1st Class Maths

Video Solutions

SCAN ME

PRACTICE PAPER FOR

AQA Paper 2H (June 2025)

Disclaimer

This paper has been created based on the **most common** paper 2/3 topics from previous years and also careful analysis of what topics have already appeared in paper 1. 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 P(A) = P(A')

Write down P(A) **[1 mark]**

P(A) = _____

2 $\frac{2}{3}$ of $x = 5.4$

Write down the value of $\frac{2}{9}$ of x **[1 mark]**

Answer _____

3 Factorise fully $8x^4y + 20xy^3$ **[2 marks]**

_____

_____

Answer _____

4 A linear sequence starts

40 49 58 67 …

Work out an expression for the nth term of the sequence. **[2 marks]**

_____

_____

_____

Answer _____

Do not write outside the box

5 The table shows information about some islands and groups of islands.

Island(s)	Population	Area (km^2)	Population Density (people per km^2)
Aruba	108000	180	600
Jamaica		11000	255
Bermuda	64000	50	
Bahamas	406000		29

$$\text{population density} = \frac{\text{population}}{\text{area}}$$

Complete the table. **[3 marks]**

9

Do not write outside the box

6 Robin plays a game where he must hit a target with a dart.

6 (a) On Monday, Robin throws a dart at the target 10 times.
6 of his throws hit the target and the rest miss.

Write down Robin's relative frequency for hitting the target on Monday. **[1 mark]**

Answer _____

6 (b) On Tuesday, Robin throws a dart at the target 40 times.
27 of these 40 throws hit the target and the rest miss.

Write down Robin's relative frequency for hitting the target for all of his throws on both Monday and Tuesday. **[1 mark]**

Answer _____

6 (c) Which of your previous answers is a better estimate for the probability that Robin will hit the target?

Tick **one** box and give a reason for your answer. **[1 mark]**

☐ The answer to part (a) is a better estimate

☐ The answer to part (b) is a better estimate

Reason _____

_____

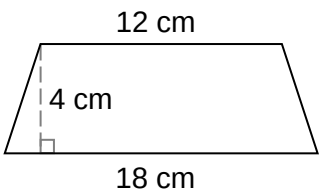
_____

Do not write outside the box

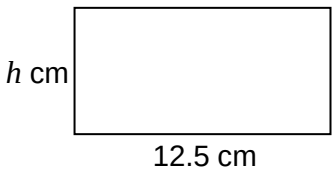
7 Here is a trapezium, a rectangle and a triangle.

Not drawn accurately

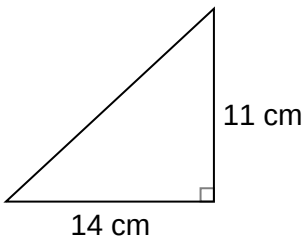
Trapezium



Rectangle



Triangle



The area of the trapezium is less than the area of the rectangle.
The area of the rectangle is less than the area of the triangle.

h, the height of the rectangle is an integer.
Work out two possible values for h.

[5 marks]

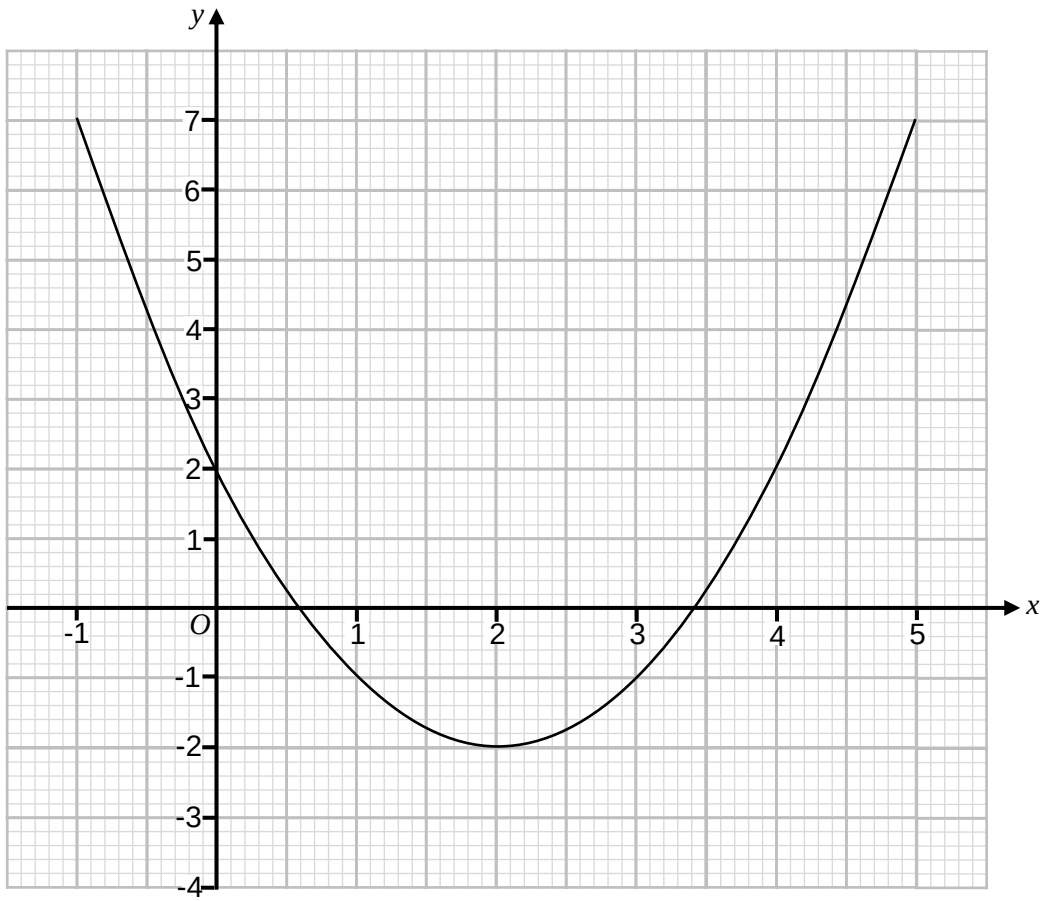
h = _____ and h = _____

8

Turn over ►

Do not write outside the box

8 Here is the graph of $y = x^2 - 4x + 2$ for x values from -1 to 5



8 (a) Write down estimates for the roots of the equation $x^2 - 4x + 2 = 0$ **[2 marks]**

Answer _____ and _____

8 (b) Write down the equation of the line of symmetry of the graph. **[1 mark]**

Answer _____

Do not write outside the box

9 The table shows information about the reaction times R, in seconds, of some sprinters at an athletics club.

Reaction Time, R (seconds)	**Frequency**
$0.10 \leq R < 0.12$	4
$0.12 \leq R < 0.14$	22
$0.14 \leq R < 0.16$	13
$0.16 \leq R < 0.18$	21
$0.18 \leq R < 0.20$	20

9 (a) Write down the modal class. **[1 mark]**

Answer _____ $\leq R <$ _____

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

Answer _____ $\leq R <$ _____

9 (c) Work out the percentage of the sprinters at the athletics club that had a reaction time less than 0.14 seconds. **[2 marks]**

Answer _____ %

8

Turn over ►

Do not write outside the box

10 Zara has £2500 to invest for 4 years.
She sees two different offers.

Offer 1	**Offer 2**
Simple Interest	Compound interest
6% per year	4.5% per year

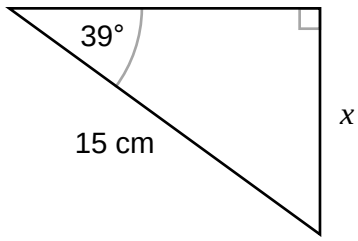
Work out how much more interest Zara would receive by using **offer 1** compared to **offer 2**.

[4 marks]

Answer £ _____

Do not write outside the box

11 Here is a right-angled triangle.



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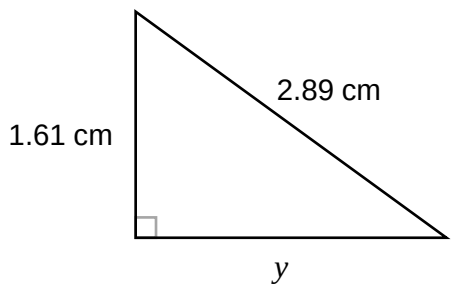
Use trigonometry to work out the value of x. **[3 marks]**

Answer _____ cm

12 Here is a right-angled triangle.



Not drawn accurately

Use Pythagoras' Theorem work out the value of y. **[2 marks]**

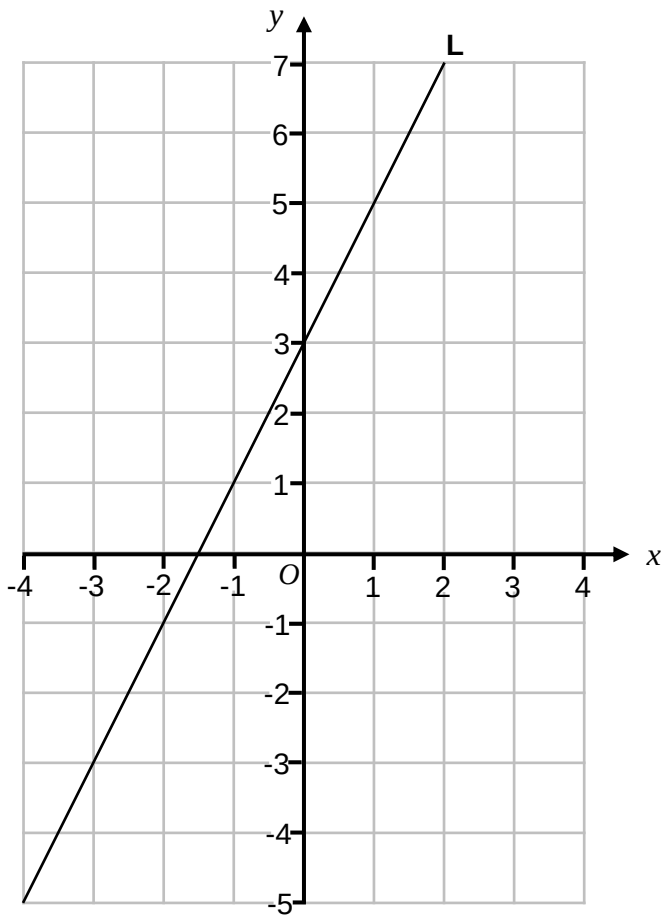
Answer _____ cm

9

Turn over ►

Do not write outside the box

13 The lines **L** is shown on the grid.



Work out the equation of the line **L**.
Give your answer in the form $y = mx + c$ **[3 marks]**

Answer _____

Do not write outside the box

14 a and b are positive integers.

14 (a) Write down an expression, in terms of a and b, for the reciprocal of $\frac{a}{b}$ **[1 mark]**

Answer _____

14 (b) c is equal to the sum of a and b **[1 mark]**
Write down an expression, in terms of a and b, for the reciprocal of c

Answer _____

15 There are x students in Mr Maiden's class and y students in Mr Vickers' class.

15 (a) One student from Mr Maiden's class and one student from Mr Vicker's class are selected to play a game of chess.

Write down an expression, in terms of x and y, for the number of ways that the two students can be selected. **[1 mark]**

Answer _____

15 (b) Mr Maiden selects two different students from his class to win prizes.

One student wins a large prize and the other wins a small prize.

Write down an expression, in terms of x, for the number of ways that Mr Maiden can select the two students from his class to win the prizes. **[1 mark]**

Answer _____

6

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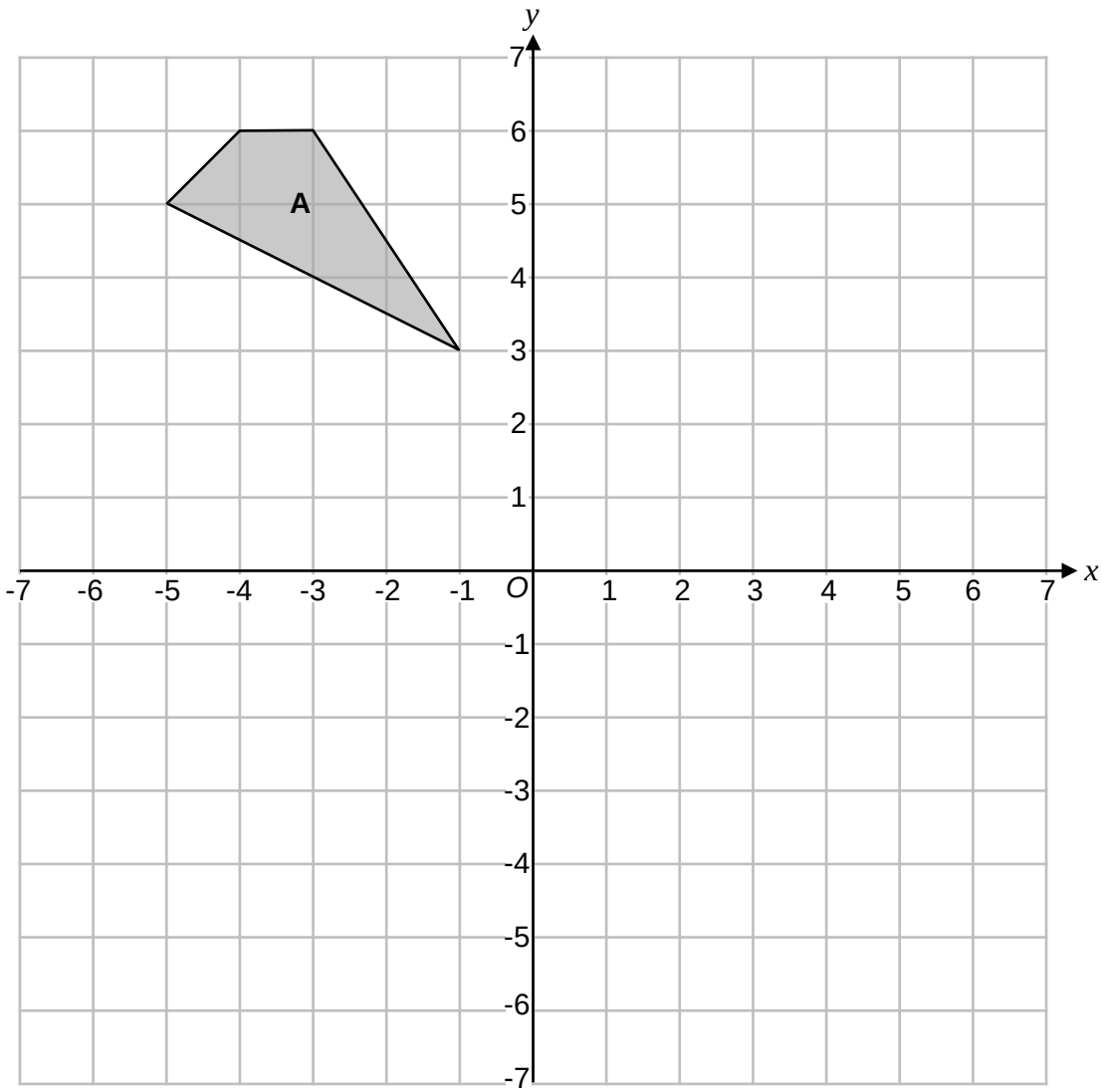
16



Enlarge shape **A** by scale factor -2, centre (-2, 2) **[2 marks]**

Do not write outside the box

17 The equation of a circle is $x^2 + y^2 = 77.44$

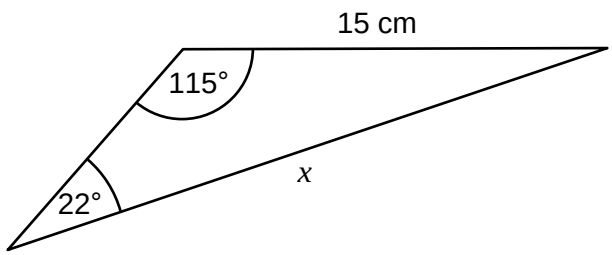
17 (a) Write down the coordinates of the centre of the circle. **[1 mark]**

Answer _____

17 (b) Write down the radius of the circle. **[1 mark]**

Answer _____

18 Here is a triangle.



Not drawn accurately

Work out the length of side x.
Give your answer to 1 decimal place. **[3 marks]**

x = _____ cm

7

Do not write outside the box

19 The table shows information about some sequences.

Sequence	*n*th term	First 5 terms	Type
A	$2n - 5$	-3, -1, 1, 3, 5	Linear
B	n^2	1, 4, 9, 16, 25	
C	10×3^n	30, 90, 270, 810, 2430	

19 (a) Complete the table **[2 marks]**

19 (b) **Sequence D** is formed by subtracting the terms of **sequence A** from the terms of **sequence B**.

Write down the *n*th term of **sequence D**. **[1 mark]**

Answer _____

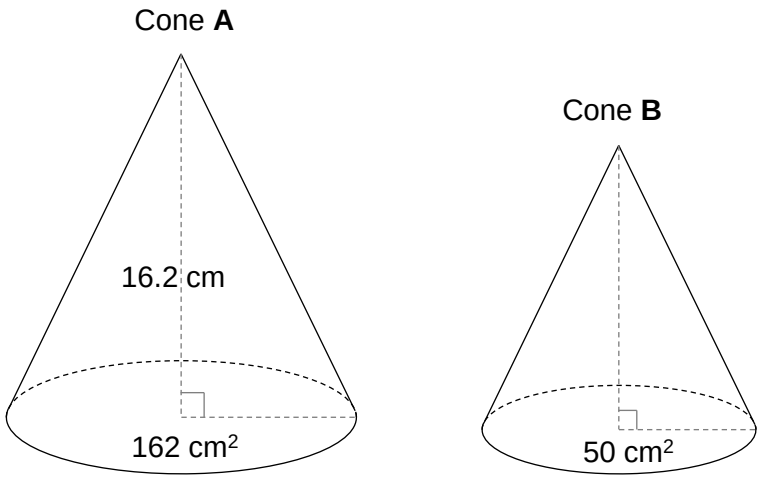
19 (c) **Sequence E** is formed by multiplying the terms of **sequence C** by 4.

Write down the *n*th term of **sequence E**. **[1 mark]**

Answer _____

Do not write outside the box

20 Here are two similar cones.



The perpendicular height of cone **A** is 16.2 cm
The area of the circular base of cone **A** is 162 cm²
The area of the circular base of cone **B** is 50 cm²

Work out the volume of cone **B**. **[4 marks]**

Volume of cone = $\frac{1}{3}\pi r^2 h$ where r is the radius and h is the perpendicular height

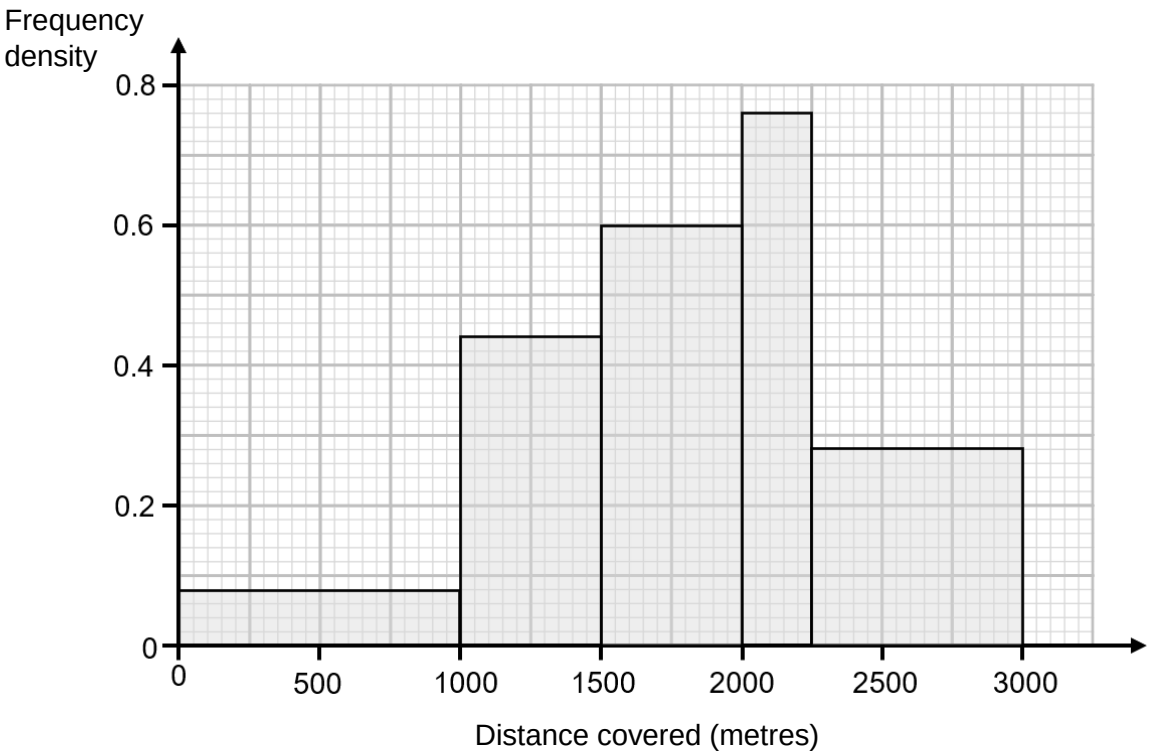
Answer _____ cm³

8

Turn over ►

Do not write outside the box

21 1000 runners are challenged to run as far as they can in 12 minutes.
The histogram below shows the distances ran (in metres) by each of the runners.



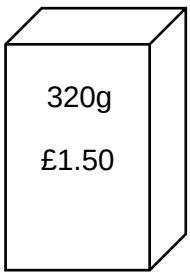
Work out the proportion of the runners that ran at an average speed greater than 2.5 metres per second. **[4 marks]**

Answer _____

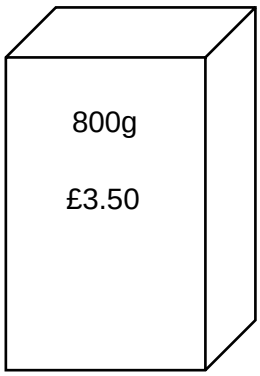
Do not write outside the box

22 A supermarket sells cereal in a small box and a large box.

Small Box



Large Box



The mass of each box is given to the nearest gram.
The price of each box is given to the nearest 10 pence.

Show clearly that the large box **must** be better value for money. **[4 marks]**

8

Turn over ►

Do not write outside the box

23 The current supplied by a mobile phone charger is A amps.
The time taken to fully charge a mobile phone from 0% charge is T minutes.

T is inversely proportional to the square root of A.

Alexander and Graham both have the same type of mobile phone with 0% charge.
Alexander uses a 1.44 amp charger to fully charge his phone in 60 minutes.

23 (a) Work out an equation connecting T and A. **[3 marks]**

Answer _____

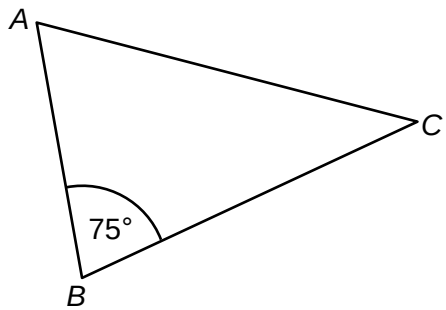
23 (b) Graham has a 2.25 amp charger and a 2.56 amp charger.

Work out which charger will fully charge his phone faster, and by how many minutes. **[3 marks]**

The _____ amp charger is faster by _____ minutes

Do not write outside the box

24 ABC is a triangle.



Not drawn accurately

$AB : BC = 2 : 3$

The area of triangle ABC is 163 cm^2

Work out the length of AC.
Give your answer to 1 decimal place.

[5 marks]

Answer _____ cm

11

Video Solutions

Do not write outside the box

25 $f(x) = \dfrac{6}{x-1}$ $g(x) = 9 - 2x$

Solve $f^{-1}(x) = g(x)$

You **must** show your working. **[5 marks]**

Answer _____

END OF QUESTIONS

5