



THIRD SPACE
LEARNING

Mathematics

Paper 2

(Non-Calculator)

Foundation Tier

OCR GCSE

SET 3


Mathematics Paper 2 (Non-Calculator) Foundation Tier OCR

GCSE SET 3

Name

Total marks

Paper length: 1hr 30mins



Question	Mark
1	
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- ### 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 not be used.

- ### Information
- The total mark for this paper is 100
 - 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.

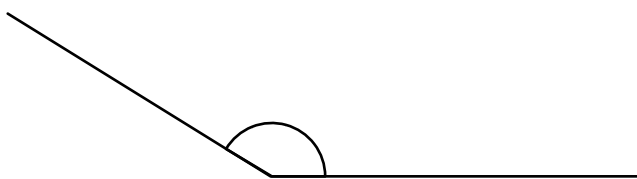
- 1 (a) Write $\frac{7}{10}$ as a decimal.

(a) [1]

- (b) Write 0.75 as a fraction.

(b) [1]

-
- 2 (a) (i) Measure this angle.



(a)(i) [1]

- (ii) Write down the mathematical name for this type of angle.

(a)(ii) [1]

- (b) The angles in a triangle are 35° , 50° and 95° .

Write down the mathematical name for this type of triangle.

(b) [1]

3 (a) Work out.

(i) $-16 - 3$

(a)(i) **[1]**

(ii) -5×12

(a)(ii) **[1]**

(iii) $8.73 - 2.5$

(a)(iii) **[1]**

(b) Write a multiple of 7 that is between 20 and 30.

(b) **[1]**

- 4 (a) Write 3372 to the nearest hundred.

(a) [1]

- (b) By rounding each number to the nearest 10, estimate the value of 62×38.5

(b) [2]

- 5 (a) Work out $\frac{3}{4} - \frac{5}{8}$

(a) [2]

- (b) Work out $\frac{2}{7} \times \frac{3}{10}$

Give your answer as a fraction in its simplest form.

(b) [2]

6 (a) Simplify $b + 7b - 3b$

(a) [1]

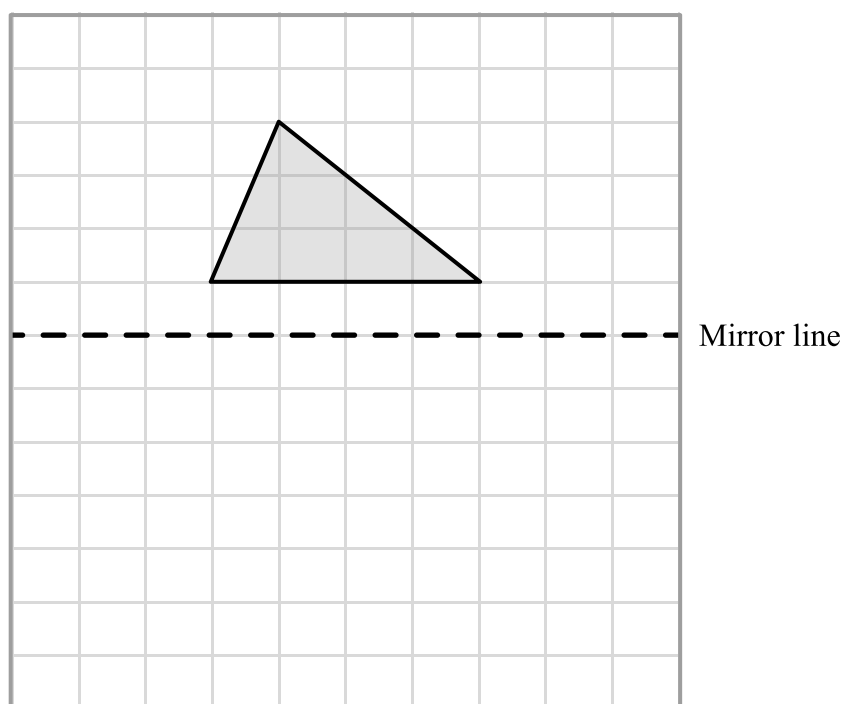
(b) Multiply out $3(2p + 7)$

(b) [1]

(c) Factorise $5q - 30$

(c) [1]

7 On the grid, reflect the shaded shape in the mirror line.



[1]

8 (a) Jordan earns £240 during May.

He spends $\frac{1}{2}$ of his money on clothes.

He spends £30 on food.

What fraction of his money does Jordan have left?

(a) [3]

(b) Jordan buys 3 t-shirts, 6 pairs of shorts and 1 jumper.

Write down the ratio of

shorts : other clothing

that Jordan buys.

Give your answer in its simplest form.

(b) [2]

9 (a) Work out.

(i) $3 + 5 \times 2^2$

(a)(i) **[2]**

(ii) $(3.1 + \frac{2}{5}) \times 0.5$

(a)(ii) **[3]**

(b) Insert one pair of brackets to make the calculation correct.

$$4 \times 3 + 6 \div 2 = 18$$

[1]

10 (a) Nia flips a biased coin. The probability the coin lands on heads is 0.3.

Write down the probability that the coin lands on tails.

(a) **[1]**

(b) Nia flips the coin 200 times.

Work out an estimate for the number of times the coin will land on heads.

(b) **[2]**

- 11** The cost of 3 adult tickets for the cinema is £18.
The cost of 2 adult tickets and 5 child tickets is £28.50.

Work out the cost of 4 adult tickets and 2 child tickets.
You must show all your working.

----- [4]

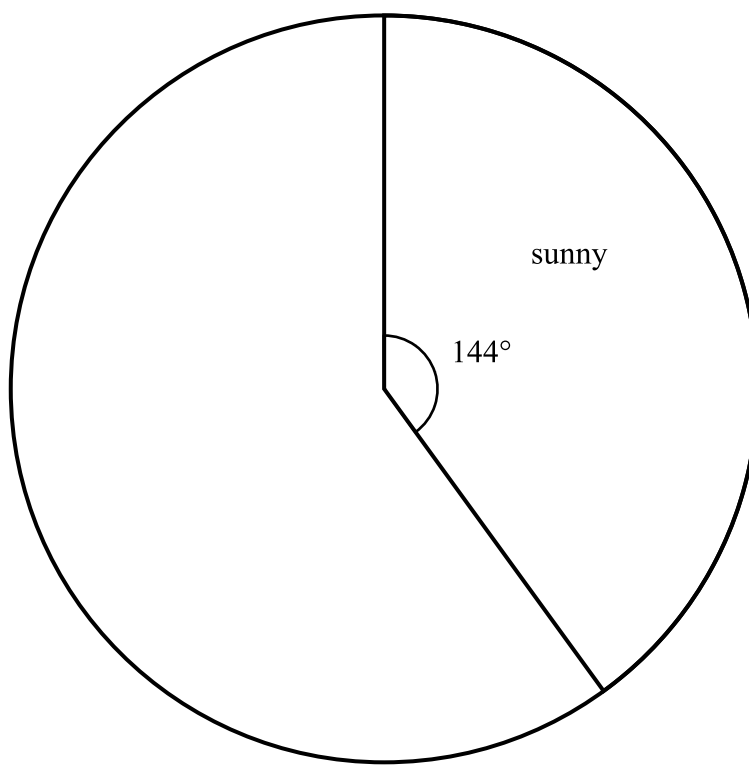
-
- 12** Gwion has a 2 litre bottle of milk. Each day, Gwion uses 240 millilitres of milk.
Gwion says that after 6 days he will have used over 75% of the milk.
Is Gwion correct?
Show how you decide.

----- [4]

13 Details about the weather were recorded over 30 days.

Each day was recorded as sunny OR rainy OR cloudy, depending on the main type of weather that day.

This incomplete pie chart gives some information about the weather over the 30 days.



(a) On how many days was the weather recorded as sunny?

(a) [2]

(b) The weather was recorded as cloudy twice as many days as it was recorded as rainy.

Complete the pie chart.

[6]

14 Here is a list of ingredients for making 12 cupcakes.

Ingredients for 12 cupcakes

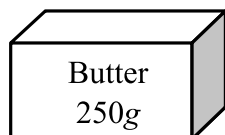
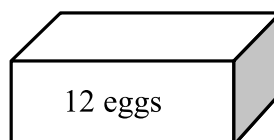
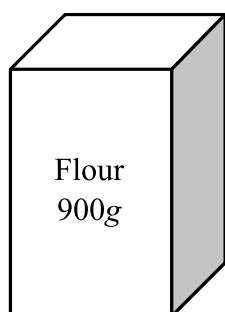
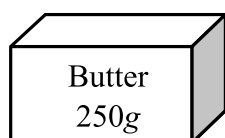
125g butter

100g sugar

2 eggs

150g flour

Katrina buys the following ingredients:



What is the maximum number of cupcakes Katrina can make?

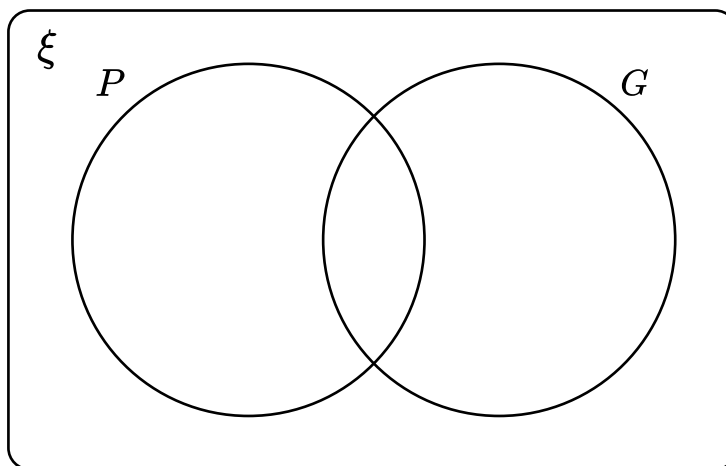
You must show your working.

----- [4]

15 In a group of 100 music students

- 54 play piano (P)
- 47 play guitar (G)
- 21 do not play either.

(a) Complete the Venn diagram.



[3]

(b) One of the 100 students is selected at random.

Find the probability that this student plays exactly one of the two instruments.

(b) [2]

- 16** (a) (i) Sketch the graph of $y = 3$.
Show clearly the value of any intercepts.

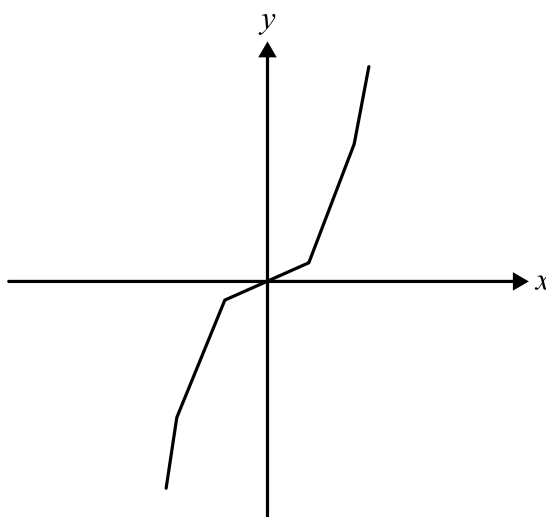


[2]

- (ii) Write down the coordinates of the point of intersection of the line $y = 3$ and $x = 7$.

(a)(ii) [2]

- (b) Tom has sketched the graph of $y = x^3$ below.



Make a criticism of his sketch.

(b)
.....

[1]

17 Stacey buys 300 glow sticks for £40.

Stacey sells all of the glow sticks. She charges 50p for 3 glow sticks.

Calculate Stacey's percentage profit.

----- [4]

18 (a) Complete this statement by writing the missing power in the box.

$$208 = 2^{\square} \times 13$$

[1]

(b) Find the highest common factor of 208 and 78.

(b) ----- [3]

19 (a) The term to term rule for a sequence is

divide by 4

The 3rd term of the sequence is 11.5

Work out the 1st term

(a) [3]

(b) Here are the first 5 terms of a different sequence.

2 7 12 17 22

Put a tick next to the correct statement:

[1]

This is an arithmetic progression	
This is a geometric progression	
This is a Fibonacci sequence	
We are unable to tell what type of sequence this is	

(c) In another sequence, the next term is made by adding the previous two terms.

Which of these sequences follows this rule?

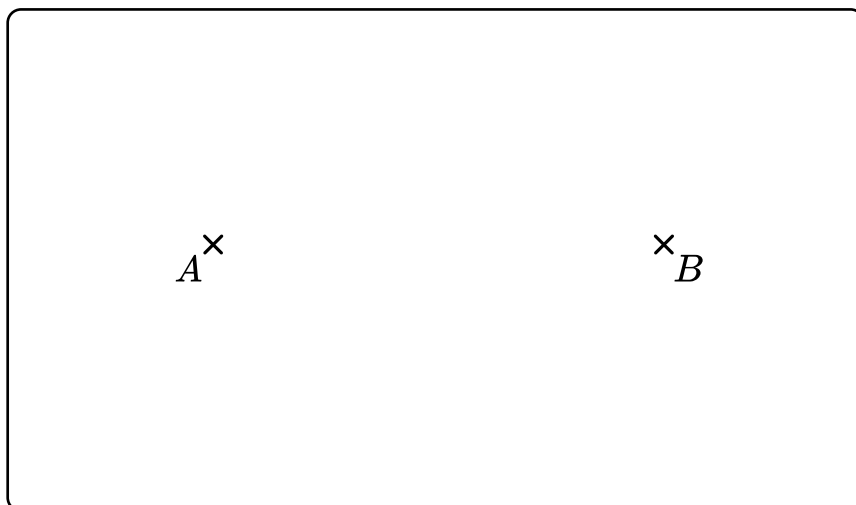
Circle your answer.

[1]

A -3 2 -1 3 -2	B -5 3 -2 1 -1
C -4 1 3 5 7	D -2 -2 -4 2 -2

- 20** The diagram shows the position of two phone masts.

The scale of the diagram is 1 cm represents 20 m .



Lydia lives between two phone masts, A and B .

Lydia lives closer to mast A than mast B , but still within 80 m of mast B .

On the diagram, shade the area where Lydia could live.

[3]

- 21** Write these numbers in order of size.

Start with the smallest.

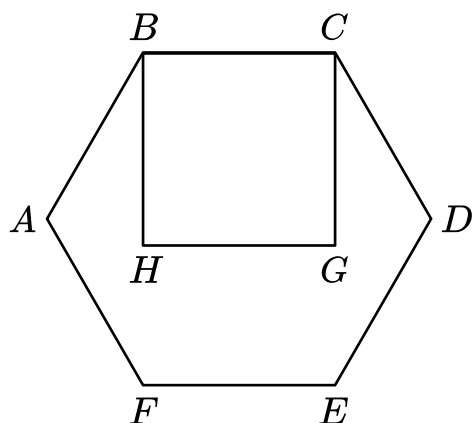
3.65×10^5 365 36.5×10^{-2} 0.0365

smallest

largest

[2]

- 22** $ABCDEF$ is a regular hexagon.
 $BCGH$ is a square.



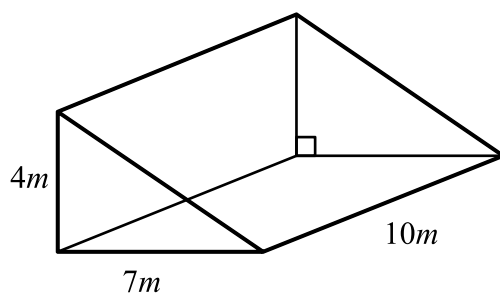
Show that $\text{angle } BHG = 3 \times \text{angle } ABH$.

[4]

- 23** Write down the value of $\cos(60)$.

[1]

24 Here is a triangular prism.

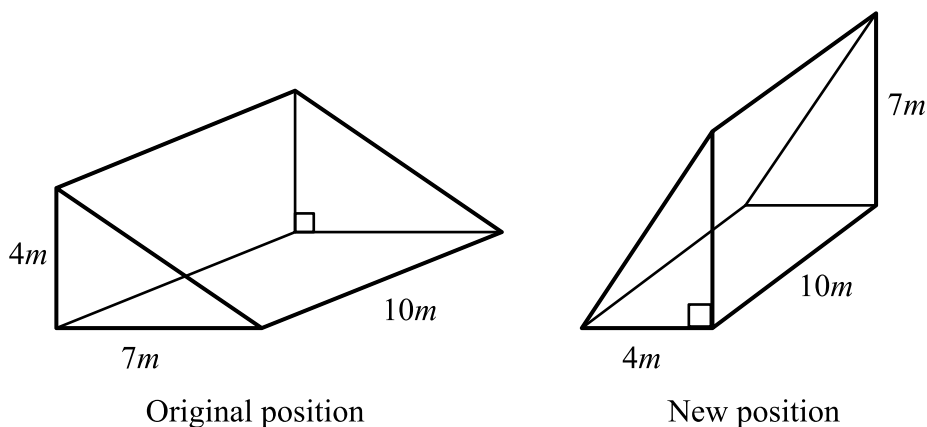


(a) Work out the volume of the prism.

(a) m^3 [2]

(b) The pressure on the table due to the prism is 60 newtons/m^2 .

The prism is rotated 90° , as shown.



$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Work out the pressure on the table after the prism has been rotated.

(b) newtons/m^2 [3]

25 In a football team there are 6 boys and 4 girls.

The mean height of the boys is 130cm and the mean height of the girls is 120cm .

Tiami says the mean height of all the players is 126cm .

Is Tiami correct?

You must show how you get your answer.

----- [4]

26 (a) Simplify $3p^2q \times 4p^3q^2$

(a) ----- [2]

(b) Given $a = 4b^3$ and $b = m^2$, write an expression for a in terms of m .

Give your answer in its simplest form.

(b) $a =$ ----- [2]

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