1st Class Maths

Video Solutions

SCAN ME

PRACTICE PAPER FOR

AQA Paper 3H (June 2025)

Disclaimer

This paper has been created based on the **most common** paper 3 topics from previous years and also careful analysis of what topics have already appeared in paper 1/2. The paper should be excellent at helping students revise for exams, however should not be relied upon as the basis for revision. The topics from this paper may well appear in the real exams, however there is absolutely no guarantee of this. Some topics may appear, some may not. Anybody giving you any sort of guarantee is misleading you. If any topics or questions from this paper do come up, this is just lucky guessing and nothing more. ☺

Ultimately the best way to prepare for the exams is to **revise all topics**.

You can find a link to this paper and many more completely free resources at www.1stclassmaths.com

Do not write outside the box

Answer **all** questions in the spaces provided.

1 Tom uploads 30 videos to YouTube.
YouTube demonetises 8 of the videos and the rest remain monetised.

1 (a) Write down the relative frequency of **demonetised** videos. **[1 mark]**

Answer _____

1 (b) Write the ratio

monetised videos : demonetised videos

Give your answer in the form n : 1 **[1 mark]**

Answer _____ : 1

2 (a) Factorise fully $6m^4 - 3m^8$ **[2 marks]**

Answer _____

2 (b) Factorise $x^2 + x - 42$ **[2 marks]**

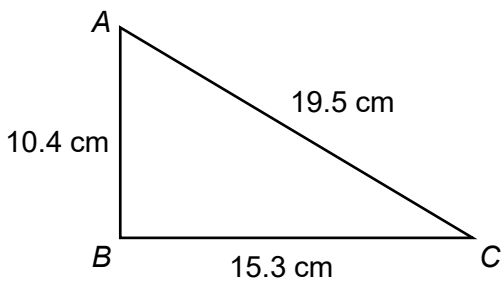
Answer _____

Do not write outside the box

3 Work out the value of $6.5^{999} \div 6.5^{996}$ **[2 marks]**

Answer _____

4 Here is triangle *ABC*.



Not drawn accurately

Is angle *ABC* a right angle?
Show working to support your answer. **[2 marks]**

☐ Yes

☐ No

10

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5 (a) Sequence **A** is a linear sequence with

1st term = 6
5th term = 50

Work out an expression for the nth term of the sequence. **[3 marks]**

Answer _____

5 (b) Sequence **B** is a Fibonacci sequence with

1st term = 2.5
2nd term = 3.3

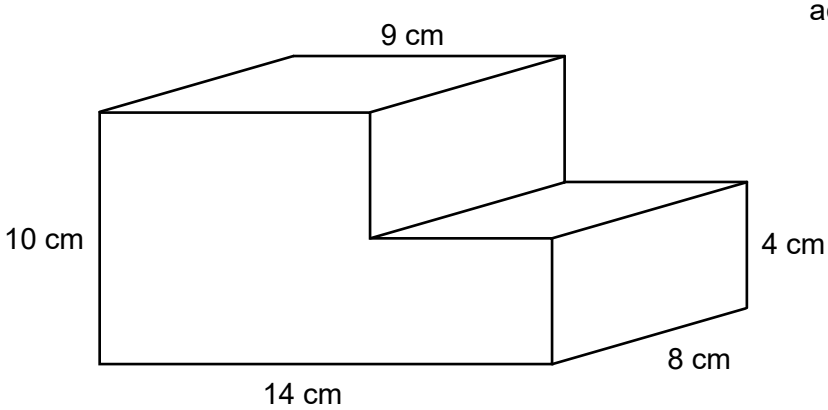
Work out the value of first term in the sequence that is an integer. **[3 marks]**

Answer _____

Do not write outside the box

6 The cross section of a prism is made from two rectangles.

Not drawn accurately



Work out the volume of the prism. **[4 marks]**

Answer _____ cm^3

10

Turn over ►

Video Solutions

Do not write outside the box

7 The table shows information about the screen time of 50 teenagers.

Screen Time, T (minutes)	**Frequency**		
$200 < T \leq 300$	6		
$300 < T \leq 400$	17		
$400 < T \leq 500$	14		
$500 < T \leq 600$	13		

7 (a) Work out an estimate for the mean screen time of the 50 teenagers. **[3 marks]**

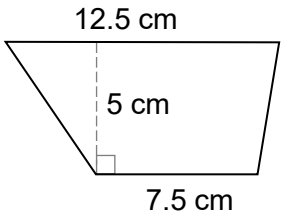
Answer _____ minutes

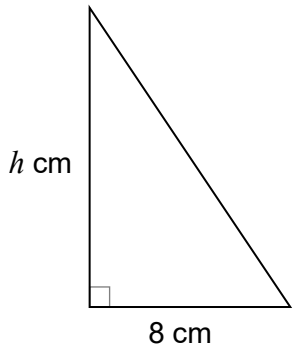
7 (b) Which interval contains the median?
You **must** show your working. **[2 marks]**

Answer _____ $< T \leq$ _____

Do not write outside the box

8 Here is a trapezium and a triangle.





Not drawn accurately

The area of the triangle is 24% more than the area of the trapezium.

Work out the value of h, the perpendicular height of the triangle. **[5 marks]**

h = _____

10

Turn over ►

Do not write outside the box

9 Here is some information about 72 counters in a box.

The counters are coloured either red or green and are either large or small.

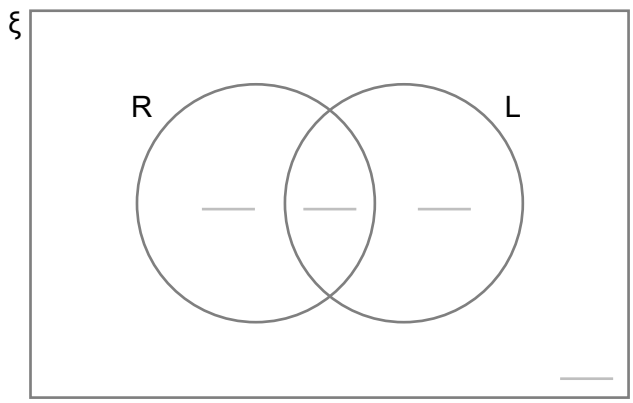
number of red counters : number of green counters = 3 : 5

11 of the red counters are small.

8 of the green counters are large.

9 (a) Complete the Venn diagram to represent the information. **[4 marks]**

ξ = 72 counters in a box
R = red counters
L = large counters



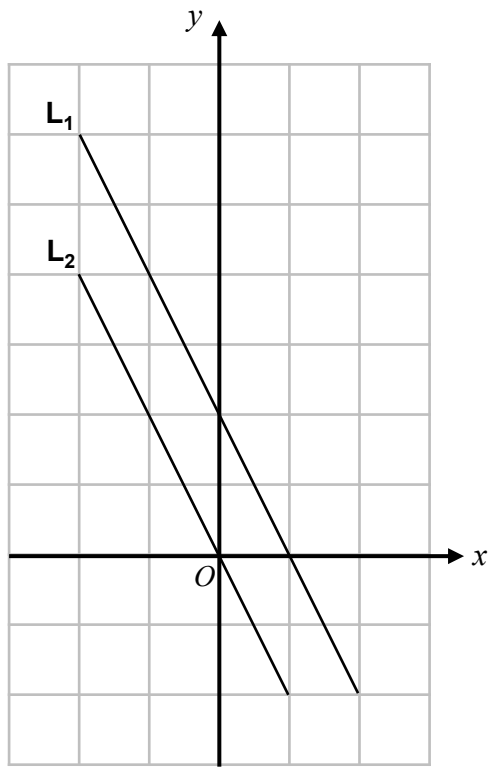
9 (b) One of the counters is chosen at random.

Write down the probability that this counter is a large green counter. **[1 mark]**

Answer _____

Do not write outside the box

10 The lines L_1 and L_2 are shown on the grid.



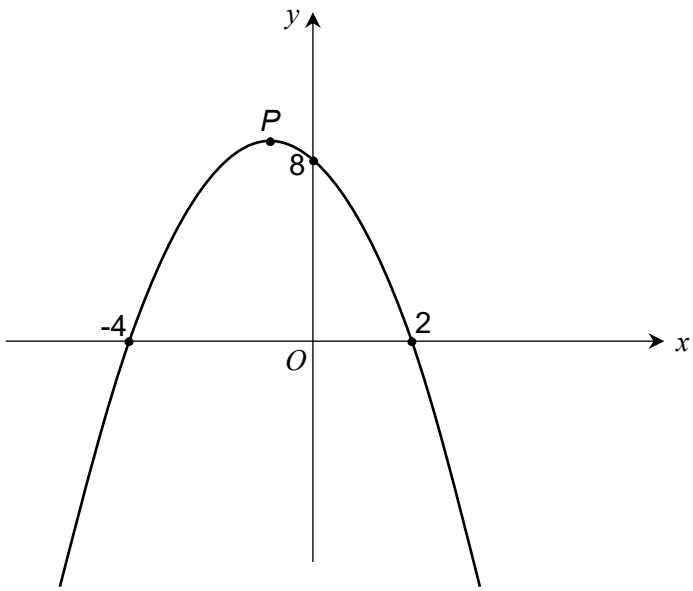
For each statement below, tick the correct box. **[3 marks]**

	Must be true	Could be true	Cannot be true
The gradient of L_1 is positive	☐	☐	☐
The coordinates of the y-intercept of L_1 are (0, 2)	☐	☐	☐
Lines L_1 and L_2 are parallel.	☐	☐	☐

8

Do not write outside the box

11 Here is a sketch of the curve $y = -x^2 - 2x + 8$



11 (a) Write down the roots of $-x^2 - 2x + 8 = 0$ **[1 mark]**

Answer _____ and _____

11 (b) Write down the coordinates of the y-intercept of the curve. **[1 mark]**

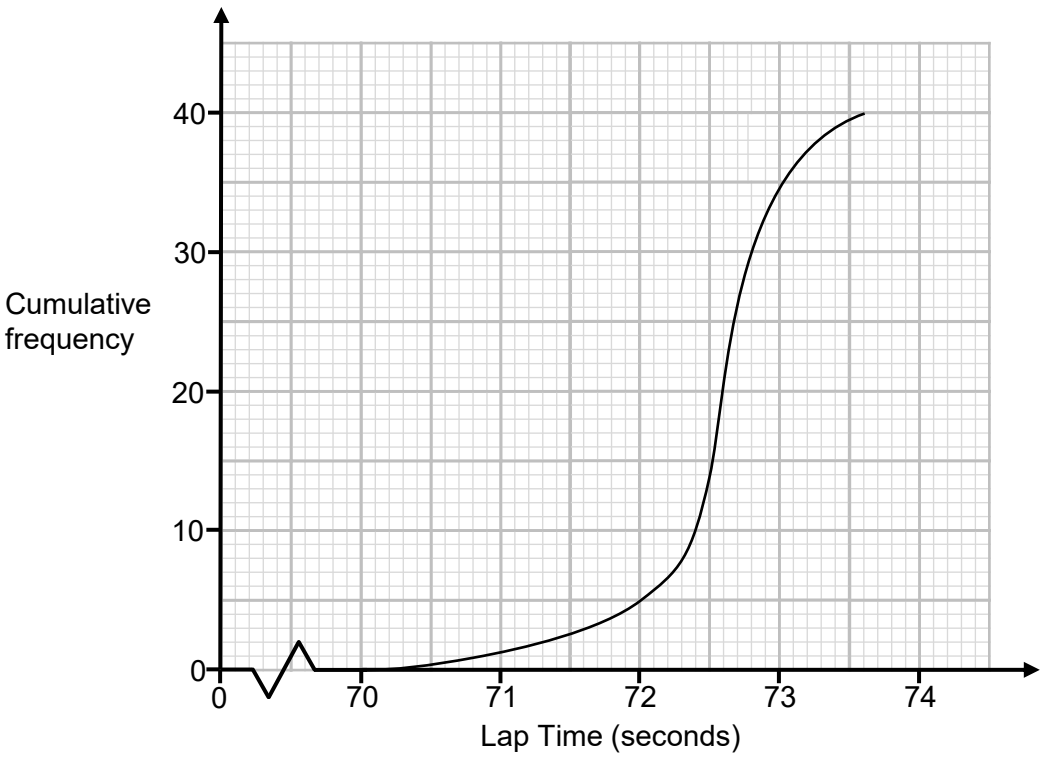
Answer (_____ , _____)

11 (c) Write down the x-coordinate of P, the turning point of the curve. **[1 mark]**

Answer _____

Do not write outside the box

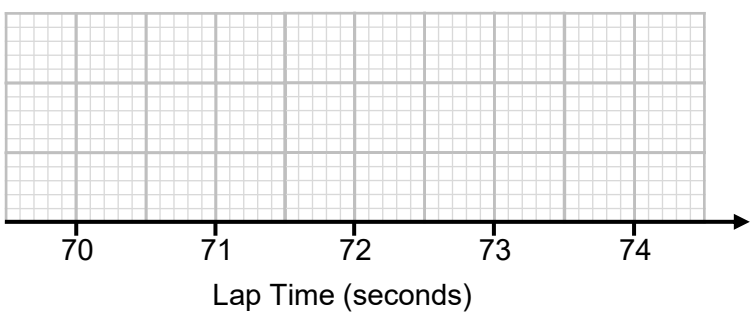
12 The cumulative frequency diagram shows information about the best lap time of 40 racing drivers.



The fastest lap time was 70.9 seconds.
The slowest lap time was 73.6 seconds.

Draw a box plot on the grid below to show the lap times of the 40 racing drivers.

[3 marks]



6

Turn over ►

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13 There are 20 students in a tutor group.
Each week the form tutor must select one student to be "student of the week".
The form tutor does not choose the same student more than once per month.

13 (a) There are 4 school weeks in June.

Work out the number of different ways that the form tutor can select students to be "student of the week" during June. **[2 marks]**

Answer _____

13 (b) There are 3 school weeks in July.

During July, the form tutor is allowed to select the same student more than once.

Work out the number of different ways that the form tutor can select students to be "student of the week" during July **[2 marks]**

Answer _____

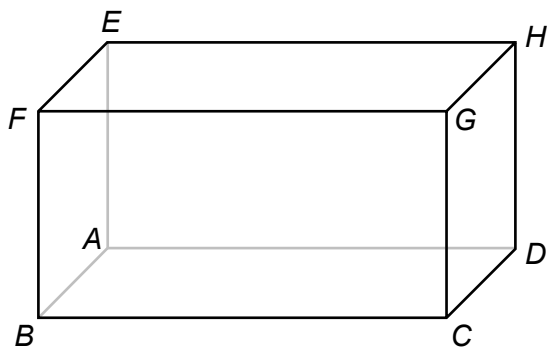
Do not write outside the box

14 Simplify fully $\dfrac{7y-35}{y^2-25}$ **[3 marks]**

Answer _____

15 Here is a cuboid.

$BH = 25.5$ cm $BD = 22.5$ cm $CD = 13.5$ cm



Work out the total length of all 12 edges of the cuboid. **[4 marks]**

Answer _____ cm

11

16 Prove algebraically that $4.8\dot{2} = \frac{217}{45}$ **[3 marks]**

17 A sequence of numbers is formed by the iterative process

$$u_{n+1} = \sqrt{\frac{257 - 19u_n}{8}} \qquad u_1 = 3$$

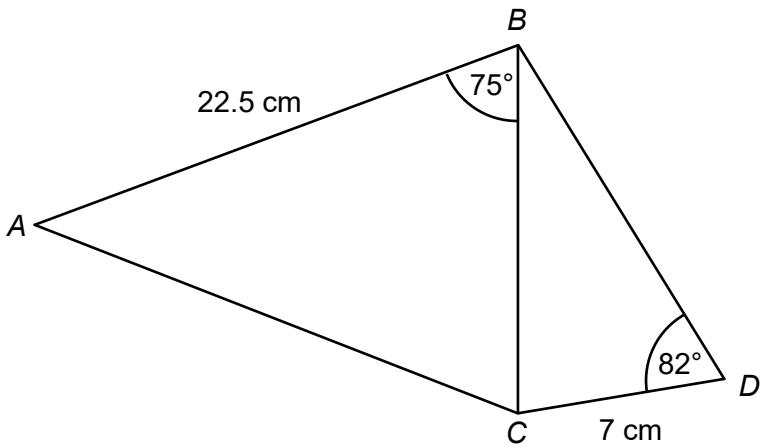
Work out the values of u_2 and u_3 **[2 marks]**

$u_2 =$ _____

$u_3 =$ _____

Do not write outside the box

18 *ABC* and *BCD* are triangles.



Not drawn accurately

The area of triangle *ABC* is 163 cm^2
Work out the size of angle *CBD*.

[5 marks]

Answer _____ °

10

Do not write outside the box

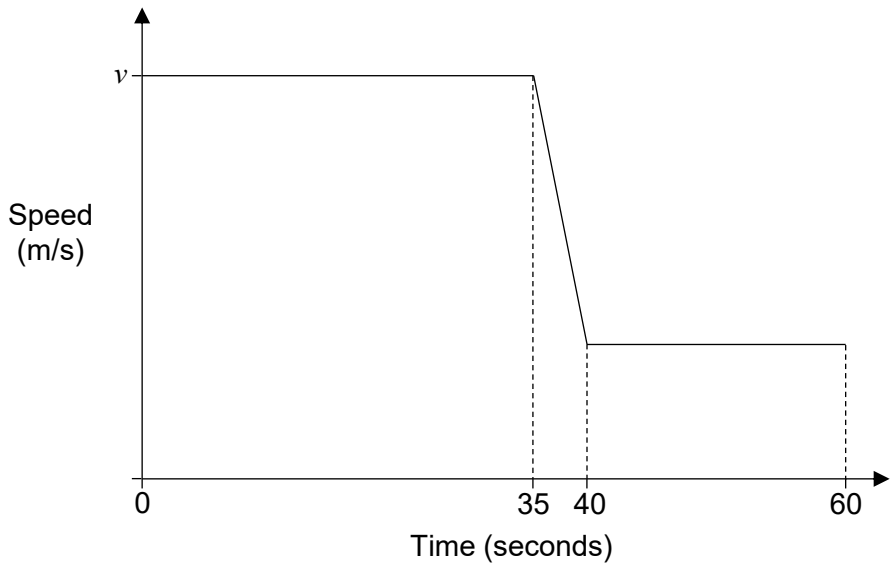
19 The graph shows the speed of a car for a 60 second journey.

The car starts at an initial speed of v m/s.

After 35 seconds the car decelerates for 5 seconds to a new speed.

The new speed is $\frac{1}{3}$ of the initial speed.

The car maintains the new speed for the rest of the journey.



The car travels a total distance of 1215 metres.
Work out the value of v.

[5 marks]

v = _____ m/s

Do not write outside the box

20 Solids **X** and **Y** are similar.

X has a height of 7 cm (to the nearest cm).
Y has a height of 20 cm (to the nearest cm).

The volume of **X** is 630 cm^3 (to 2 significant figures).

Work out the minimum possible volume of Solid **Y**. **[5 marks]**

Answer _____ cm^3

10

Do not write outside the box

21 $y = (x - 1)(x + 2)^2 - x^3$ where x and y are positive numbers.

Find a formula for x in terms of y. **[5 marks]**

$x =$ _____

END OF QUESTIONS

5