



THIRD SPACE  
LEARNING

# Mathematics

## Paper 3

### (Calculator)

## Foundation Tier

AQA GCSE

SET 2

# Mathematics Paper 3 (Calculator) Foundation Tier AQA

## GCSE SET 2

Name

Total marks



Paper length: 1hr 30mins

## Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name, centre number and candidate number.
- Answer all questions.
- Answer the questions in the spaces provided
  - there may be more space than you need.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may be used.

## Information

- The total mark for this paper is 80
- The marks for each question are shown in brackets
  - use this as a guide as to how much time to spend on each question.

## Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

*Please note, this practice paper is an example to help revision, these topics can be tested in other ways and other topics may be included in the actual papers*

- 1  $\frac{1}{5}$  of a number is 10.  
Circle the number.

[1 mark]

2      20      50      500

- 
- 2 Circle the expression that means 4 less than  $x$ .

[1 mark]

$4x$        $\frac{x}{4}$        $4 - x$        $x - 4$

- 
- 3 Convert  $350m$  to  $km$ .  
Circle your answer.

[1 mark]

$0.35km$        $3.5km$        $3500km$        $350000km$

4 Put these numbers in order from smallest to largest.

0.103                  1.11                  1.3                  1.033                  0.31

[1 mark]

Smallest \_\_\_\_\_

\_\_\_\_\_

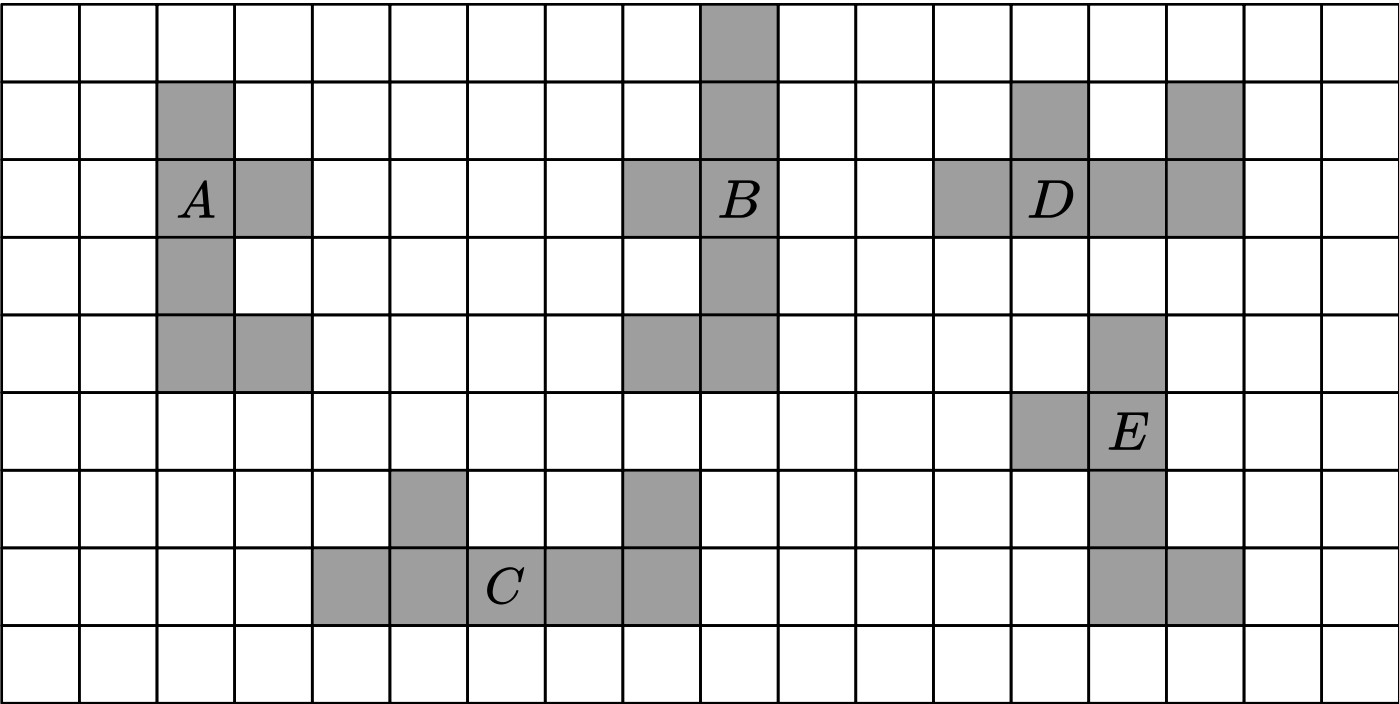
\_\_\_\_\_

\_\_\_\_\_

Largest \_\_\_\_\_

\_\_\_\_\_

5 Here are 5 shapes.

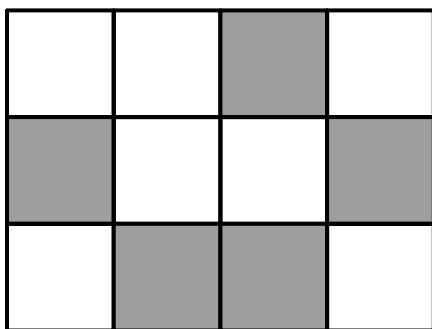


Write down the letters of the two congruent shapes.

[1 mark]

\_\_\_\_\_ and \_\_\_\_\_

6 Here is a grid of squares.



6(a) Write down the ratio of the number of shaded squares to the number of unshaded squares.

[1 mark]

Answer \_\_\_\_\_

6(b) Adam shades 3 more squares.

Write down the fraction of squares that are now shaded.

Give your answer in its simplest form.

[1 mark]

\_\_\_\_\_  
\_\_\_\_\_

Answer \_\_\_\_\_

7 Here are the first four terms of a sequence.

1          4          9          16

Write down the next two terms in the sequence.

[2 marks]

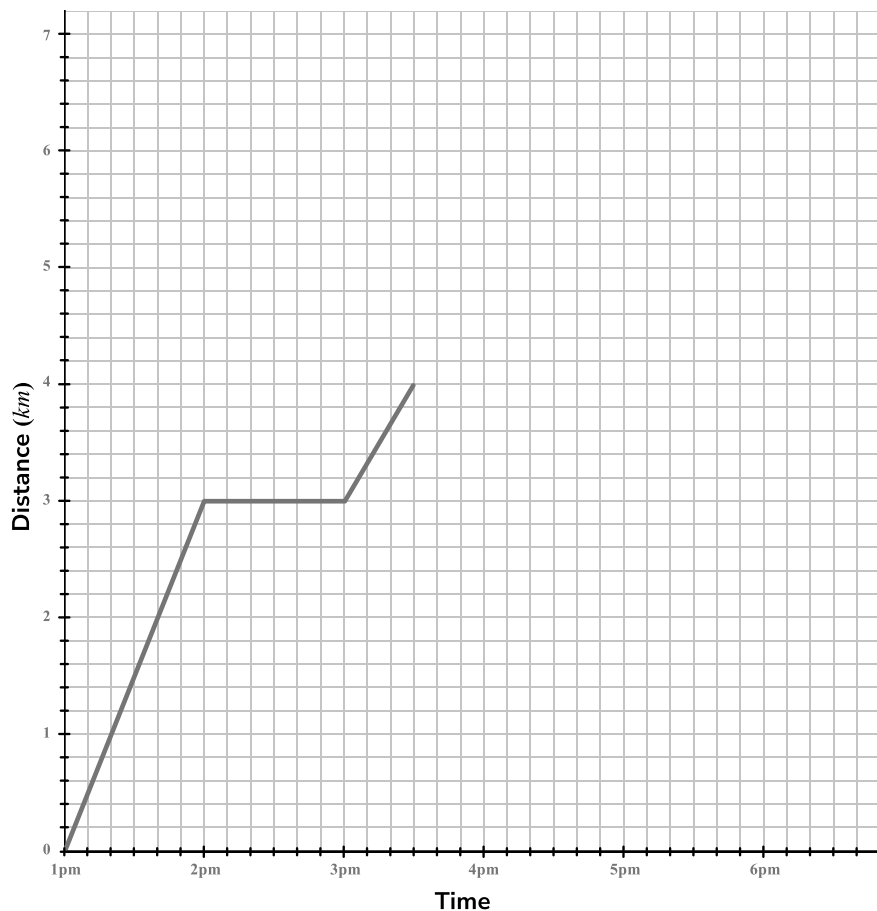
\_\_\_\_\_  
\_\_\_\_\_

Answer \_\_\_\_\_ , \_\_\_\_\_

**8** Hollie walked  $3\text{km}$  to a friend's house.

Hollie stopped at her friend's house before walking to the post box to post a letter.

The travel graph below shows Hollie's journey.



**8(a)** How long did Hollie spend at her friend's house?

**[1 mark]**

Answer \_\_\_\_\_

**8(b)** After posting her letter, Hollie walked straight home. It took her 1 hour and 30 minutes.

Complete the travel graph.

**[2 marks]**

9 The probability that Nathaniel is late to work is 0.2.

9(a) What is the probability that Nathaniel is on time?

[1 mark]

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Answer \_\_\_\_\_

9(b) Which calculation can be used to work out the probability Nathaniel will be late two days in a row?

Tick one box.

[1 mark]

☐  $0.2 + 0.2$

☐  $0.2 \times 0.2$

☐  $0.2 \div 0.2$

**Turn over for the next question**

**10** A television costs £420.

**10(a)** There is a 15% sale at the shop where the television is sold.

Show that the cost of the television in the sale is £357.

**[2 marks]**

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**10(b)** Jordan buys a television in the sale.

He pays £57 now and splits the rest over 24 equal monthly payments.

How much does Jordan pay each month?

**[2 marks]**

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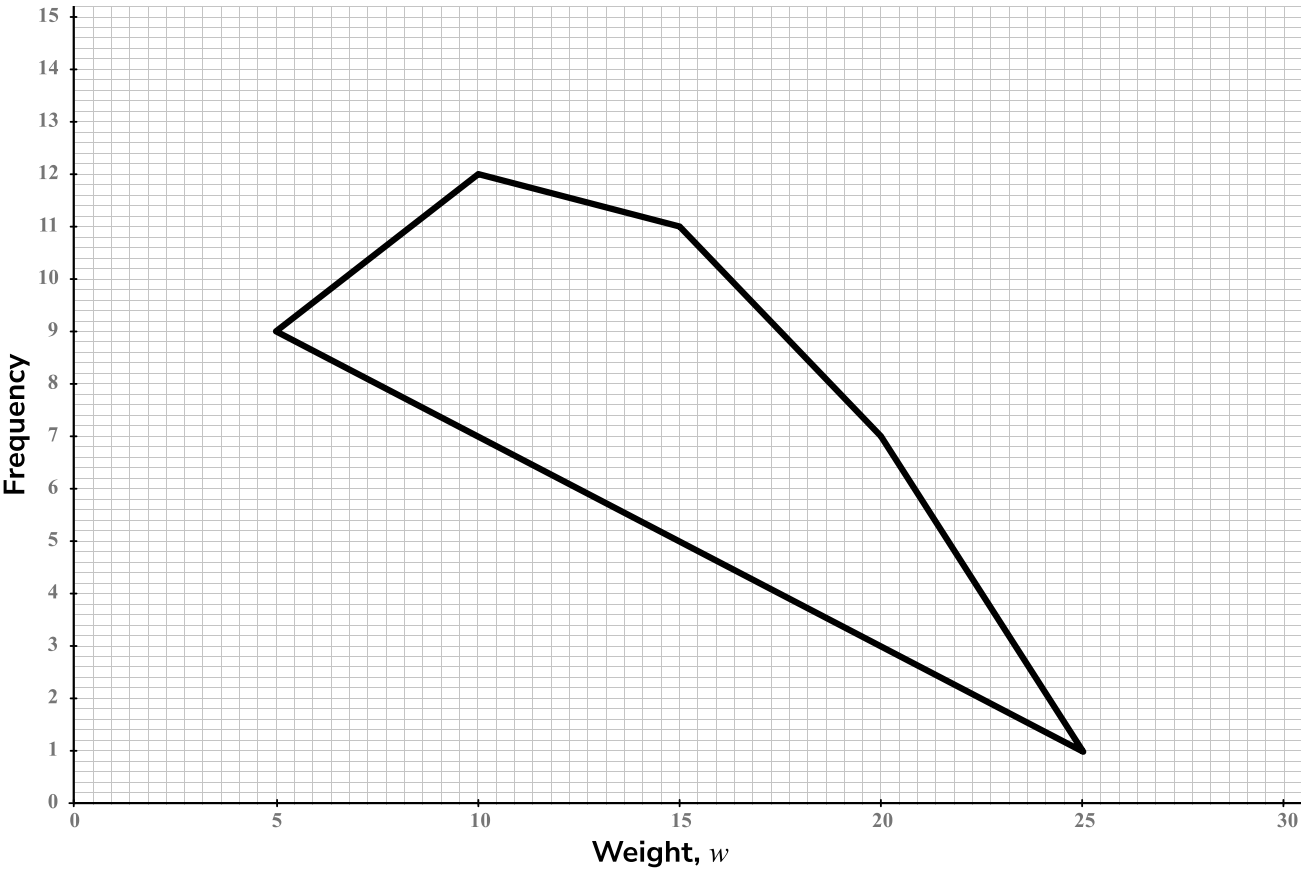
£ \_\_\_\_\_



11 The grouped frequency table gives information about the weights of 40 dogs.

Weight, $w$	Frequency
$5 \leq w < 10$	9
$10 \leq w < 15$	12
$15 \leq w < 20$	11
$20 \leq w < 25$	7
$25 \leq w < 30$	1

This incorrect frequency polygon has been drawn for the information in the table.



Write down two mistakes that have been made.

[2 marks]

Mistake 1 \_\_\_\_\_

\_\_\_\_\_

Mistake 2 \_\_\_\_\_

\_\_\_\_\_

- 12** Alex is going to a sports camp. He needs to pick two sports from the following:

Football (F)
Rugby (R)
Hockey (H)
Basketball (B)

List all the possible combinations of sports Alex could choose.

**[2 marks]**

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- 13** A pizza restaurant has some small blocks of cheese and some large blocks of cheese in the ratio 2:5.

Small blocks of cheese weigh 350g.

Large blocks of cheese weigh 600g.

In total there are 42 blocks of cheese.

The restaurant needs 24kg of cheese. Do they have enough cheese?

Show how you decide.

**[4 marks]**

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Answer \_\_\_\_\_

14  $x$  is an odd number.

Which statement is correct?

Tick one box.

[1 mark]

☐

$2x$  is always positive

☐

$2x$  is always even

☐

$2x$  is always odd

☐

$2x$  could be even or odd

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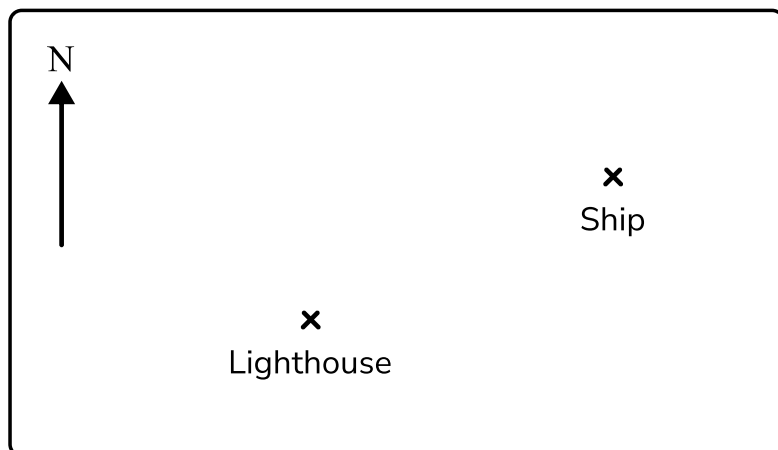
15 Fill in the boxes to make these calculations correct:

[2 marks]

15(a)

15(b)

**16** The diagram shows the position of a lighthouse and a ship.



Scale: 1 centimetre represents 20 kilometres

**16(a)** Measure the bearing of the ship from the lighthouse.

**[2 marks]**

Answer \_\_\_\_\_ °

**16(b)** Work out the actual distance of the lighthouse from the ship.

**[2 marks]**

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Answer \_\_\_\_\_ *km*

**17(a)** Write 84 as a product of its prime factors.

**[2 marks]**

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Answer \_\_\_\_\_

**17(b)** Find the lowest common multiple of 84 and 30.

**[2 marks]**

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Answer \_\_\_\_\_

**18(a)** Factorise  $12x + 18y$

**[2 marks]**

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Answer \_\_\_\_\_

**18(b)** Solve  $3(4x + 2) = 54$

**[2 marks]**

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$x =$  \_\_\_\_\_

**19(a)** Andy cycles from Bristol to Bath.

Andy travels  $22.8\text{km}$  in 1 hour and 30 minutes.

Work out Andy's average speed.

Give your answer in  $\text{km/h}$ .

[3 marks]

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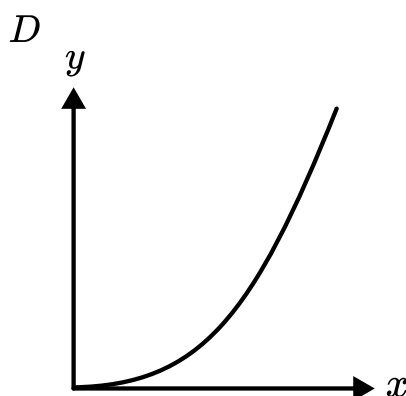
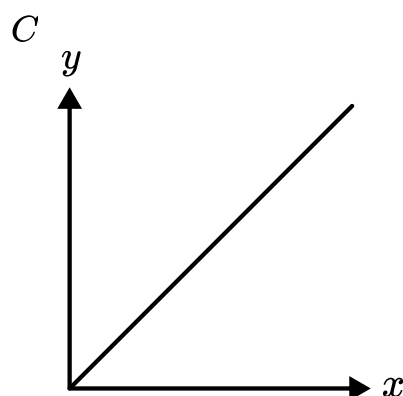
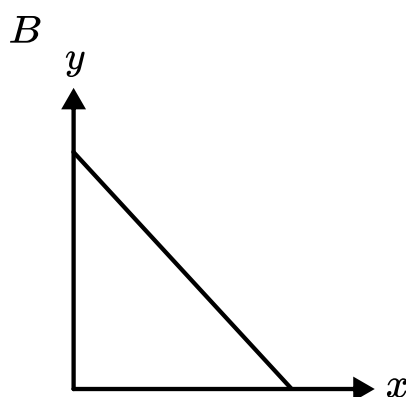
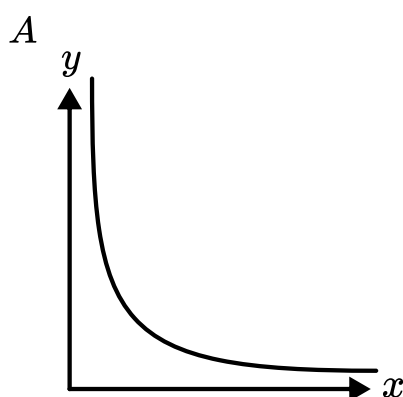
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Answer \_\_\_\_\_  $\text{km/h}$

**19(b)** The time Andy takes to make his journey is inversely proportional to the speed at which he travels.

Which graph shows the relationship between the time taken and the speed at which Andy travels?

[1 mark]



Answer \_\_\_\_\_

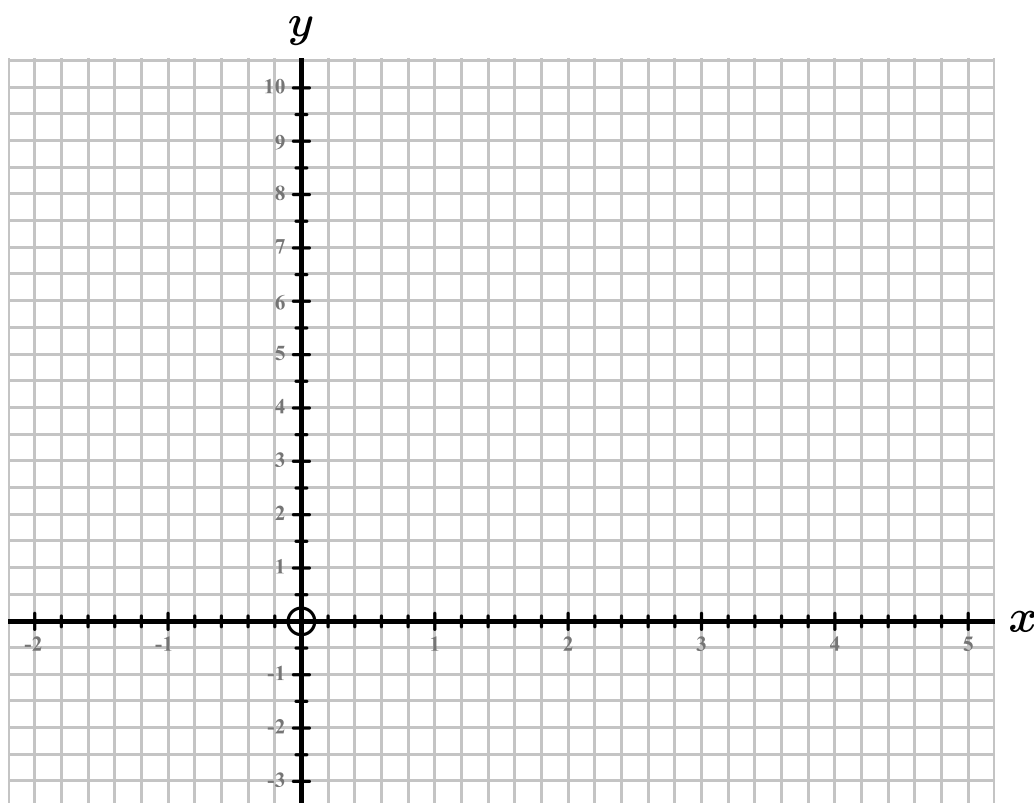
**20(a)** Complete the table of values for  $y = x^2 - 2x$

[2 marks]

$x$	-2	-1	0	1	2	3	4
$y$		3		-1	0		8

**20(b)** On the grid, draw the graph of  $y = x^2 - 2x$

[2 marks]



**Turn over for the next question**

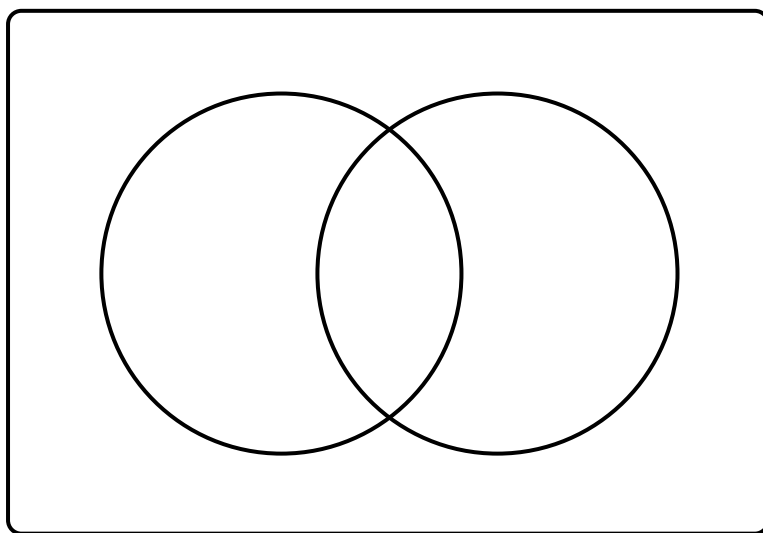
21  $\xi = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$

$A = \{\text{factors of } 30\}$

$B = \{\text{prime numbers}\}$

Complete the Venn diagram for this information.

[4 marks]



22(a) Simplify  $p^3 \times p^4$

[1 mark]

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Answer \_\_\_\_\_

22(b) Simplify  $\frac{12q^7}{3q^2}$

[2 marks]

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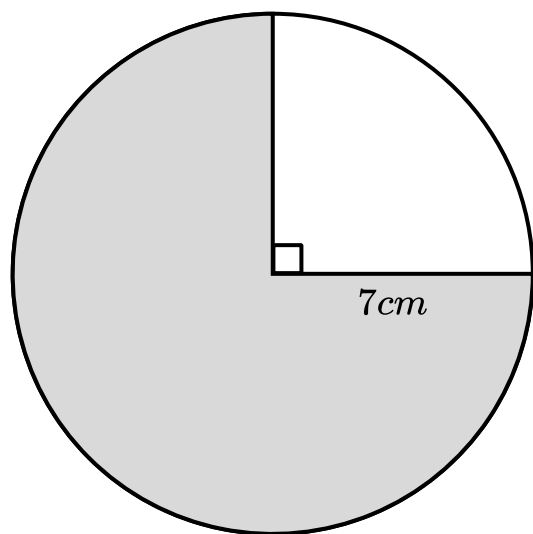
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Answer \_\_\_\_\_



23 Here is a circle.



Work out the shaded area.

Give your answer to 1 decimal place.

[3 marks]

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Answer \_\_\_\_\_  $cm^2$

- 24** A number,  $n$ , is rounded to 1 decimal place.

The result is 8.7.

Complete the error interval for  $n$ .

**[2 marks]**

\_\_\_\_\_  $\leq n <$  \_\_\_\_\_

- 25** Here is some information about the number of siblings that the 32 children have.

Number of siblings	Frequency
0	8
1	13
2	7
3	3
4	1

- 25(a)** Work out the mean number of siblings.

**[3 marks]**

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Answer \_\_\_\_\_

- 25(b)** Explain how you know that your answer is reasonable.

**[1 mark]**

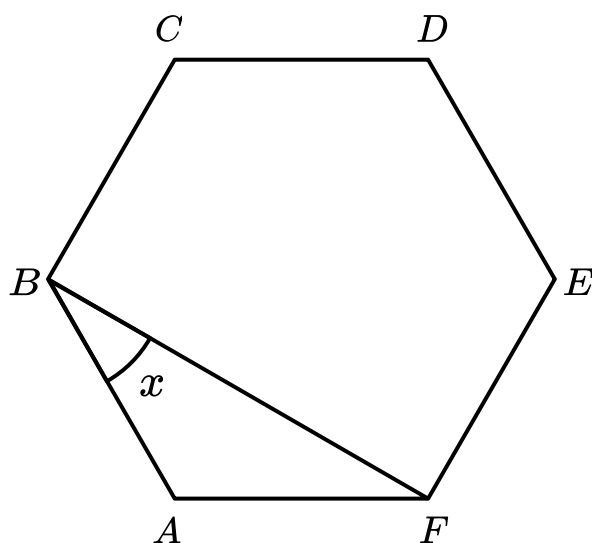
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26 Here is a regular hexagon.



Work out the size of angle  $x$ .

Give reasons for each stage of your working.

**[4 marks]**

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$x =$  \_\_\_\_\_ °

27  $Pressure = \frac{Force}{Area}$

The force is doubled and the area is halved.

What happens to the pressure?

Tick your answer.

[1 mark]

The pressure stays the same	
The pressure is doubled	
The pressure is multiplied by 4	
The pressure is halved	

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28  $a : b = 4 : 1$

Circle the correct equation.

[1 mark]

$a = 4b$

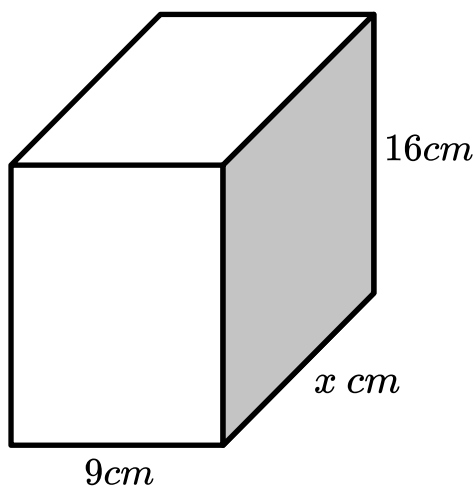
$b = 4a$

$a = 3b$

$b = 5a$

**Turn over for the next question**

- 29** A company is designing some new packaging in the shape of a cuboid.  
The packaging must have a height of  $16\text{cm}$ , a length of  $9\text{cm}$  and a width of  $x\text{ cm}$ , as shown below.



The company wants the surface area to be less than  $900\text{cm}^2$ .

- 29(a)** Show that  $50x + 288 < 900$

**[4 marks]**

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- 29(b)** Solve  $50x + 288 < 900$

**[2 marks]**

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Answer \_\_\_\_\_

- 29(c)**  $x$  must be an integer. Write down the greatest possible value of  $x$ .

**[1 mark]**

Answer \_\_\_\_\_

**30**  $x = 4 \times 10^5$

$y = 6 \times 10^3$

Work out  $x + 2y$ 

Give your answer in standard form.

**[2 marks]**

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Answer \_\_\_\_\_

**End of questions**

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