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With solutions by

Video Solutions



Class
Maths



PRACTICE PAPER FOR

AQA Paper 1F (June 2023)

----- Disclaimer -----

In 2022 I wrote a series of predicted papers that in many cases reflected the real exam paper very well. This was due to the exam boards providing advance information on the topics that were going to be in each paper. This information is no longer provided so “predicting” a paper is not possible. Nobody can know what topics and types of questions will come up in each paper, apart from the few examiners that write them.

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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----- INFORMATION FOR TEACHERS -----

You will want to remove this page before printing to ensure that questions across a double page print in the correct places.

This paper been produced with careful analysis from previous papers.

The **Series** percentage below shows the percentage of times that this topic came up across a whole set of 3 papers. Some topics tend to appear almost every year in at least one paper.

The **Paper 1** percentage below shows the percentage of times that this topic came up specifically in the non calculator paper. As expected certain topics favour paper 1 over paper 2/3

Topic	Series	Paper 1	Question(s)
Simplify Algebraic Expressions	100%	50%	1
Negative Numbers	90%	70%	2
Types of Number (Prime, Squares, Cubes etc)	100%	40%	3
Multiples/Factors	90%	20%	3
Order Numbers	60%	60%	4
Money Problem	100%	90%	5
Probability Calculation	100%	70%	6
Write as a Ratio	100%	70%	6, 15, 22
Solving Linear Equations	100%	80%	7
Fraction of an Amount	100%	50%	8
Averages and the Range	90%	60%	9
Time Conversions	100%	50%	10
Metric Unit Conversions	100%	40%	11
Circles and Sectors	90%	50%	12
Sequences	100%	50%	13
Averages from Tables	90%	40%	14
Fractions, Decimals and Percentages	100%	40%	15
Straight Line Graphs	90%	40%	16
Transformations	80%	40%	17
Multiply/Divide with Decimals	70%	70%	18
Solve Inequality	100%	80%	19
Standard Form	100%	80%	20
Substitution	100%	60%	21
Form Expression/Equation/Formula	100%	20%	21
Area of Rectilinear Shapes	100%	60%	22, 23
Application of Ratio	90%	60%	22
Index Laws	60%	60%	23
Exact Trig Values	40%	40%	24



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

Do not write
outside the
box

1 (a) Simplify $t + t + t$ [1 mark]

Answer _____

1 (b) Simplify $2 \times b \times b$ [1 mark]

Answer _____

2 (a) Work out $-7 + 1$ [1 mark]

Answer _____

2 (b) Work out -4×-3 [1 mark]

Answer _____





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outside the
box

3 Here are some numbers

5 6 8 16 20 24

3 (a) From the list write down a square number

[1 mark]

Answer _____

3 (b) From the list write down a multiple of 10

[1 mark]

Answer _____

3 (c) From the list write down a prime number

[1 mark]

Answer _____

3 (d) From the list write down a factor of 12

[1 mark]

Answer _____

$\frac{\quad}{8}$

Turn over ►





4 Here are some symbols



Write one symbol in each box below to make the statements correct. [3 marks]
One has been done for you.

$$2^2 \quad = \quad 2 \times 2$$

$$0.7 \quad \square \quad 0.66$$

$$-6 \quad \square \quad -4$$

$$3 + 2 \times 5 \quad \square \quad 25$$

5 Here are the prices of some items in a shop.

Calculator	£5.00
Pencil Case	£2.60
Pens	£0.30

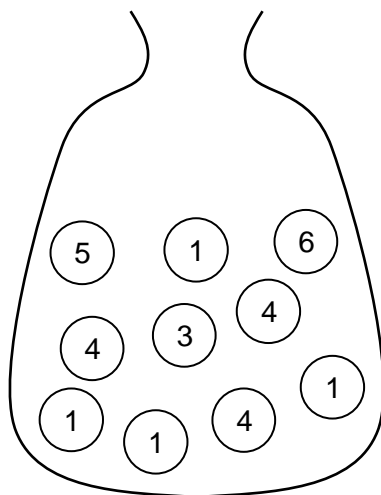
Joe has £10.00 to spend in the shop.
He buys a calculator and a pencil case.
He spends the rest of his money on pens.
Work out how many pens he can buy.

[3 marks]

Answer _____



- 6 A bag contains 10 numbered counters.



A counter is selected from the bag at random.

- 6 (a) Write down the probability that the counter selected is a number 4 [1 mark]

Answer _____

- 6 (b) Write down the probability that the counter selected is **not** a number 5 [1 mark]

Answer _____

- 6 (c) Write $\frac{\text{number of counters with an even number}}{\text{number of counters with an odd number}}$

Give your answer in simplest form.

[2 marks]

Answer _____ : _____





Do not write
outside the
box

7 Solve $2y - 5 = 13$ [2 marks]

$y =$ _____

8 Work out $\frac{8}{5}$ of 205 [3 marks]

Answer _____





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outside the
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9 Here are six groups of numbers.

Group A

4	4	4	4
---	---	---	---

Group B

2	4	6	8
---	---	---	---

Group C

2	6	10	10
---	---	----	----

Group D

0	4	6	10
---	---	---	----

Group E

4	4	8	8
---	---	---	---

Group F

-4	0	4	8
----	---	---	---

Complete the statements below.

9 (a) Group _____ has the greatest range. [1 mark]

9 (b) Group _____ and Group _____ have the same median. [1 mark]

9 (c) Group _____ has a mean of 7. [1 mark]

9 (d) Group _____ has two modes. [1 mark]

9

Turn over ►





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10 The table below shows the lengths of 3 different films.

Film	Length
A	1h 15 minutes
B	2h 41 minutes
C	1h 37 minutes

Aaron has 6 hours to watch all of the films.

Aaron can watch all of the films and still have some time spare.

Work out how much time Aaron has spare.

Give your answer in minutes.

[4 marks]

Answer _____ minutes





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11 Write the following lengths in order.
Start with the smallest.

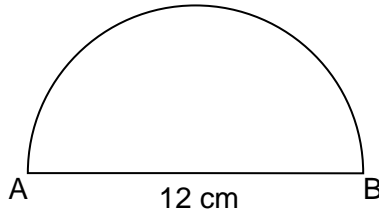
[3 marks]

0.7 m 80 mm 11 cm 0.1 km

Smallest _____

Largest _____

12 Here is a semi circle with diameter AB = 12 cm



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

[3 marks]

Answer _____ cm²

$\frac{\quad}{10}$

Turn over ►





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13(a) The term-to-term rule of a sequence is

Multiply by 4 then subtract 1

The first term of the sequence is 4

Work out the second and third terms of the sequence

[2 marks]

Second term _____

Third term _____

13(b) The term-to-term rule of a different sequence is

Add 7 then multiply by 2

The **third** term of the sequence is 17

Work out the **second** term of the sequence.

[2 marks]

Answer _____





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14 Connor asked each of his friends how many detentions they had this week.

Detentions	Frequency
0	2
1	5
2	2
3	1

Work out the mean number of detentions.

[3 marks]

Answer _____

$\frac{\quad}{7}$

Turn over ►





Do not write
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15 A bag contains counters that are either red, blue or green.

25% of the counters are red.

$\frac{1}{3}$ of the counters are blue.

The rest are green.

Work out number of : number of : number of
 red counters : blue counters : green counters

Give your answer in simplest form.

[4 marks]

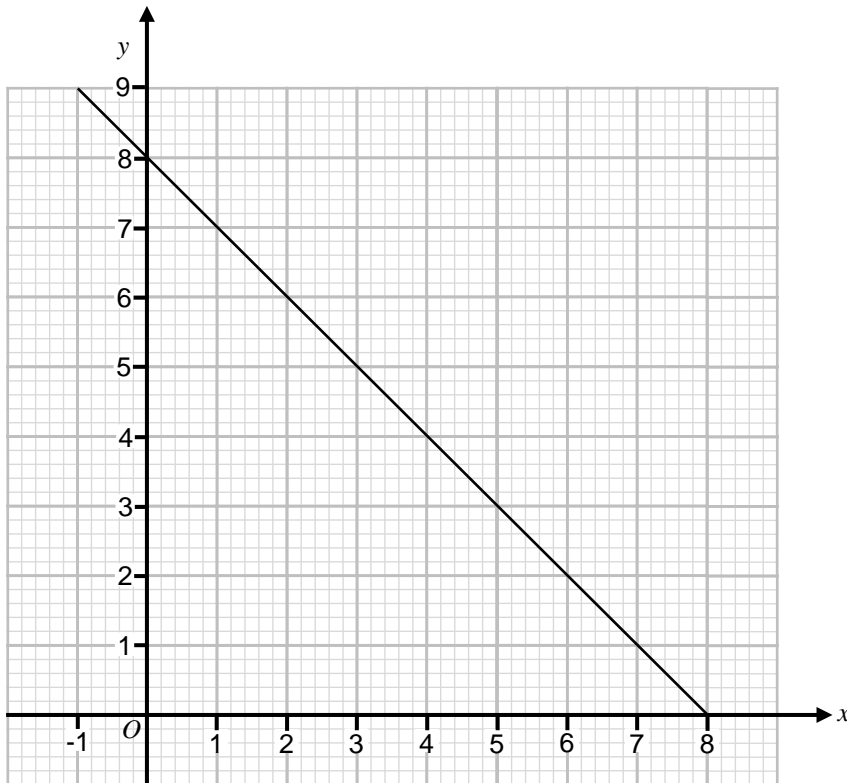
Answer _____ : _____ : _____



16 The graph of $y = 8 - x$ for x values from -1 to 7 is shown on the grid.

16 (a) On the grid, draw the graph of $y = \frac{1}{2}x + 3$ for x values from -1 to 7

[3 marks]



16 (b) Use your graph to solve $\frac{1}{2}x + 3 = 8 - x$

[1 mark]

Give your answer as a decimal.

$x =$ _____

$\frac{1}{8}$

Turn over ►

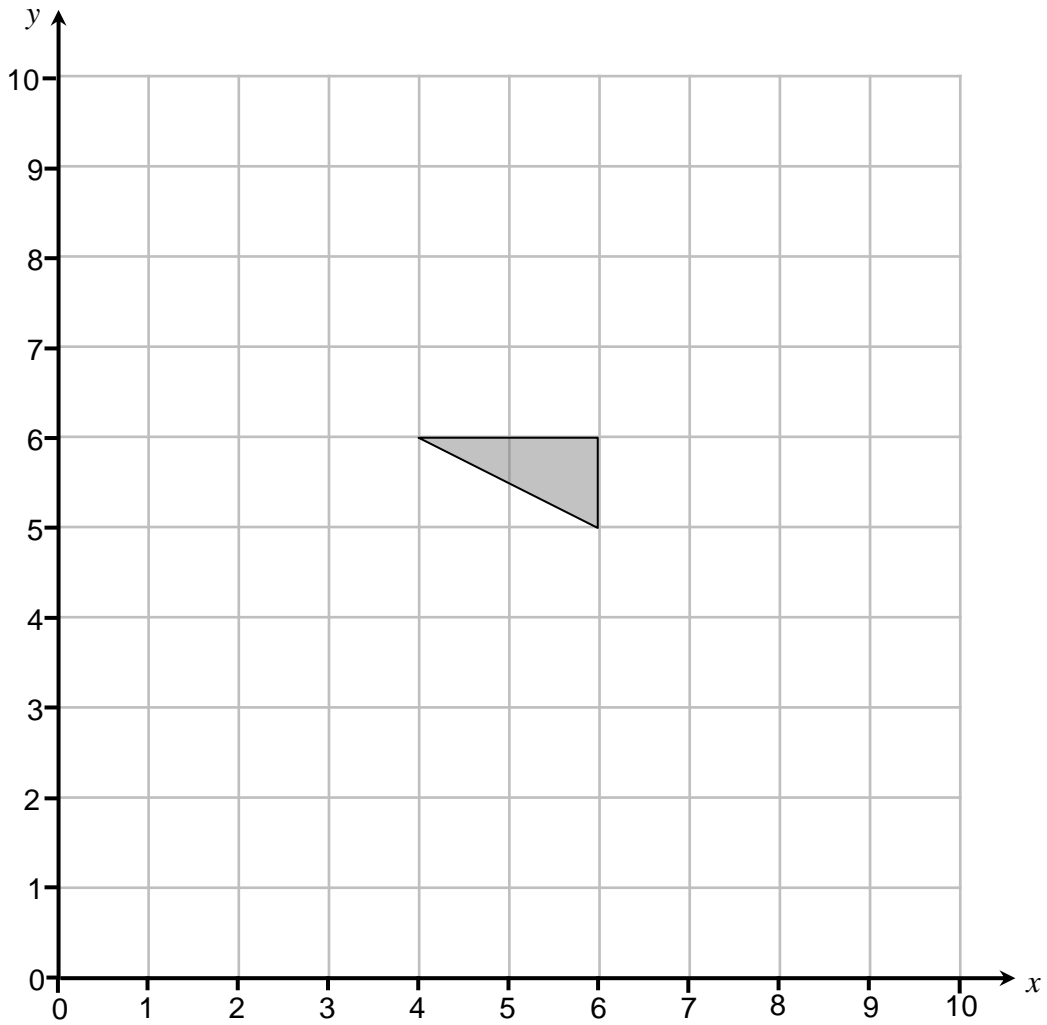




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17 (a) Translate the triangle by the vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$

[2 marks]

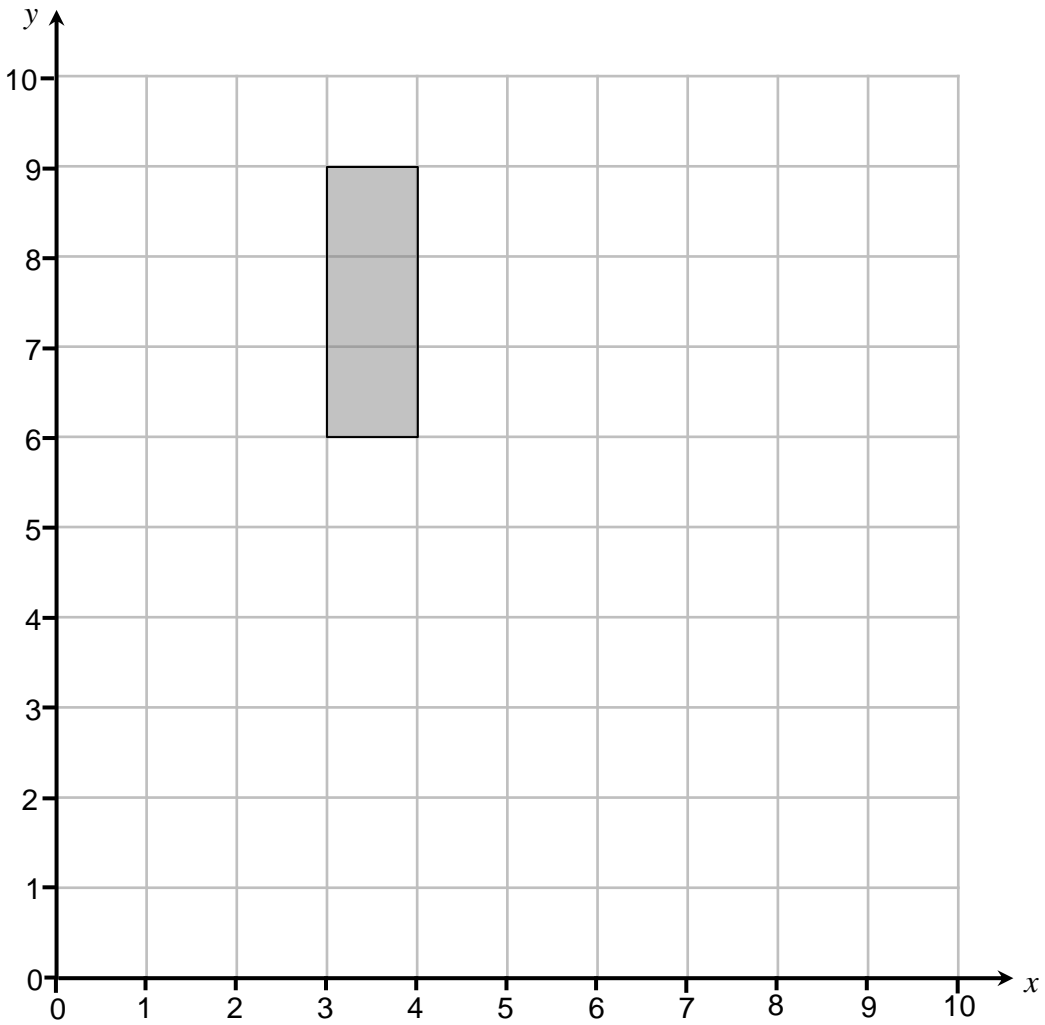




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17 (b) Reflect the rectangle in the line $y = x$

[2 marks]



$\frac{1}{4}$

Turn over ►





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18 (a) Work out 0.2^3

Give your answer as a decimal.

[2 marks]

Answer _____

18 (b) Work out $5.36 \div 0.4$

Give your answer as a decimal.

[2 marks]

Answer _____





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19 Solve $4y - 17 > 2y - 6$

[3 marks]

Answer _____

20 Work out $(6 \times 10^3)^2$
Give your answer in standard form.

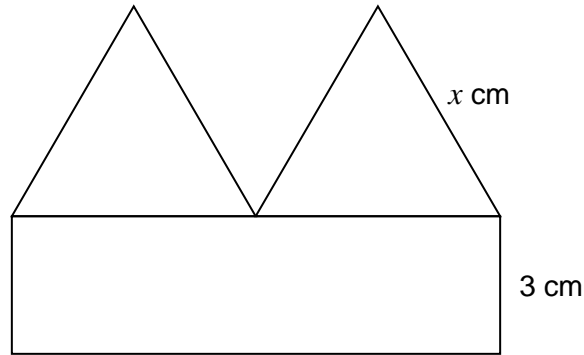
[2 marks]

Answer _____

Turn over ►



- 21 Erin designs a logo using a rectangle and two equilateral triangles. Erin's logo is shown below.



Not drawn
accurately

The length of one side of the equilateral triangle = x cm
The height of the rectangle = 3 cm

Erin creates her logo using wire.

- 21 (a) Write down an expression, in terms of x , for the total length of wire. [2 marks]

Answer _____ cm

- 21 (b) In her final design Erin makes the equilateral triangles with a side length 4.5 cm. Using your answer to part (a), or otherwise, find the total length of the wire used. [2 marks]

Answer _____ cm

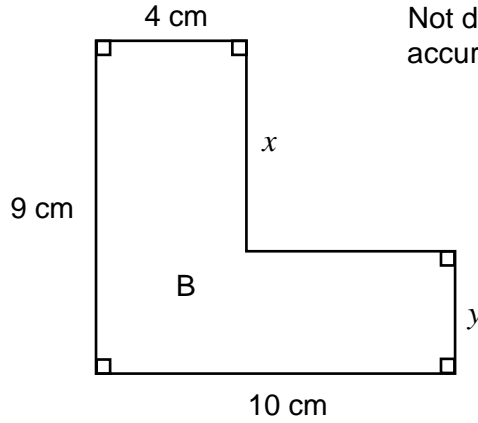
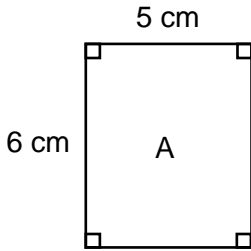




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22

Here are two shapes



Not drawn accurately

Area of Shape A : Area of Shape B = 5 : 9

Work out $x : y$

Give your answer in simplest form.

[5 marks]

$x : y = \underline{\hspace{2cm}} : \underline{\hspace{2cm}}$

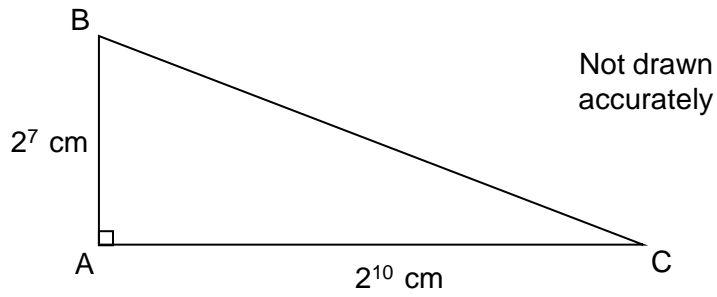
9

Turn over ►





23 ABC is a right-angled triangle.



Area of triangle ABC = 2^x cm^2

Work out the value of x

[3 marks]

$x =$ _____





Do not write
outside the
box

24

Match each expression on the left with the equivalent one on the right.
One has been done for you.

[3 marks]

$\cos 0^\circ$

$\frac{\sqrt{2}}{2}$

$\cos 30^\circ$

$\frac{\sqrt{3}}{2}$

$\cos 45^\circ$

0

$\cos 60^\circ$

1

$\cos 90^\circ$

$\frac{1}{2}$

$\frac{1}{6}$

