of sea is shown by the map. km^2
- What percentage (to the nearest 10%) of the whole map shows sea? %
- If the map above were redrawn to a scale of $1:100\,000$ would it be larger or smaller than the one shown?
- If the map were redrawn to a scale of $1:50\,000$ what would be the straight line distance in centimetres from Gosforth to Carlisle on the map? cm

A	Answer
1 Write down the sum of the squares of 5 and 6.	
2 $((2 + 3) \times 5) + 5 =$	
3 Write $2^2 \times 2^3$ as	
a a number	a
b a power of two.	b
4 Divide 150 in the ratio 7:3.	
5 $3 \div \frac{1}{4} =$	
6 $3.5 \times 0.3 =$	
7 $\frac{2.4 \times 1.8}{2.4 - 1.8} =$	
8 Round 478 711 to	
a one significant figure	a
b three significant figures.	b
9 Estimate to the nearest hundred.	
$\frac{(3 \times 10^3) \times (5 \times 10^3)}{10^4}$	
10 If $u = 4$, $v = 5$, $w = 6$, find the value of $3v^2 - (2u^2 + w^2)$.	
11 $\frac{3}{p} - \frac{1}{2} = \frac{1}{4}$ so $p =$	
12 Write down the highest common factor of 30 and 48.	

B	Answer
1 Share £495 in the ratio 4:5.	£ : £
2 Games at £9.50 each are reduced by 10%. How much do I save if I buy three games?	£
3 4.5 litres \approx 1 gallon. 95 litres is approximately	gal
4 $18.4\text{kg} \div 8$	= kg
	= kg
5 At 8.25 a.m. an oven is set to switch on $5\frac{1}{2}$ h later. At what time does it come on?	p.m.
6 Change 1m/s to kilometres per hour.	km/h
7 How many packets measuring $6\text{cm} \times 8\text{cm} \times 15\text{cm}$ can be fitted into a box measuring $24\text{cm} \times 30\text{cm} \times 60\text{cm}$?	
8 A parallelogram is drawn so that its smallest angle is half the size of its largest angle. What size is each angle?	° °
9  What is the order of rotational symmetry of this shape about its centre?	
10 A shape with an area of 16cm^2 is enlarged by a scale factor of 2. What is the area of the new shape?	cm^2

C	Answer
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The pie chart shows the results of a survey in a large city into how people travel to work.



An office in the city has 513 employees. Use the pie chart to estimate the approximate number of office staff who travel to work by different means. (Hint: round the number of employees to the nearest 100 before you start.)

- 1 travel to work by bus
- 2 walk to work
- 3 go to work by train
- 4 cycle to work
- 5 do not use a car to go to work

A shopping centre in the city has 4897 employees. Round this figure to a suitable value to help you to estimate the approximate number of shopping centre staff who travel to work by different means.

- 6 go to work by bus
- 7 either walk or cycle to work
- 8 do not use a train to get to work
- 9 do not use a car to get to work


In this city about one million people go to work each day. Use this figure and the information in the pie chart to help you to answer the following questions.

- 10 A train holds about 500 people. Approximately how many trains will be needed for those who go to work by train?
- 11 About one-half of all the people who go to work by car are passengers. Approximately how many people who go to work each day by car are passengers?
- 12 About two-thirds of bus passengers are women. What is the approximate number of women who travel to work by bus?

A Answer

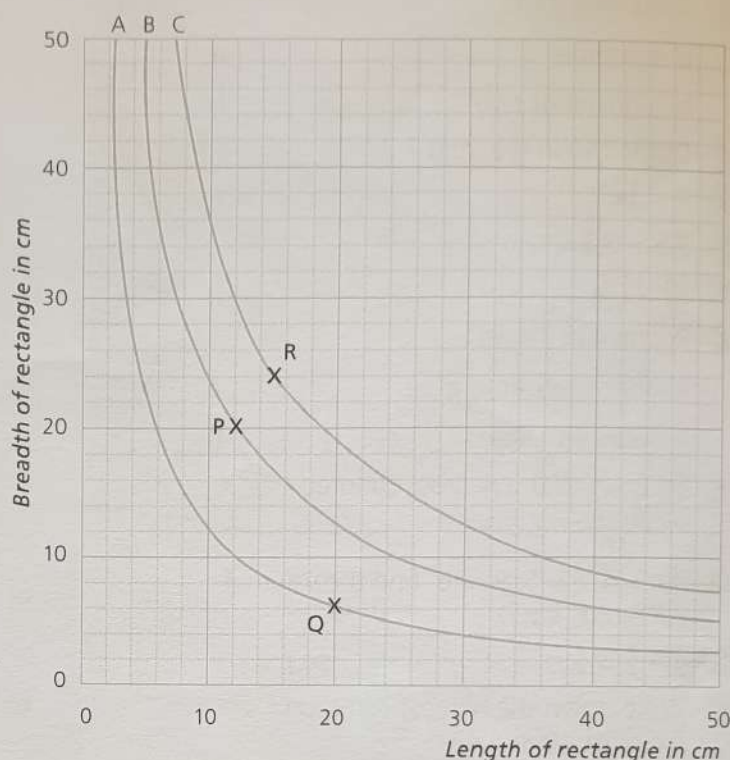
- Write down the difference between the squares of 6 and 7.
- $\frac{35 \times 45}{5 \times 5} =$
- Write $2^2 \times 2^4$ as
 - a power of two
 - a number.
- Complete the blanks to make these fractions equivalent. $\frac{3}{5} = \frac{\quad}{10} = \frac{12}{\quad} = \frac{60}{\quad}$
- $\frac{3}{10} + \frac{3}{5} =$
- $2 - 0.2 - 0.22 =$
- $\frac{1}{0.5} - 0.5 =$
- 14.098 becomes 14.10 when rounded to how many decimal places?
- $0.3 < \frac{3}{8} < 1.0$ True or false?
- If $u = 4$, $v = 5$, $w = 6$, find the value of $3v^2 - (2u^2 - w^2)$.
- $24 = 3(x + 5)$ so $x =$
- Write down the smallest multiple of both 6 and 9.

B Answer

- If 50 stamps cost £21.00 how much for 20 stamps? £
- Using the exchange rate £1 = €1.25, find how many Euros you would get for £604. €
- 1l is approximately pints
- $80m \div 25 =$ m = m cm
- Karina works three shifts of $7\frac{1}{4}h$, $7\frac{1}{2}h$ and $5\frac{1}{2}h$. How many hours altogether? h min
- A car travels at 30mph. How long will it take to travel 5 miles? min
- A roll of tape is 25mm wide and 50m long. What is its area in m^2 ? m^2
- The acute angle of a rhombus is 40° . How big is the obtuse angle? $^\circ$
- 
 What is the number of axes of symmetry of this shape?
- 40 bottles each have a capacity of 248ml. Find the total capacity to the nearest litre. l

C Answer

Amy is investigating the area of rectangles. She calculates the areas by multiplying the length by the breadth and plots graphs of the results. Graph B represents rectangles of area $240cm^2$.



- What length of rectangle is represented by point P? cm
- What breadth of rectangle is represented by point P? cm
- What area of rectangle is represented by point P? cm^2
- What length of rectangle is represented by point Q? cm
- What breadth of rectangle is represented by point Q? cm
- What area of rectangle is represented by point Q? cm^2
- What area of rectangle is represented by all points that lie on graph A? cm^2
- Mark with an x the point on graph A that represents a square.
- Use the graph to help you to estimate the length of the side of this square. cm
- What area of rectangle is represented by point R? cm^2
- Mark with an o the point that represents a square of area $360cm^2$.
- Use the graph to help you to estimate the length of the sides of this square. cm

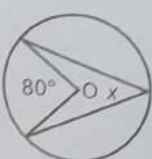

A Answer

- Write down the remainder when 85 is divided by 9. r 4
- $(45 \div (3 \times 3)) + (2 \times 3) =$ 11
- $27 = 3^x$. Find x . 3
- Divide 300 in the ratio 1:5. 50 : 250
- Add 20% of 30 to 40% of 50. 26
- $8 \div 0.25 =$ 32
- $(0.5 \times 0.2) + (0.5 \div 0.2) =$ 2.6
- Round 9.997
 - to 2 decimal places a 10.00
 - to 2 significant figures. b 10
- $5 < \frac{3603}{61 \times 9} < 10$ True or false? true
- If $h = 2$, $k = 3$, find the value of $hk^2 + h^2k$. 30
- $2k - 5 = k$ so $k =$ 5
- List those numbers (except 1) that are factors of both 18 and 30. 2 3 6

B Answer

- I buy three ice-cream sundaes for £2.80 each. How much change do I get from £10? £1.60
- A £150 bicycle is reduced by 12% in a sale. Find the new price. £132
- 80in is approximately 2m
- 1g = 1000mg
- How many minutes in one day? 1440min
- How long will it take to travel 84km at 48km/h? 1h 45min
- Find the area of a circle whose radius is 10mm. 314mm²

$A = \pi r^2$

$\pi = 3.14$
- 
 If O is the centre of the circle, what size is angle x ? 40°
- 
 What is the number of axes of symmetry of this road sign? 0
- Approximate 12lb 13oz to the nearest stone. 1st

C Answer

The diagram shows a plan of Mountjoy Park. The gridlines are spaced 1cm apart.



Scale 1 : 1000

- What distance in metres is represented by 1cm on the plan? 10m
- Estimate the area used for the swings. 600m²
- Estimate the area used for crazy golf. 1000m²
- Estimate the area of the office. 160m²
- Estimate the area of the pond to the nearest 100m². (Hint: count part squares equal to half or more as full squares and ignore squares less than half.) 1300m²
- If the pond has a mean depth of 60cm estimate the volume of water to the nearest 100m³. 800m³
- Estimate to the nearest 10m the length of the path around the pond. 130m
- Estimate the diameter of the flower bed. 20m
- Estimate the area of the flower bed to the nearest 100m². 300m²
- Estimate the width of the straight paths. (Hint: look carefully at the paths near the café and the crazy golf.) 4m
- Estimate to the nearest 10m the total length of the straight paths. 170m
- Estimate to the nearest 10m the distance along paths by the shortest route from the main gate to the flower bed. 160m

SECTION 3 | Test 6

Schofield & Sims

A	Answer
1 Multiply the sum of 36 and 25 by their difference.	671
2 $(45 \div (2 + 3)) \times (3 + 3) =$	54
3 $32 = 2^x$. Find x .	5
4 Divide 200 in the ratio 3:7.	60 : 140
5 Divide 33 in the ratio 8:3.	24 : 9
6 $0.7 - 7 =$	-6.3
7 $\frac{6.5}{0.6 + 0.7} =$	5
8 Round 0.0909 to	
a 3 decimal places	a 0.091
b 1 decimal place.	b 0.1
9 Estimate to the nearest thousand.	
$\frac{(4.01 \times 10^3) \times (2.98 \times 10^3)}{1.99 \times 10^3}$	6000
10 If $p = 4$, $r = 3$, find the value of $\frac{p^2 + 8}{2r}$.	4
11 $\frac{4}{n} = 2$ so $n =$	2
12 What is the largest number that is a factor of both 45 and 72?	9

B Answer

1 I buy a season ticket for £80 and make 32 journeys. How much per journey?	£2.50
2 I pay for a £182 camera in 52 equal instalments. How much is each payment?	£3.50
3 $2.2\text{lb} = 1\text{kg}$. $4\frac{1}{2}\text{lb}$ is approximately	2kg
4 $65\text{kg} \times 20 =$	1t 300kg
5 Write in 24-hour clock time seven minutes past midnight.	00:07
6 Change 1m/s to metres per hour.	3600m/h
7 How many tiles 20cm square are needed to cover a floor measuring 4m x 3m?	300

8


A diagram of a cylinder. The circular end face on the left has a radius labeled as 1cm. The length of the cylinder is indicated by a double-headed arrow along the bottom edge, labeled as 5cm.

Find

a the area of the end of the cylinder a 3.14cm²

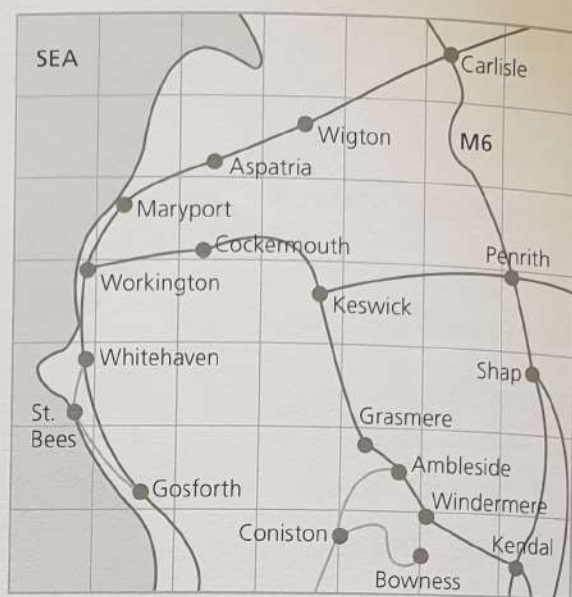
b its volume. b 15.7cm³

$$\pi = 3.14$$

9		What is the number of axes of symmetry of this shape?	2
10	Find the area of a carpet measuring 290cm long and 88cm wide to the nearest m ² .		3m ²

C Answer

The map shows some of the main roads in Cumbria and the Lake District. The gridlines are spaced 1cm apart.



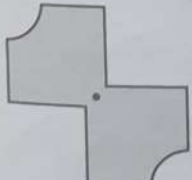
Scale 1 : 1 000 000

- What distance in kilometres is represented by 1cm on the map? 10km
- The distance from Gosforth to Carlisle in a straight line is 65km. How far apart are these two towns on the map? 6.5cm

Estimate to the nearest 10km the distances along the following routes. You may use a ruler to help you.

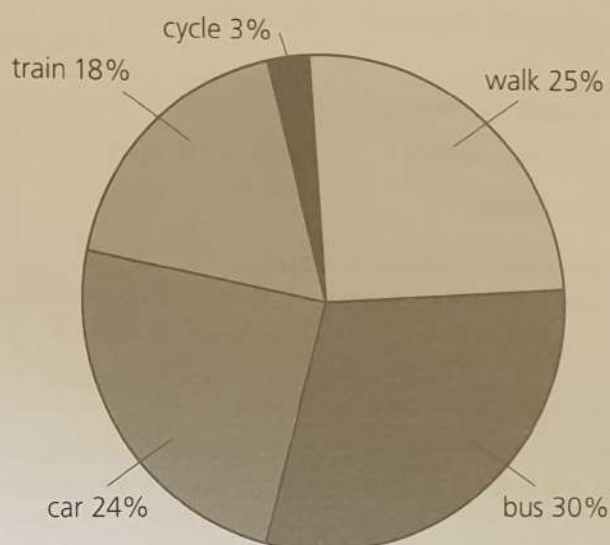
- Carlisle to the seaside town of Maryport. 40km
- Penrith to St. Bees via Cockermouth. 70km
- Coniston to Carlisle by the shortest route. 90km
- Kendal to Aspatria in a straight line. 60km
- What area (in km²) is represented by 1cm² on the map? 100km²
- What area is represented by the whole map? 4900km²
- By counting squares estimate what area of sea is shown by the map. 1000km²
- What percentage (to the nearest 10%) of the whole map shows sea? 20%
- If the map above were redrawn to a scale of 1:100 000 would it be larger or smaller than the one shown? larger
- If the map were redrawn to a scale of 1:50 000 what would be the straight line distance in centimetres from Gosforth to Carlisle on the map? 130cm

A	Answer
1 Write down the sum of the squares of 5 and 6.	61
2 $((2 + 3) \times 5) + 5 =$	30
3 Write $2^2 \times 2^3$ as	
a a number	a 32
b a power of two.	b 2^5
4 Divide 150 in the ratio 7:3.	105 : 45
5 $3 \div \frac{1}{4} =$	12
6 $3.5 \times 0.3 =$	1.05
7 $\frac{2.4 \times 1.8}{2.4 - 1.8} =$	7.2
8 Round 478 711 to	
a one significant figure	a 500 000
b three significant figures.	b 479 000
9 Estimate to the nearest hundred.	
$\frac{(3 \times 10^3) \times (5 \times 10^3)}{10^4}$	1500
10 If $u = 4$, $v = 5$, $w = 6$, find the value of $3v^2 - (2u^2 + w^2)$.	7
11 $\frac{3}{p} - \frac{1}{2} = \frac{1}{4}$ so $p =$	4
12 Write down the highest common factor of 30 and 48.	6

B	Answer
1 Share £495 in the ratio 4:5.	£220 : £275
2 Games at £9.50 each are reduced by 10%. How much do I save if I buy three games?	£2.85
3 4.5 litres \approx 1 gallon. 95 litres is approximately	21gal
4 $18.4\text{kg} \div 8$	$= 2\text{kg} \quad 300\text{g}$ $= 2.3\text{kg}$
5 At 8.25 a.m. an oven is set to switch on $5\frac{1}{2}$ h later. At what time does it come on?	1.55 p.m.
6 Change 1m/s to kilometres per hour.	3.6km/h
7 How many packets measuring 6cm \times 8cm \times 15cm can be fitted into a box measuring 24cm \times 30cm \times 60cm?	60
8 A parallelogram is drawn so that its smallest angle is half the size of its largest angle. What size is each angle?	60° 120°
9  What is the order of rotational symmetry of this shape about its centre?	2
10 A shape with an area of 16cm ² is enlarged by a scale factor of 2. What is the area of the new shape?	64cm ²

C	Answer
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The pie chart shows the results of a survey in a large city into how people travel to work.



An office in the city has 513 employees. Use the pie chart to estimate the approximate number of office staff who travel to work by different means. (Hint: round the number of employees to the nearest 100 before you start.)

1 travel to work by bus	150
2 walk to work	125
3 go to work by train	90
4 cycle to work	15
5 do not use a car to go to work	380

A shopping centre in the city has 4897 employees. Round this figure to a suitable value to help you to estimate the approximate number of shopping centre staff who travel to work by different means.

6 go to work by bus	1500
7 either walk or cycle to work	1400
8 do not use a train to get to work	4100
9 do not use a car to get to work	3800

In this city about one million people go to work each day. Use this figure and the information in the pie chart to help you to answer the following questions.


10 A train holds about 500 people. Approximately how many trains will be needed for those who go to work by train?	360
11 About one-half of all the people who go to work by car are passengers. Approximately how many people who go to work each day by car are passengers?	120 000
12 About two-thirds of bus passengers are women. What is the approximate number of women who travel to work by bus?	200 000

SECTION 3 | Test 8

A Answer

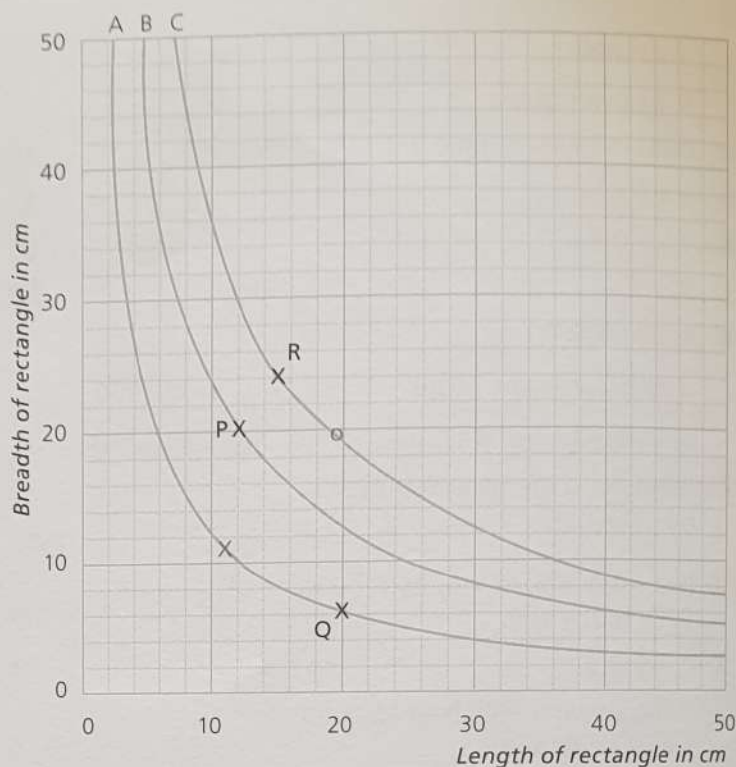
- Write down the difference between the squares of 6 and 7. 13
- $\frac{35 \times 45}{5 \times 5} =$ 63
- Write $2^2 \times 2^4$ as
 - a power of two a 2^6
 - a number. b 64
- Complete the blanks to make these fractions equivalent. $\frac{3}{5} = \frac{6}{10} = \frac{12}{20} = \frac{60}{100}$
- $\frac{3}{10} + \frac{3}{5} =$ $\frac{9}{10}$
- $2 - 0.2 - 0.22 =$ 1.58
- $\frac{1}{0.5} - 0.5 =$ 1.5
- 14.098 becomes 14.10 when rounded to how many decimal places? 2
- $0.3 < \frac{3}{8} < 1.0$ True or false? true
- If $u = 4$, $v = 5$, $w = 6$, find the value of $3v^2 - (2u^2 - w^2)$. 79
- $24 = 3(x + 5)$ so $x =$ 3
- Write down the smallest multiple of both 6 and 9. 18

B Answer

- If 50 stamps cost £21.00 how much for 20 stamps? £8.40
- Using the exchange rate £1 = €1.25, find how many Euros you would get for £604. €755
- 1l is approximately 2 pints
- $80\text{m} \div 25 =$ $3.2\text{m} = 3\text{m } 20\text{cm}$
- Karina works three shifts of $7\frac{1}{4}\text{h}$, $7\frac{1}{2}\text{h}$ and $5\frac{1}{2}\text{h}$. How many hours altogether? 20h 15min
- A car travels at 30mph. How long will it take to travel 5 miles? 10min
- A roll of tape is 25mm wide and 50m long. What is its area in m^2 ? 1.25 m^2
- The acute angle of a rhombus is 40° . How big is the obtuse angle? 140°
-  What is the number of axes of symmetry of this shape? 1
- 40 bottles each have a capacity of 248ml. Find the total capacity to the nearest litre. 10l

C Answer

Amy is investigating the area of rectangles. She calculates the areas by multiplying the length by the breadth and plots graphs of the results. Graph B represents rectangles of area 240cm^2 .



- What length of rectangle is represented by point P? 12cm
- What breadth of rectangle is represented by point P? 20cm
- What area of rectangle is represented by point P? 240 cm^2
- What length of rectangle is represented by point Q? 20cm
- What breadth of rectangle is represented by point Q? 6cm
- What area of rectangle is represented by point Q? 120 cm^2
- What area of rectangle is represented by all points that lie on graph A? 120 cm^2
- Mark with an x the point on graph A that represents a square.
- Use the graph to help you to estimate the length of the side of this square. 11cm
- What area of rectangle is represented by point R? 360 cm^2
- Mark with an o the point that represents a square of area 360cm^2 .
- Use the graph to help you to estimate the length of the sides of this square. 19cm