



THIRD SPACE
LEARNING

Mathematics

Paper 3

(Calculator)

Foundation Tier

OCR GCSE

SET 1A

Mathematics Paper 3 (Calculator) Foundation Tier OCR GCSE

SET 1A

Name

Total marks



Paper length: 1hr 30mins

Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name,
- centre number and candidate number.
- Answer all questions.
- Answer the questions in the spaces provided
 - there may be more space than you need.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may not be used.

Information

- The total mark for this paper is 80
- The marks for each question are shown in brackets
 - use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

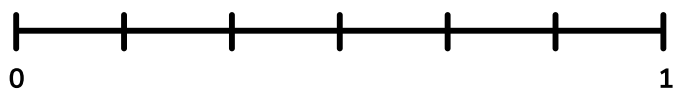
This practice paper is based on the topics from the **advanced information for the Summer 2022 exam series**.

Please note, this practice paper is an example to help revision, these topics can be tested in other ways and other topics may be included in the actual papers

1 Carson rolls a fair dice.

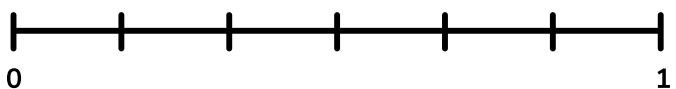
(a) On the probability scale, mark the probability with a cross (X) that Carson rolls an odd number.

[1]



(b) On the same scale, mark the probability with a cross (X) that Carson rolls a 7.

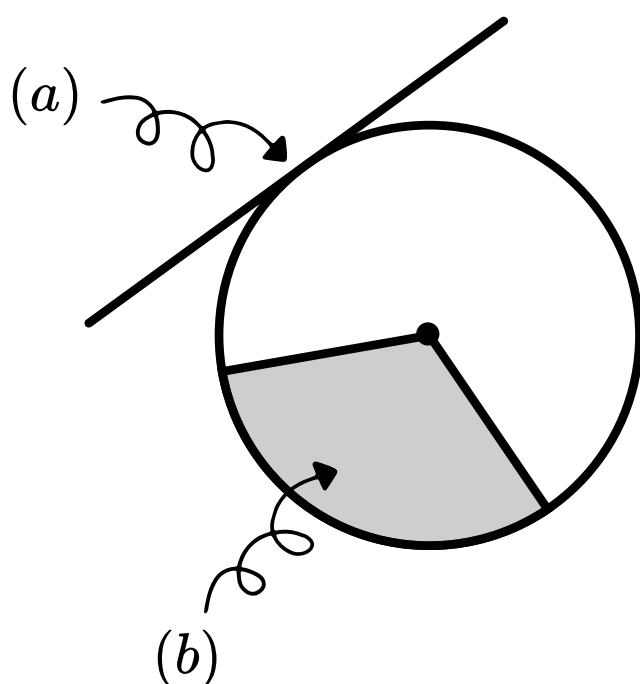
[1]



(c) What is the probability that Carson rolls a 1 or a 2?

(c) [2]

2 Name the parts of the circle indicated below.



(a) [1]

(b) [1]

3 (a) Circle the value of the 8 in 7.85

$\frac{1}{8}$ $\frac{8}{10}$ $\frac{1}{80}$ $\frac{8}{100}$

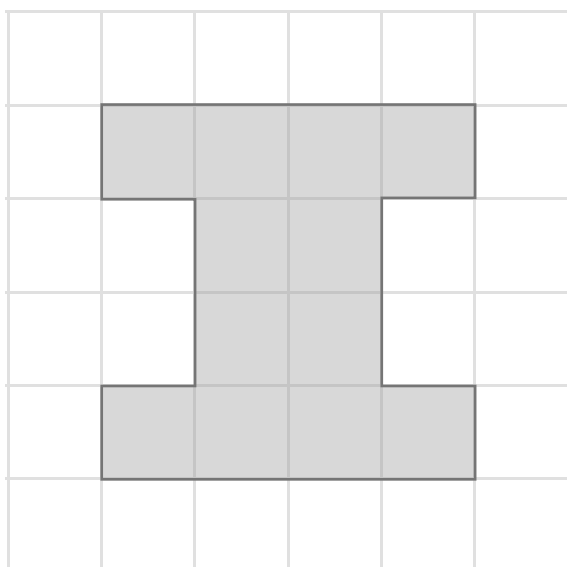
[1]

(b) Circle the decimal that is equal to $\frac{5}{8}$

0.58 0.85 0.625 0.375

[1]

4 (a) How many lines of symmetry does this shape have?



(a) [1]

(b) Complete the following table about the properties of quadrilaterals.

	Exactly two lines of symmetry	All sides equal	Opposite angles equal
Square	✗	✓	✓
Rhombus			
Trapezium			

[3]

5 Here is a set of data:

9 7 9 6 3

3 9 3 2 3

8 4 1 7 7

(a) Write down the mode.

(a) [1]

(b) Write down the median.

(b) [2]

(c) Calculate the mean.

(c) [2]

6 $8=2^k$.

Write down the value of k.

$k =$ [1]

7 (a) Write down the next two terms in each of these sequences:

i) 4, 7, 10, 13, 16,, [1]

ii) 100, 99, 97, 94, 90,, [1]

iii) $a, 2a + 2b, 3a + 4b, 4a + 6b, 5a + 8b, \dots, \dots$ [1]

(b) The n th term formula of another sequence is $4n+10$.

Work out the 50th term in the sequence.

(b) [2]

8 Fill in the boxes to make these calculations correct.

(a) $\boxed{-40} \quad \boxed{\div} \quad \boxed{} \quad \boxed{=}$

$\boxed{8}$

(b) $\boxed{\frac{2}{5}} \quad \boxed{\times} \quad \boxed{} \quad \boxed{=}$

$\boxed{\frac{8}{35}}$

(c) $\boxed{} \quad \boxed{\div} \quad \boxed{\frac{3}{4}} \quad \boxed{=}$

$\boxed{\frac{2}{5}}$

[4]

9 (a) Ann flips three coins. Complete the table below to show the different possible outcomes:

Coin 1	Coin 2	Coin 3
H	H	H
H	H	T

[2]

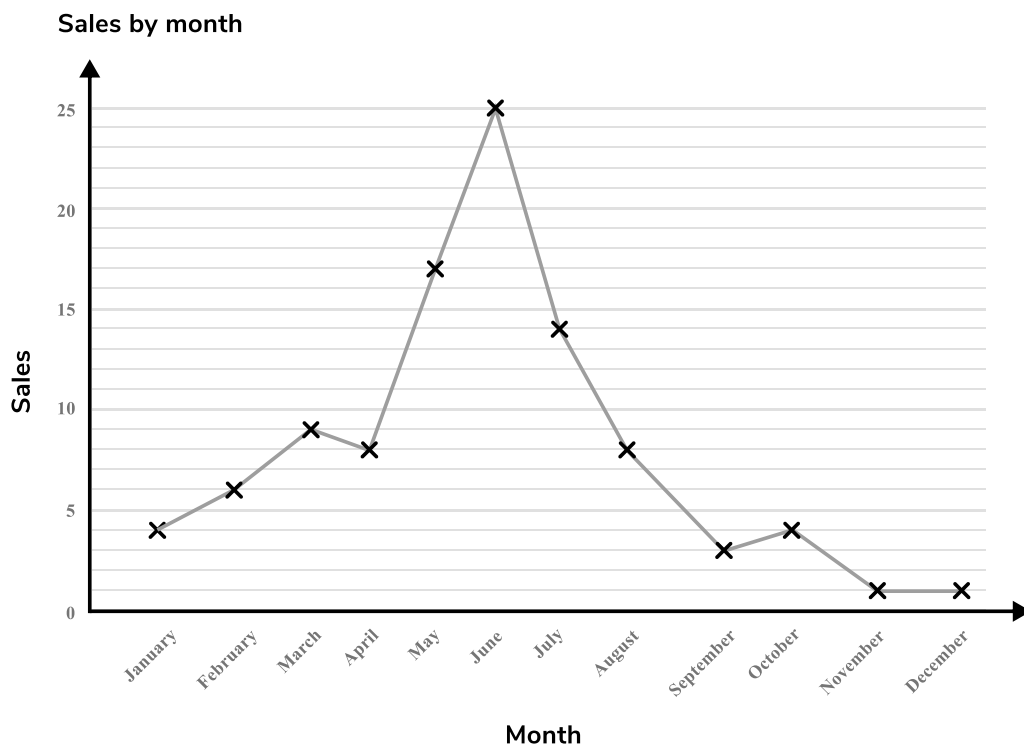
(b) Use your table to find the probability that Ann gets exactly two heads.

(b) [2]

(c) What is the probability that Ann gets a head on the first coin and at least one more head?

(c) [2]

- 10 This graph shows the sales of tents over the course of two years.



- (a) In which month were sales highest?

(a) [1]

- (b) Give a reason why this might be the case.

.....

.....

[1]

- 11 Hollie invests £5000 in an account with simple interest of 4% per annum for 3 years..

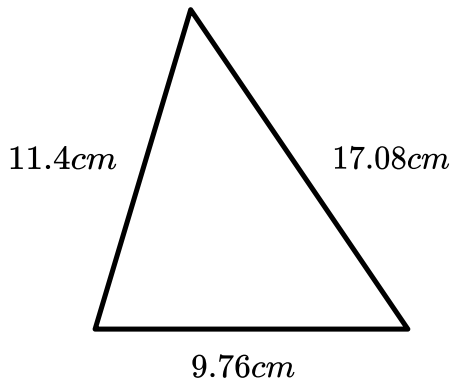
At the end of each year Hollie keeps $\frac{2}{5}$ of the interest for herself.

She splits the rest between her brother and sister in the ratio 3:5.

How much money does she give her brother in total over the three years?

£ [4]

- 12 (a) Work out the perimeter of the triangle.



(a) cm [2]

- (b) The perimeter of a square is 11.04 cm.

Work out the length of one side of the square.

(b) cm [2]

-
- 13 (a) Simplify $3a \times 6b$

(a) [1]

- (b) Simplify $\frac{10cd}{2c}$

(b) [1]

- (c) Expand and simplify $x(x + 5y) + y(2x + 4)$

(c) [2]

- 14** (a) Jasmine thinks of a number.

Sophia is trying to guess Jasmine's number.

Sophia asks Jasmine some questions and records Jasmine's response:

Multiple of 5	No
Factor of 60	Yes
Less than 10	No

Write down Jasmine's number.

(a) [2]

- (b) Find the lowest common multiple of 9 and 15.

(b) [2]

- 15** Here is a list of ingredients for 12 sponge cakes.

Butter	120g
Sugar	150g
Eggs	2
Flour	160g

- (a) Thais wants to make 30 cupcakes. Thais has 300 g butter, 500g sugar, 10 eggs and 350g flour. Does Thais have enough ingredients? Show how you decide.

[3]

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.....

- (b) i) Write down the ratio of butter to sugar in the recipe.

(b) i) [1]

- ii) Write your ratio in the form 1:n

(b) ii) [2]

16 Use your calculator to find the value of $\frac{10 + \cos(60)}{8^2}$

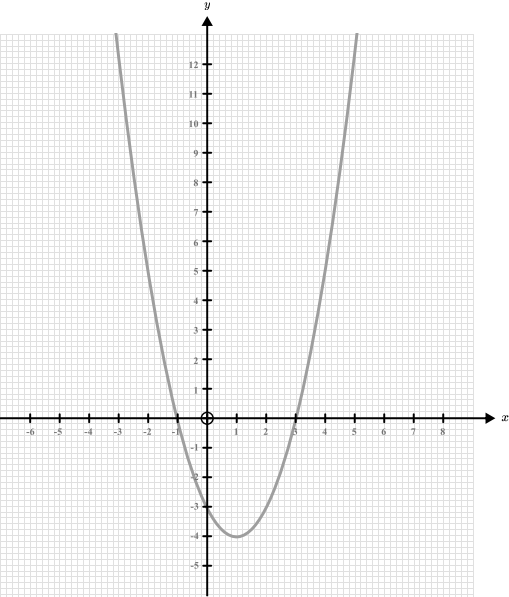
(a) Write down all of the digits on your display.

(a) [1]

(b) Round your answer to 2 significant figures.

(b) [1]

17 This is the graph of $y = x^2 + bx + c$



(a) Write down the coordinates of the turning point of the curve.

(a)(..... ,) [2]

(b) Write down the value of c.

(b) c = [1]

18 Gary buys an antique for £180. He sells the antique for £201. Calculate Gary’s percentage profit. Give your answer to 1dp.

..... % [3]

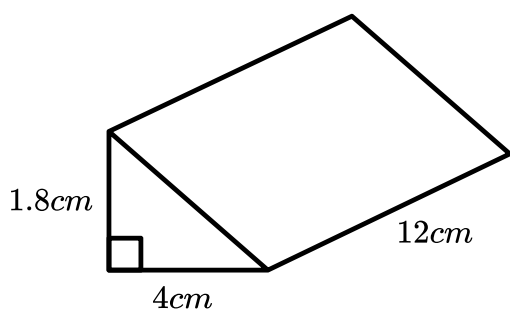
19 (a) Factorise $x^2 + 7x + 12$

(a) [2]

(b) Find the value of $x^2 - 7x + 12$ when $x = 10$

(b) [2]

20 This block is made from wood. The mass of the block is 34.56g.



(a) Show that the volume of the block is 43.2cm^3 .

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[3]

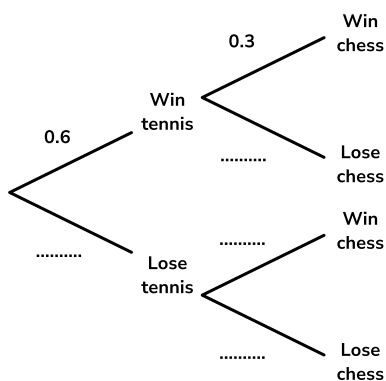
(b) Work out the density of the wood.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

(b) g/cm^3 [2]

- 21** The probability that Lucy wins a game of tennis is 0.6. The probability that she wins a game of chess is 0.3.
On Saturday Lucy plays tennis in the morning and chess in the afternoon.

(a) Complete the following tree diagram.

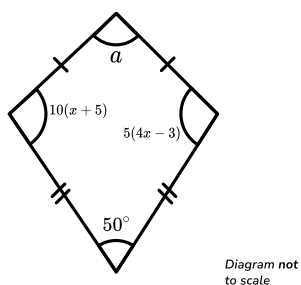


[2]

(b) Find the probability that Lucy wins one game and loses the other.

(b) [3]

- 22** The diagram shows a kite.



Work out the size of angle a

° [6]

- 23** The cost of completing a project, c , is directly proportional to the number of hours, h , required to complete the project.

The cost of completing a project that takes 4 hours is £320.

Phil's project will take 7 hours.

Phil has budgeted £600 for the project. Has Phil budgeted enough for the project? Show how you decide.

[3]

- 24** Solve the following pair of simultaneous equations.

$$2a + 3b = 21$$

$$3a - 5b = -16$$

$$a = \text{-----}$$

$$b = \text{-----} \quad [3]$$

25 An area of forest is being cleared. No new trees are being planted and the number of trees in the forest is given by $T = 25000 \times 0.9^n$, where n is the number of years after deforestation begins.

(a) What does 25000 represent in this formula?

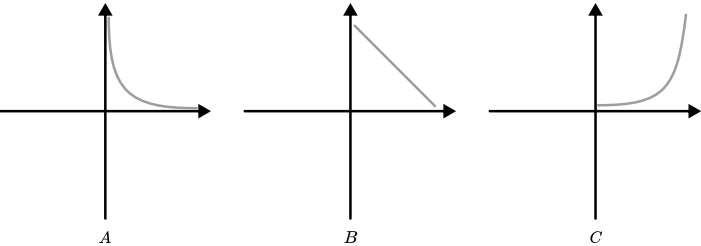
(b) What percentage of the trees are being chopped down each year? [1]

(b) ----- % [1]

(c) After how many years will the number of trees drop below 12000?

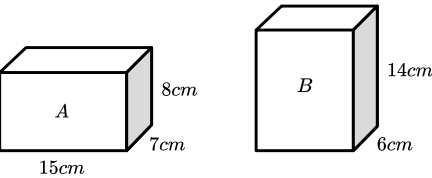
(c) ----- years [2]

(d) Write down the letter of the graph which could represent the number of trees in the forest over time.



----- [1]

26 These two cuboids have the same volume. Work out the surface area of cuboid B.



----- cm^2 [5]

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