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Candidate surname

Other names

Centre Number

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Candidate Number

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Mathematics



**FOR FULL VIDEO SOLUTIONS
SCAN THE QR CODE**

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Higher Tier

Predicted Paper 1H - 16th May 2024

Total Marks

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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 be used where indicated, but not otherwise.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.



Disclaimer: No-one can ever be sure what will definitely appear on the GCSE Maths Papers. I have put this paper together based on common topics we often see on Paper 1. I hope you find it helpful!

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Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.



1 Work out 4.08×3.7

.....
(Total for Question 1 is 3 marks)

2 Work out $4 \div 2\frac{2}{3}$

Give your answer as a mixed number in its simplest form.

.....
(Total for Question 2 is 3 marks)



VIDEO
SOLUTIONS

- 3 (a) Write 72 as a product of its prime factors.
Give your answer in index form.

.....
(2)

- (b) Find the lowest common multiple (LCM) of 72 and 90

.....
(2)

(Total for Question 3 is 4 marks)



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SOLUTIONS

4 Billie, Nicky and Katy share some money.

Billie and Nicky have £240 in the ratio 3:5

The amount of money that Nicky has to the amount of money Katy has is in the ratio 3:2

How much money does Katy have?

£.....

(Total for Question 4 is 3 marks)

5 There are only pink cubes, grey cubes and white cubes in a box.

The table shows the probability of taking at random a pink cube from the box.

Colour	pink	grey	white
Probability	0.4		

The number of white cubes in the box is three times the number of grey cubes.

Complete the table.

(Total for Question 5 is 2 marks)



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SOLUTIONS

6 (a) Write 0.00209 in standard form.

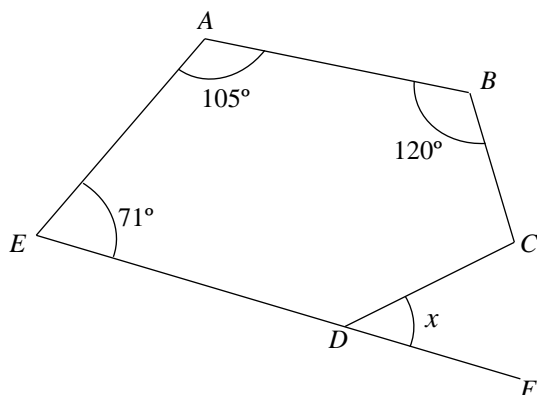
.....
(1)

(b) Write 1.302×10^4 as an ordinary number.

.....
(1)

(Total for Question 6 is 2 marks)

7



ABCDE is a pentagon

EDF is a straight line

Angle *CDE* is 30° greater than angle *BCD*

Work out the size of angle *x*

You must show all your working.

.....
(Total for Question 7 is 4 marks)

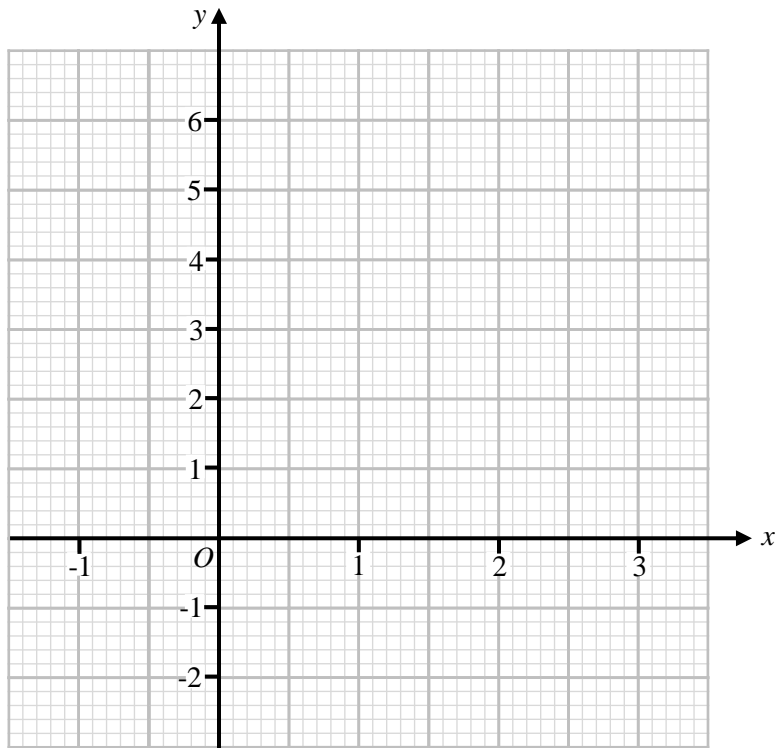
8 (a) Complete the table of values for $y = x^2 - x - 1$

x	-1	0	1	2	3
y					



(2)

(b) On the grid, draw the graph of $y = x^2 - x - 1$ for values of x from -1 to 3



(2)

(c) Using your graph, find estimates for the solutions of the equation $x^2 - x - 1 = 0$

.....
(2)

(Total for Question 8 is 6 marks)



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SOLUTIONS

9 (a) Simplify $(t^4)^3$

.....
(1)

(b) Simplify $20x^3y^{-2} \times 4xy^3$

.....
(2)

(c) Work out $\frac{5^3 \times 5^{-6}}{5^{-5}}$

.....
(2)

(d) Write down the value of 7^0

.....
(1)

(e) Work out the value of $64^{-\frac{2}{3}}$

.....
(2)

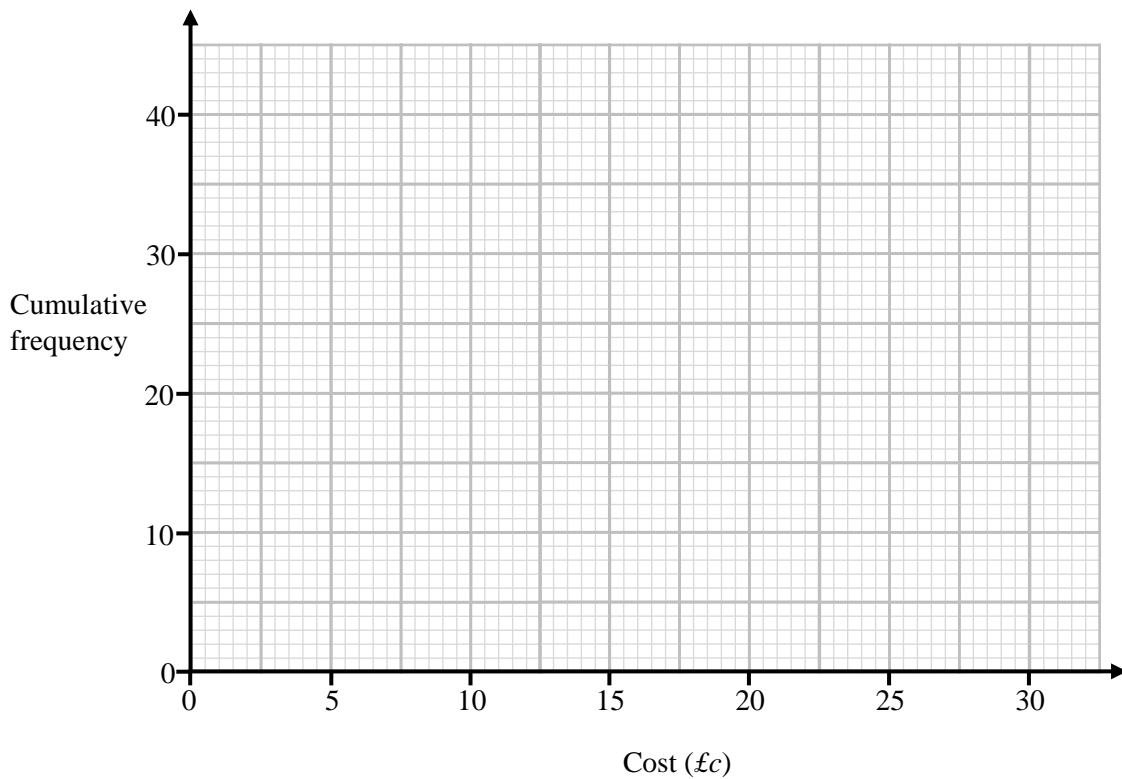
(Total for Question 9 is 8 marks)

- 10 The frequency table gives information about the cost, in pounds (£), of 36 different products in an online store.

Cost (£ c)	Frequency
$0 < c \leq 5$	2
$5 < c \leq 10$	6
$10 < c \leq 15$	10
$15 < c \leq 20$	12
$20 < c \leq 25$	5
$25 < c \leq 30$	1



- (a) On the grid, draw a cumulative frequency graph for this information.



(3)

- (b) Use the graph to find an estimate for the interquartile range.

(2)

(Total for Question 10 is 5 marks)

- 11 Write $1.\dot{4}\dot{5}$ as a mixed fraction in its simplest form.
You must show all your working.



(Total for Question 11 is 3 marks)

- 12 The line L_1 goes through the points $(-3, 5)$ and $(1, 4)$.
The line L_2 is perpendicular to line L_1 and goes through the point $(3, -2)$
Find the equation of the line L_2

(Total for Question 12 is 3 marks)



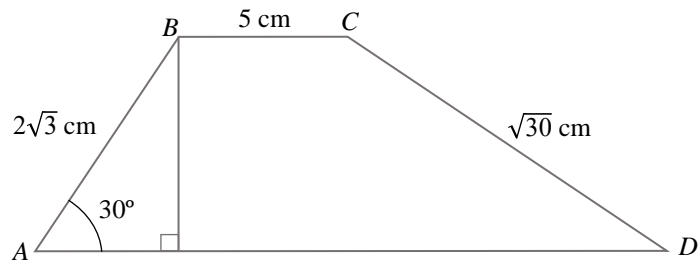
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SOLUTIONS

- 13** There are 8 boys and 12 girls in a class.
The class has a test.
The mean mark for the girls is 30.
The mean mark for the boys is 25.
Work out the mean mark for all the students in the class.

(Total for Question 13 is 3 marks)

- 14** Prove algebraically that the difference between the squares of consecutive integers is equal to the sum of the two integers.

(Total for Question 14 is 3 marks)



$ABCD$ is a trapezium.

$$AB = 2\sqrt{3} \text{ cm}$$

$$BC = 5 \text{ cm}$$

$$CD = \sqrt{30} \text{ cm}$$

$$\text{Angle } BAD = 30^\circ$$

Work out the exact area of the trapezium.

..... cm^2
(Total for Question 15 is 5 marks)



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SOLUTIONS

16 There are only 5 blue sweets, 4 yellow sweets and 3 red sweets in a packet.

Hannah takes two sweets from the packet.

Work out the probability that the two sweets are different colours.

.....
(Total for Question 16 is 4 marks)



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SOLUTIONS

17 y is inversely proportional to x^2

When $y = 10$, $x = 3$

x is directly proportional to z

When $x = 5$, $z = 10$

Find a formula for y in terms of z .

Give your answer in its simplest form.

(Total for Question 17 is 5 marks)

18 Solve $\frac{3x+5}{2} - \frac{2x-1}{3x} = 5$



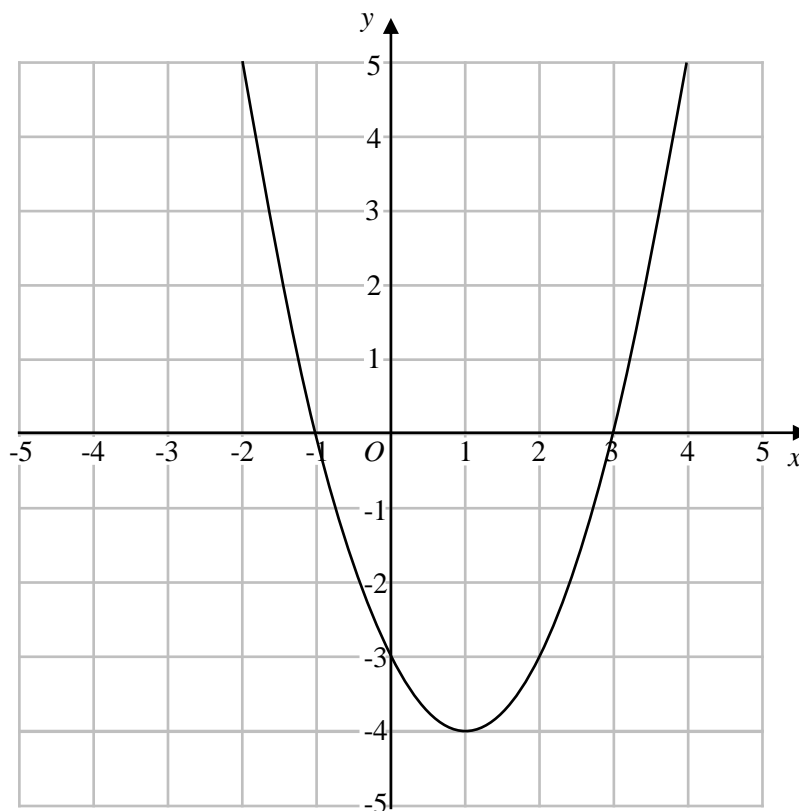
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.....
(Total for Question 18 is 5 marks)



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19 The graph of $y = f(x)$ is shown below



(a) On the grid above, draw the graph of $y = f(x - 1)$

(2)

(b) Write down the coordinates of the turning point of the curve with equation $y = -f(x) + 1$

(.....,))

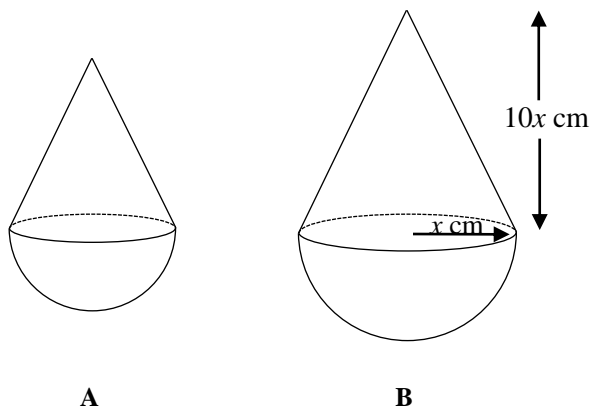
(2)

(Total for Question 19 is 4 marks)

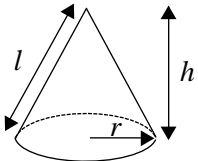


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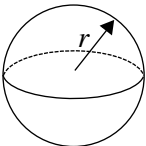
20 Here are two similar shapes, Shape A and Shape B.



Volume of a cone = $\frac{1}{3} \pi r^2 h$



Volume of a Sphere = $\frac{4}{3} \pi r^3$



The total volume of Shape A is $32 \pi \text{ cm}^3$
The total volume of Shape B is $256 \pi \text{ cm}^3$
Calculate the radius of Shape A.

..... cm

(Total for Question 20 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS