1st Class Maths

Video Solutions

SCAN ME

PRACTICE PAPER FOR

AQA Paper 1H (June 2024)

Disclaimer

This paper has been created based on the **most common** paper 1 topics from previous years. Due to the nature of some topics they are better suited to paper 1 as if you had a calculator, they would no longer be difficult to do. 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 for the reasons previously mentioned. Some topics may appear, some may not.

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

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

Do not write outside the box

1 Write 0.00037 in standard form. **[1 mark]**

Answer _____

2 Solve $(c + 4)(c + 3) = 0$ **[1 mark]**

Answer _____

3 A straight line has the equation $y = 3 - 4x$

Write down the gradient of the line. **[1 mark]**

Answer _____

4 Shape **A** is enlarged by scale factor 4 to give Shape **B**.

Write down the scale factor of enlargement from Shape **B** to Shape **A**. **[1 mark]**

Answer _____

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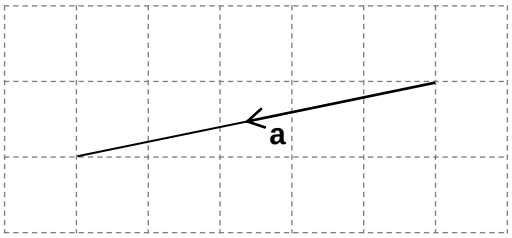
5 The diagram shows the vector **a**.



Write –3**a** as a column vector

[2 marks]

Answer ( )

6 Work out $1.5^2 \times \frac{1}{3}$

Give your answer as a fraction.

[2 marks]

Answer _____

7 A circle is made from two semi-circles.
The area of one of the semi-circles is 18π cm^2

Work out the circumference of the circle.
Give your answer in terms of π.

[3 marks]

Answer _____ cm

11

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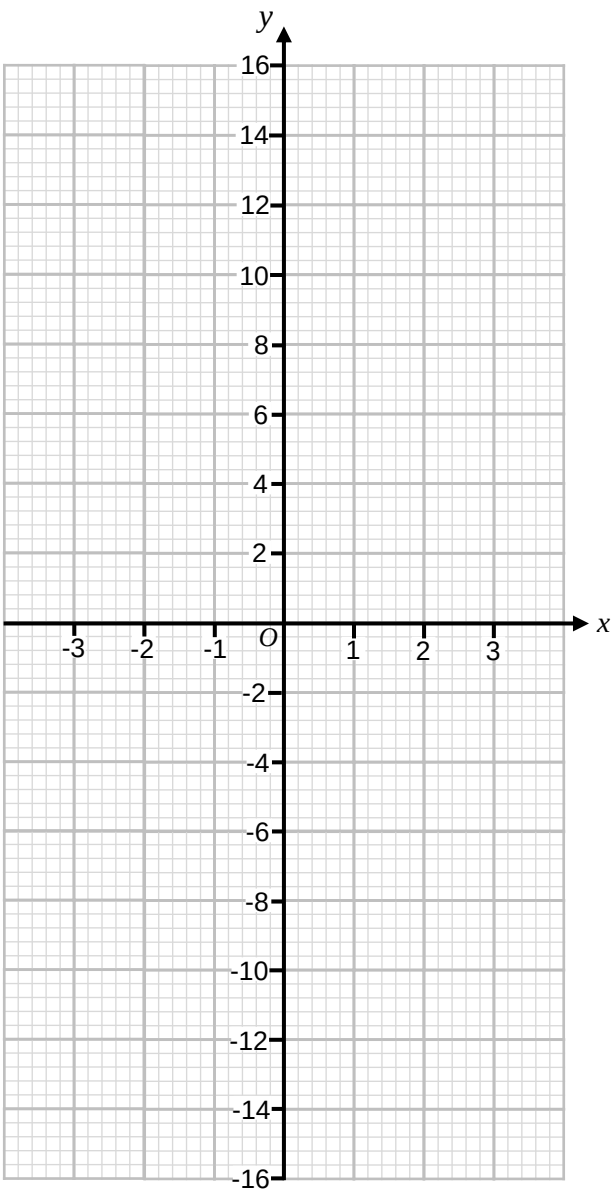
8 (a) Complete the table of values for $y = x(x^2 - 4)$ **[2 marks]**

x	-3	-2	-1	0	1	2	3
y				0	-3		15

8 (b) On the grid, draw the graph of $y = x(x^2 - 4)$ for x values from -3 to 3 **[2 marks]**



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9 A bag contains only red, green and yellow counters.

The number of green counters is 15 more than the number of red counters.
The number of yellow counters is 4 more than the number of green counters.

$\frac{1}{5}$ of the counters in the bag are red.

Work out the number of red counters in the bag. **[4 marks]**

Answer _____

10 The volume of a cube is $8x^6$ cm^3

Find an expression, in terms of x, for the surface area of the cube. **[3 marks]**

Answer _____ cm^2

11

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11 Sasha records the temperature Monday, Tuesday and Wednesday.

Between Monday and Tuesday the temperature **increased** by 10%
Between Tuesday and Wednesday the temperature **decreased** by 20%
Between Monday and Wednesday the temperature **decreased** by x%

Work out the value of x **[3 marks]**

x = _____

12 The first two terms of a geometric progression are shown below

$\frac{3}{4}$, $\frac{3}{10}$,

Work out the third term. **[3 marks]**

Answer _____

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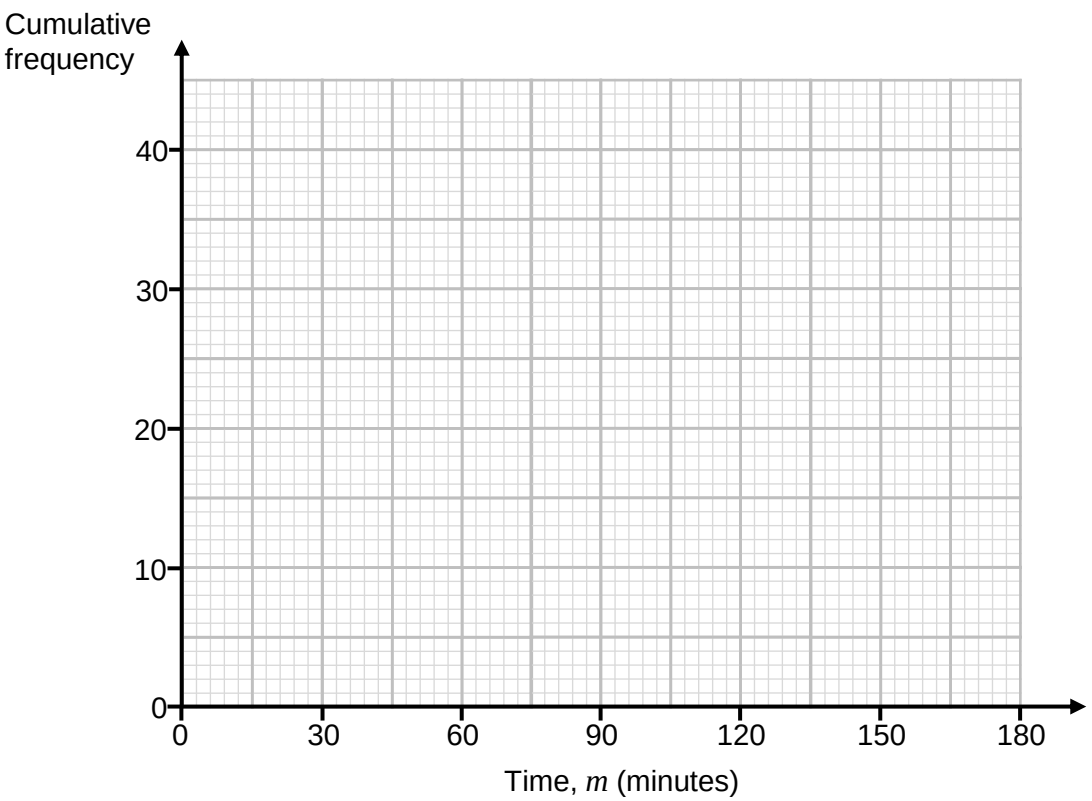
13 Here is some information about the number of minutes, m, some students spent using their mobile phones in one evening.

Time, m, (minutes)	$0 < m \leq 45$	$45 < m \leq 90$	$90 < m \leq 135$	$135 < m \leq 180$
Frequency	3	9	18	6

13 (a) Complete the cumulative frequency table. **[1 mark]**

Time, m, (minutes)	$m \leq 45$	$m \leq 90$	$m \leq 135$	$m \leq 180$
Cumulative Frequency				

13 (b) Draw a cumulative frequency graph for this information. **[2 marks]**



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14 Jess collects trading cards that are either rare, uncommon or common.

In her collection she has

5 rare cards
8 uncommon cards
many common cards

All the cards in her collection are different.

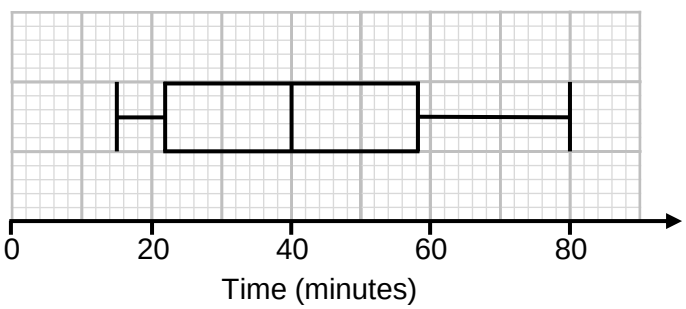
Jess selects 1 rare card, 1 uncommon card and 1 common card from her collection to give to her friend.

Jess says:

"There are 1100 different ways of selecting the three cards to give to my friend"

Show that Jess must be incorrect. **[2 marks]**

15 The box plot below shows information about the times taken, in minutes, for some runners to complete a race.



Work out the interquartile range of the race times. **[2 marks]**

Answer _____ minutes

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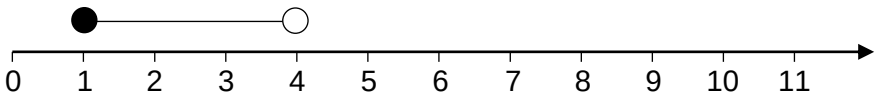
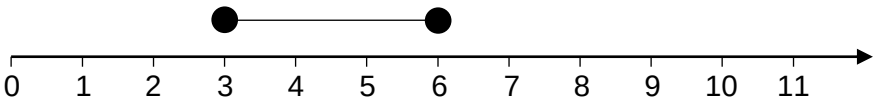
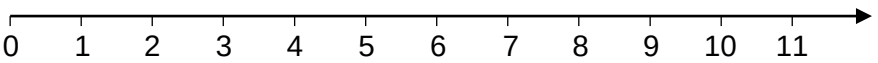
16 The number line below represents an inequality for x



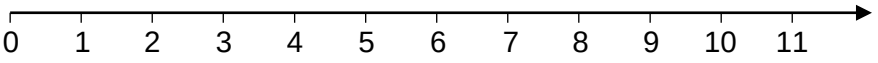
The number line below represents an inequality for y



16 (a) Given the inequalities above, represent the inequality for $2x$ on the number line below. **[1 mark]**



16 (b) Given the inequalities above, represent the inequality for $x + y$ on the number line below. **[2 marks]**



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17 The equations of lines $\mathbf{L_1}$ and $\mathbf{L_2}$ are shown below, where k is a positive integer.

$\mathbf{L_1}$ $2x + 5y = k$
$\mathbf{L_2}$ $2x - 3y = 36$

Lines $\mathbf{L_1}$ and $\mathbf{L_2}$ intersect at the point A.
The x-coordinate of point A is 15.

17 (a) Work out the y-coordinate of the point A. **[2 marks]**

Answer _____

17 (b) Work out the value of k. **[2 marks]**

k = _____

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18 Convert $3.\dot{5}\dot{1}$ to an improper fraction.

Give your answer in its simplest form. **[3 marks]**

Answer _____

19 Here is an identity

$(x + a)(x^2 + 4x - 5) \equiv x^3 + bx^2 + cx - 10$

Work out the values of a, b and c. **[4 marks]**

$a =$ _____ $b =$ _____ $c =$ _____

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20 L is directly proportional to $H^{\frac{2}{3}}$
$L = 36$ when $H = 27$

20 (a) Work out an equation connecting L and H. **[3 marks]**

Answer _____

20 (b) Work out the value of L when $H = 8$. **[2 marks]**

Answer _____

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21 $(9^6)^{50} = 3^x$

Work out the value of x. **[2 marks]**

$x =$ _____

22 $x = \tan(60°)$
$y = \sin(60°)$

Show that $8xy^3$ is an integer. **[4 marks]**

11

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23 Some students complete a maths test and an English test.

70% of the students passed **at least** one of the two tests.

$\frac{3}{5}$ of the students passed **only one** of the two tests.

The ratio of the number of students who passed the maths test to the number of students who passed the English test is 2 : 3

Work out the percentage of the students that passed the English test. **[5 marks]**

Answer _____ %

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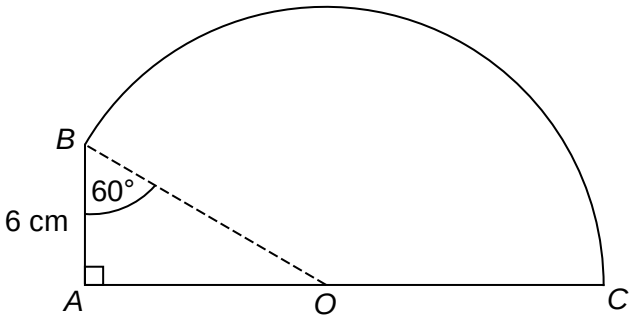
24 A compound shape is made by joining triangle *ABO* with sector *OBC.*



AOC is a straight line.
Angle *ABO* = 60°
Angle *OAB* = 90°
AB = 6 cm

Work out the exact value of the perimeter of the compound shape.

Give your answer in the form $a\pi + b\sqrt{3} + c$ where a, b and c are integers.

[5 marks]

Answer _____ cm

10

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25 $f(x) = \dfrac{9 - 4x}{x}$ $g(x) = 3 - 2x$

25 (a) Work out $fg(0.5)$ **[2 marks]**

Answer _____

25 (b) Show that $f(\sqrt{3}) = a\sqrt{3} + b$ where a and b are integers. **[3 marks]**

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25 (c) Solve $f^{-1}(x) = g(x)$ **[5 marks]**

Answer _____

END OF QUESTIONS

10

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