



Class
Maths

Video Solutions



PRACTICE PAPER FOR

Edexcel Paper 2H (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 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 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**.



@1stclassmaths

----- 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 has been produced with careful analysis from previous papers and also Paper 1. I have almost exclusively used topics that did not appear in Paper 1 unless the topic has a high frequency of multiple appearances.

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 2/3** percentage below shows the percentage of times that this topic came up specifically on calculator papers.

Topic	Series	Paper 2/3	Question(s)
Expand and Simplify Brackets	50%	20%	1
Standard Form	100%	55%	2
Quadratic Graphs	90%	35%	3
Transformations	90%	65%	4
Error Intervals	90%	45%	5
Sequences	80%	45%	6
Application of Ratio	90%	55%	6
SOHCAHTOA	100%	65%	7, 18
Probability (Table/relative frequency)	100%	55%	8
Compound Interest	100%	60%	9
Index laws	100%	55%	10
Algebraic Fractions	90%	55%	10
Cumulative Frequency	80%	30%	11
Form and Solve Equations	80%	35%	12
Probability of Successive Events	100%	75%	13
Histograms	100%	45%	14
Multiple Ratio Problems	100%	40%	15
Circle Theorems	100%	45%	15
Circles and Sectors	90%	50%	16, 18
Pythagoras	80%	55%	16
Similar Area/Volume	70%	25%	17
Density, Mass, Volume	100%	40%	17
$\frac{1}{2} \text{ absin}(c)$	90%	50%	19
Bounds	90%	45%	19
Non-linear Simultaneous Equations	40%	15%	20

Answer ALL questions

Write your answers in the spaces provided

You must write down all the stages in your working.

1 Expand and simplify $(x - 3)(x - 6)$

.....
(Total for Question 1 is 2 marks)

2 (a) Write 7.2×10^{-4} as an ordinary number.

.....
(1)

(b) Write 620400 in standard form.

.....
(1)

(c) Work out $\frac{8.4 \times 10^5}{2.5 \times 10^6 \times 3.5 \times 10^{-8}}$

Give your answer in standard form.

.....
(2)

(Total for Question 2 is 4 marks)



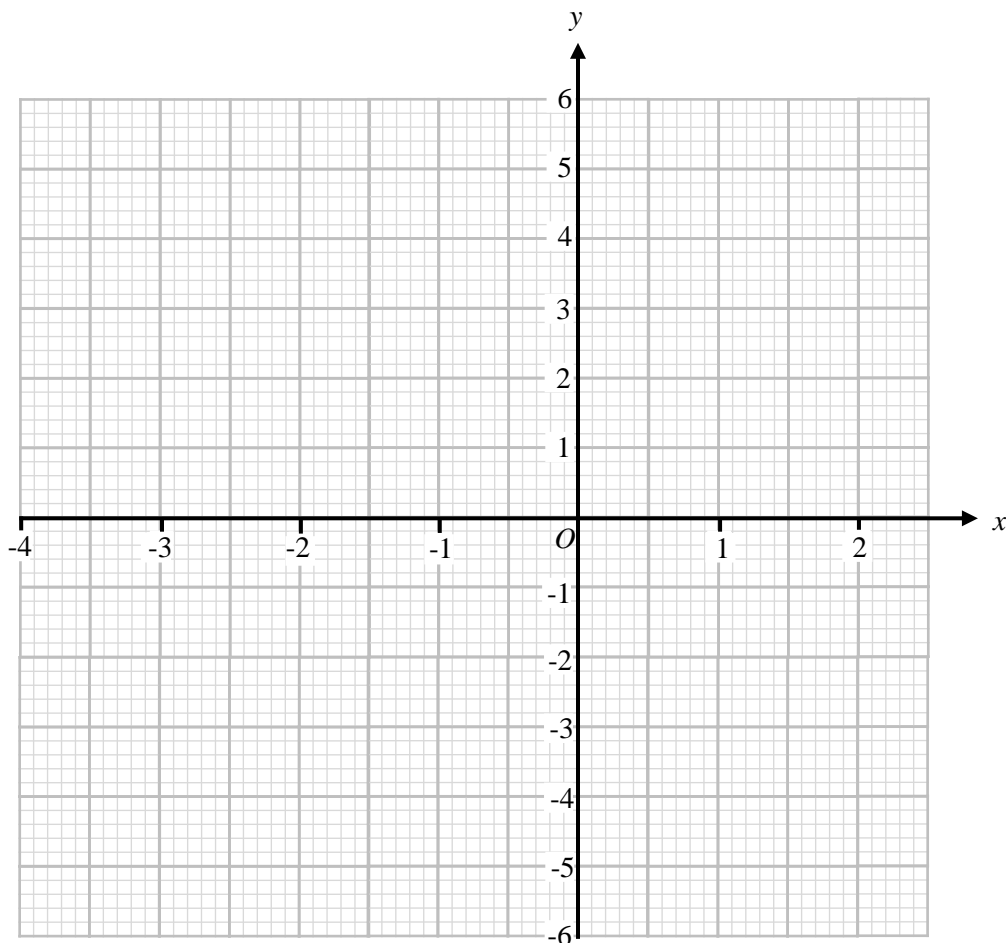
3 (a) Complete the table of values for $y = x^2 + 2x - 5$

x	-4	-3	-2	-1	0	1	2
y			-5	-6			3

(2)

(b) On the grid, draw the graph of $y = x^2 + 2x - 5$ for values of x from -4 to 2

(2)

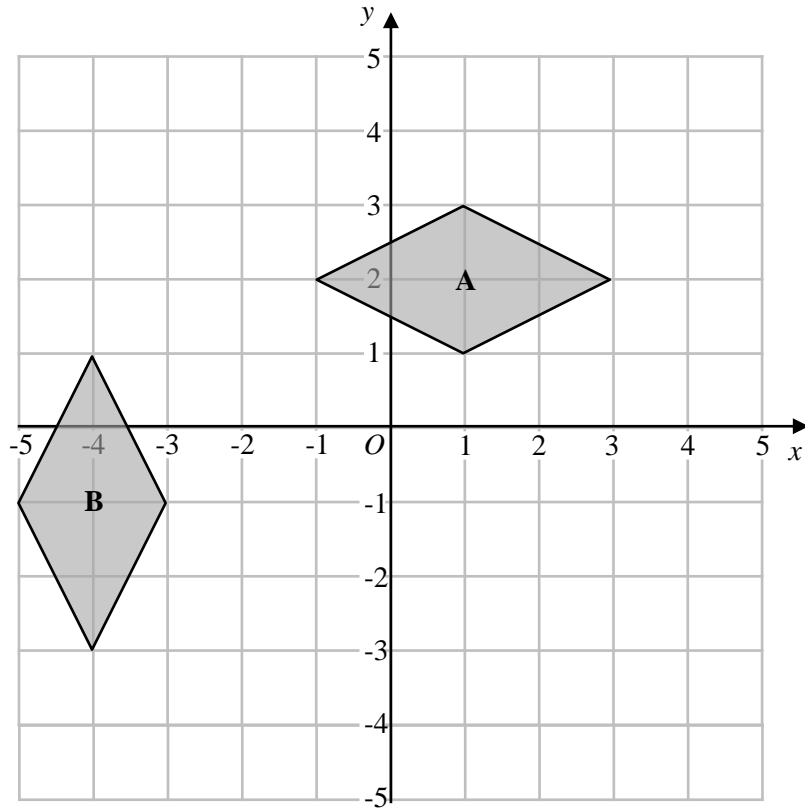


(c) Use your graph to find estimates of the solutions of the equation $x^2 + 2x - 5 = 1$

.....
(2)

(Total for Question 3 is 6 marks)

4



(a) Describe fully the single transformation that maps rhombus **A** onto rhombus **B**

.....

.....

(2)

(b) Enlarge rhombus **A** by a scale factor 2 and centre of enlargement (1,2)

(2)

(Total for Question 4 is 4 marks)



5 The mass of a phone is 140 grams, correct to the nearest gram.

Complete the error interval for the mass of the phone.

..... g ≤ mass < g

(Total for Question 5 is 2 marks)

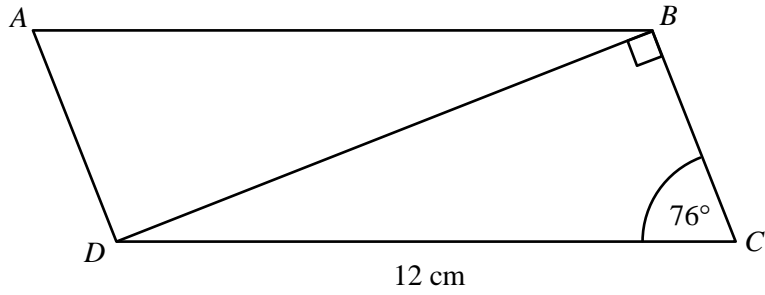
6 The 2nd of an arithmetic sequence is 18

2nd term of the sequence : 11th term of the sequence = 2 : 7

Write down an expression, in terms of n , for the n th term of this sequence.

.....
(Total for Question 6 is 4 marks)

7



$ABCD$ is a parallelogram
Angle $BCD = 76^\circ$
 $DC = 12\text{ cm}$

Work out the perimeter of the parallelogram $ABCD$.
Give your answer correct to 1 decimal place.

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



8 In a bag there are only red, blue and green counters.
A counter is going to be taken from the bag.

The table shows the probabilities of taking a red counter.

Colour	Red	Blue	Green
Probability	0.58		

The probability of selecting a blue counter is equal to $\frac{2}{5}$ of the probability of selecting a green.

(a) Complete the table.

(2)

There are 87 red counters in the bag.

(b) Work out the total number of counters in the bag.

.....
(2)
(Total for Question 8 is 4 marks)

9 Bradley invests £7000 in a savings account.
The savings account pays 8.5% compound interest per year.

Bradley leaves the money in the account for 3 years.
After 3 years he withdraws half of the money in the account.
He then leaves the remaining money in the account for a further 2 years.

How much money will be in the account at the end of the 5 years.

£
(Total for Question 9 is 4 marks)

10 (a) Simplify $\frac{2x^2 - 6x}{x - 3}$

(b) Simplify $\left(\frac{8a^{48}}{0.5a^4}\right)^{\frac{1}{4}}$

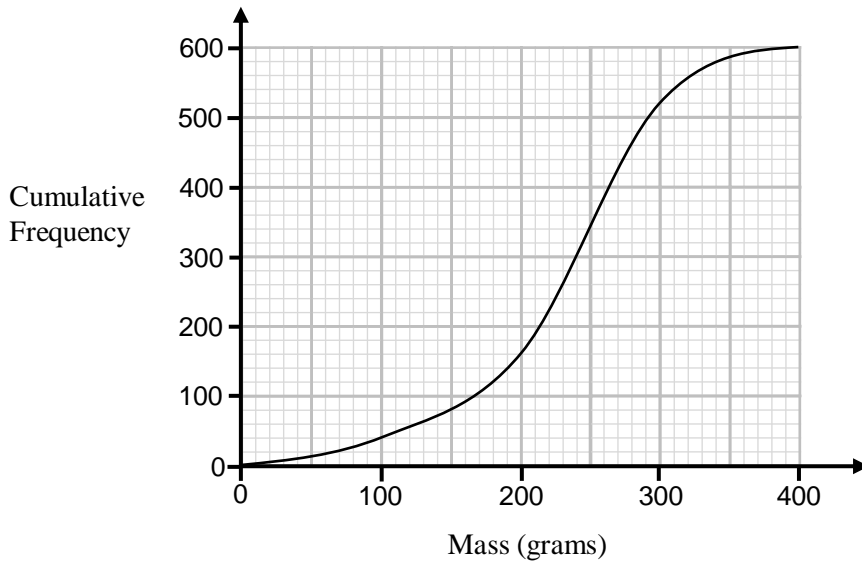
.....
(2)

.....
(3)

(Total for Question 10 is 5 marks)



11 A farmer collects 600 potatoes from a field.
 The cumulative frequency graph shows information about the masses of the 600 potatoes.



(a) Use the graph to find an estimate of the median mass of the potatoes

..... grams
(1)

(b) The farmer can only sell potatoes that are between 180 and 320 grams.

Work out the percentage of potatoes that can be sold.

.....
(3)

(Total for Question 11 is 4 marks)

12 The sum of four consecutive integers is 1478

Work out the greatest of the 4 numbers.

.....
(Total for Question 12 is 3 marks)

13 A bag contains only yellow and blue counters.

A counter is taken at random from the bag and its colour is noted.

The counter is then replaced back into the bag and a second counter is randomly taken.

The probability that at least one of the counters is yellow is 0.91

Work out the probability that exactly one of the counters is yellow.

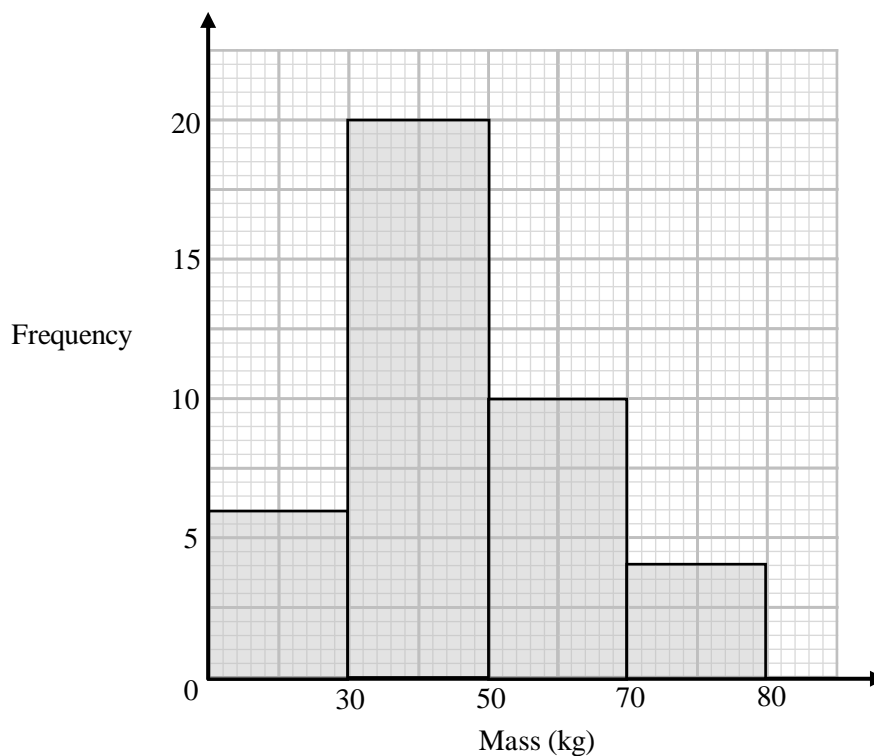
.....
(Total for Question 13 is 4 marks)



14 The table gives information about the mass, in kg, of 40 sheep.

Mass (m kg)	Frequency
$0 < m \leq 30$	6
$30 < m \leq 50$	20
$50 < m \leq 70$	10
$70 < m \leq 80$	4

Shaun drew a histogram for the information in the table.



Write down two mistakes that Shaun has made

1

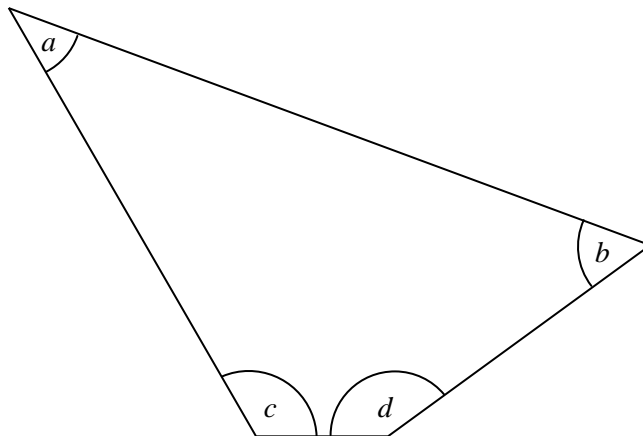
.....

2

.....

(Total for Question 14 is 2 marks)

15



a , b , c and d are angles in a quadrilateral.

$$a : b = 3 : 5$$

$$b : c = 1 : 2$$

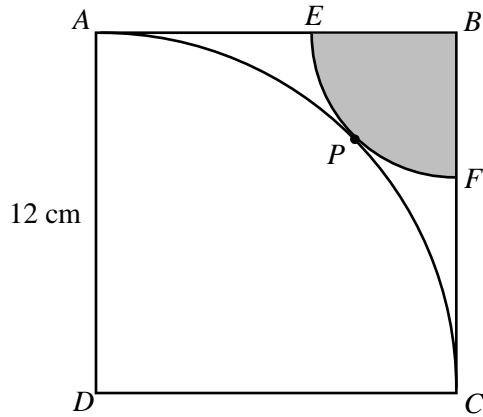
$$c : d = 5 : 6$$

By calculating the size of each angle show that the quadrilateral is a **cyclic** quadrilateral.

(Total for Question 15 is 4 marks)



16



$ABCD$ is a square with side length 12 cm .

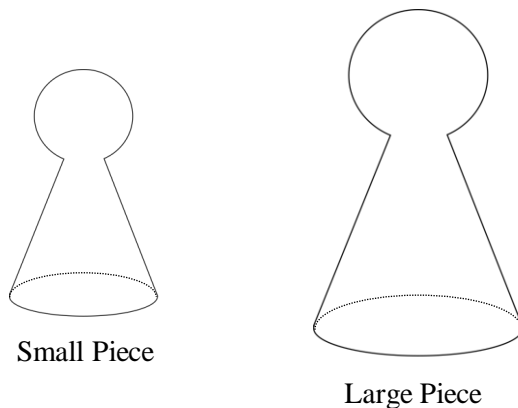
Sectors DAC and BEF are drawn with centres D and B respectively so that they touch at point P .

Work out the area of the shaded sector BEF .

Give your answer to 1 decimal place.

..... cm^2
 (Total for Question 16 is 4 marks)

17 A board game company makes pieces to be used in their games.
The pieces come in two different sizes that are mathematically similar.



The table below shows information about the pieces.

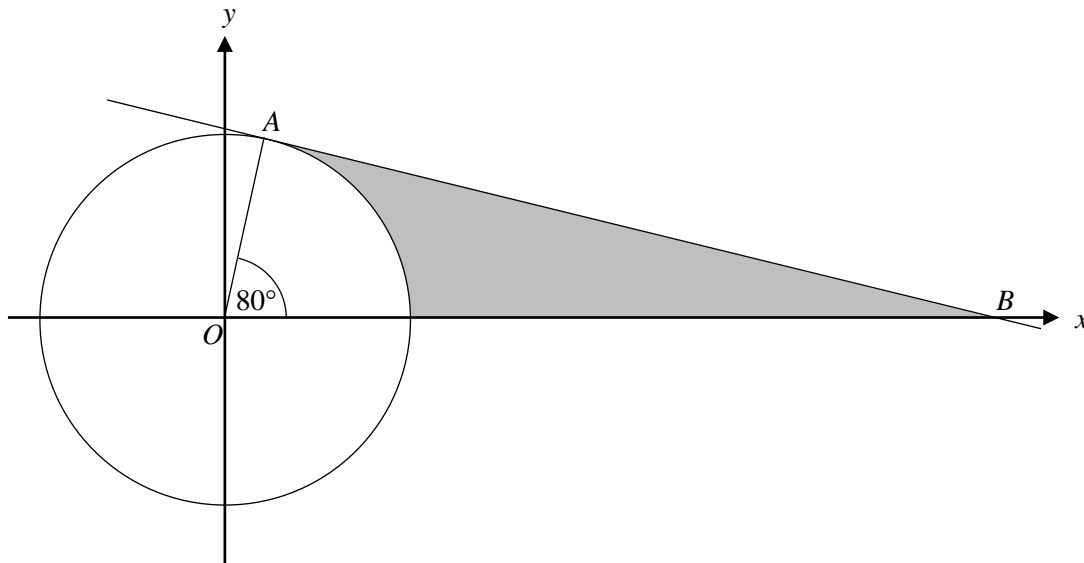
	Surface Area	Mass
Small Piece	12 cm ²	4 g
Large Piece	30.72 cm ²	10 g

The pieces are made from different materials.
The density of a small piece is 0.8 g/cm³
Work out the density of a large piece.
Give your answer to 3 significant figures.

..... g/cm³
(Total for Question 17 is 5 marks)



18 The diagrams shows a circle, centre O , with equation $x^2 + y^2 = 16$



AB is the tangent to the circle at point A .
 Angle $BOA = 80^\circ$

Find the area of the shaded region.
 Give your answer to 1 decimal place.

..... units²
 (Total for Question 18 is 5 marks)

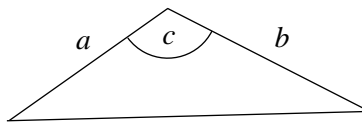
19 (a) Ian says

“If $x > y$ then $\sin(x) > \sin(y)$ ”

Use an example to show that Ian is not always correct.

(1)

(b) Ian is going to work out the area of this triangle.



$a = 6.3$ m, correct to 2 significant figures

$b = 9.2$ m, correct to 2 significant figures

$c = 130^\circ$, correct to 2 significant figures

Work out the upper and lower bound for the area of the triangle.
Give your answers to 4 significant figures.

Upper bound = m²

Lower bound = m²

(4)

(Total for Question 19 is 5 marks)



20 Use algebra to find the coordinates of the only point of intersection of the following graphs.

$$3y + 8x = 32$$

$$y = \frac{6}{x-1}$$

(.....,))

(Total for Question 20 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS