



Please check the examination details below before entering your candidate information

Candidate surname				Other names			
Centre Number				Candidate Number			
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GCSE (9-1)				FIRST FACTOR 			
Predicted Paper 2025							
Morning (Time: 1 hour 30 minutes)				Paper reference		1MA1/2H	
Mathematics							
PAPER 2 (Calculator)							
Higher Tier							
You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, Formulae Sheet (enclosed). Tracing paper may be used.						Total Marks	
						<input type="text"/>	

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 be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

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.
- Try to answer every question.
- Check your answers if you have time at the end.

Disclaimer

This paper has been carefully created to support students preparing for their exams by focusing on commonly tested topics. However, the content in this document is intended solely for educational purposes and does not guarantee coverage of all possible exam material.

While every effort has been made to ensure the accuracy of the questions, this document should not be considered as a substitute for official resources or professional guidance. It is important to note that the topics in this paper may or may not align with actual exam content, as variations often occur between exam cycles.

Students are encouraged to use this paper as a supplementary tool and to revise all topics outlined in their curriculum for comprehensive preparation. Regular practise with a variety of resources is key to building confidence and achieving success in exams.

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Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1

(a) Write the prime factors of 120 and 75

.....

(2)

(b) the Highest Common Factor (HCF) of 120 and 75

.....

(1)

(c) the Least Common Multiple (LCM) of 120 and 75

.....

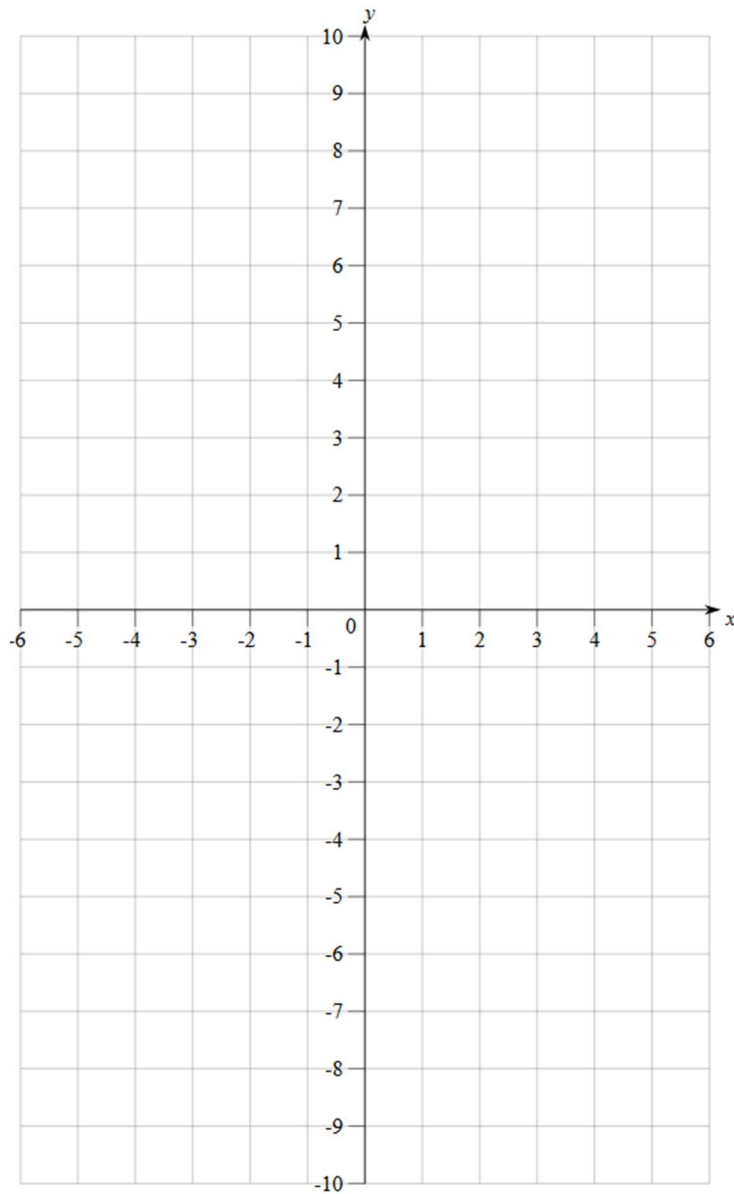
(1)

(Total for Question 1 is 4 marks)

2

(a) Draw the graph of the straight line $2x - y = 4$ on a set of axes for values of x from 0 to 6

(3)



(b) Shade the region that satisfies both inequalities:

- $2x - y \leq 4$
- $x \geq 1$

(2)

(Total for Question 2 is 5 marks)

3

A bakery delivers boxes of cupcakes in two sizes: small boxes containing 5 cupcakes each and large boxes containing 10 cupcakes each.

The bakery delivers a total of 900 cupcakes such that the number of cupcakes in small boxes to large boxes is in the ratio 4:5.

The bakery claims that at least 40% of the boxes delivered are small boxes.

Is the bakery's claim correct?

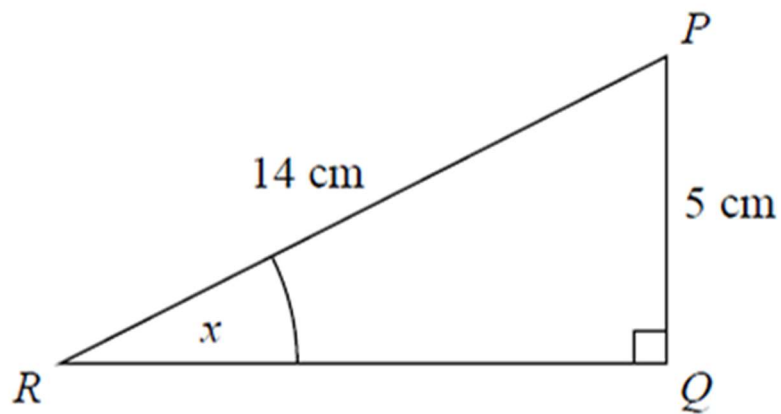
You must show all your working.

(Total for Question 3 is 5 marks)

4

PQR is a right-angled triangle.

Work out the size of the angle marked x



.....

(Total for Question 4 is 2 marks)

5

A straight line passes through the points $A(1, 3)$ and $B(4, 15)$

(a) Find the gradient of the line

(2)

(b) Find the equation of the line in the form $y = mx + c$

.....

(2)

(Total for Question 5 is 4 marks)

6

The mass of a box is measured as 8.4 kg, correct to the nearest 0.1 kg

(a) Write down the error interval for the mass of the box

(2)

(b) A second box is measured as 7.8 kg, also correct to the nearest 0.1 kg. What is the maximum possible total mass of the two boxes?

(1)

.....

(Total for Question 6 is 3 marks)

7

Sophie is packing her lunch. She has 4 types of sandwiches, 3 types of fruit, and some drinks.

Sophie says there are 36 ways she can choose one sandwich, one fruit, and one drink.

Could Sophie be correct?

You must show how you get your answer.

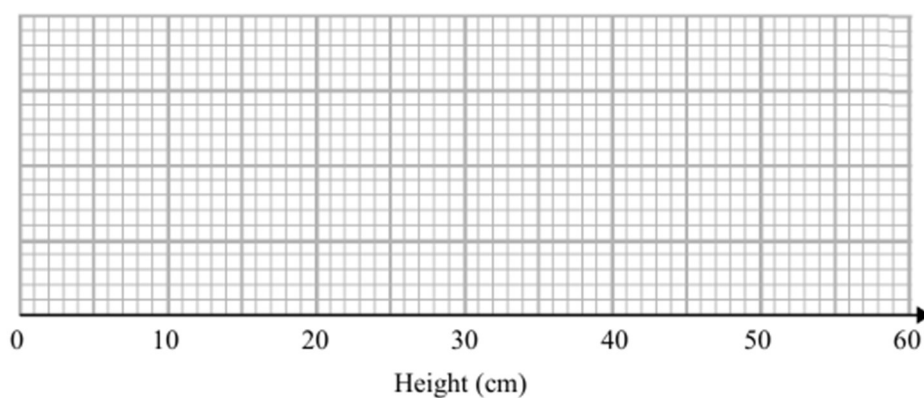
(Total for Question 7 is 2 marks)

8

The table shows some information about the heights, in cm, of some tomato plants in Maggie's garden.

Minimum	Lower Quartile	Median	Upper Quartile	Maximum
12	27	35	42	55

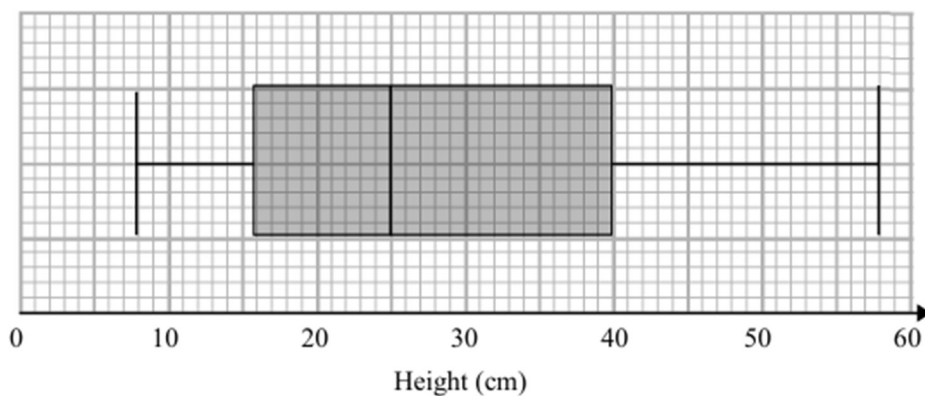
(a) Draw a box plot for this information.



(2)

There are also tomato plants in Nigel's garden.

The box plot below shows the distribution of the heights of Nigel's tomato plants.



(b) Compare the distribution of the heights of Maggie's plants with the distribution of height of Nigel's plants.

.....

.....

.....

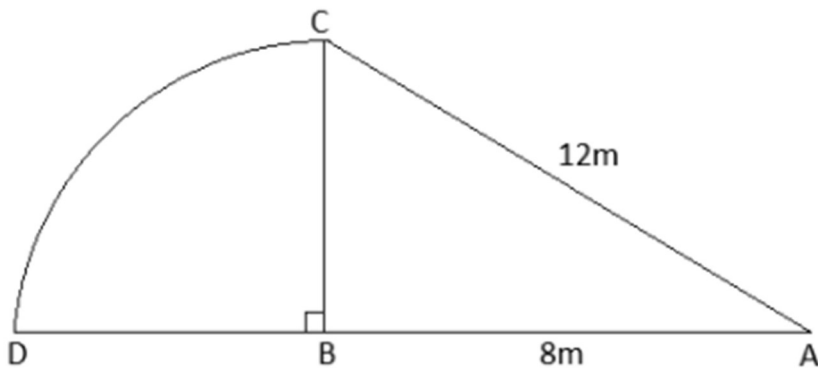
.....

(2)

(Total for Question 8 is 4 marks)

9

The diagram shows a right-angled triangle and a quarter circle



- The right-angled triangle ABC has angle $ABC = 90^\circ$
- The quarter circle has its center at B and radius AB .

Work out the area of the quarter circle.

Give your answer correct to 3 significant figures.

You must show all your working.

(Total for Question 9 is 4 marks)

10

A savings account offers an annual compound interest rate of 4%.

Jamil invests £1,200 in the account.

(a) Work out the value of Jamil's investment after 3 years. Give your answer to the nearest pound

.....

(3)

(b) Jamil's goal is to have at least £1,500 in the account. Calculate the minimum number of complete years he needs to achieve this.

.....

(2)

(Total for Question 10 is 5 marks)

11

The first five terms of a sequence are:

10, 5, -3, -14, -28

(a) Find the formula for the n -th term of the sequence

.....

(4)

(b) Using your formula, find the 20th term of the sequence

.....

(1)

(Total for Question 11 is 5 marks)

12

Expand and simplify:

$$(x + 3)(x - 2)(x + 5)$$

.....

(Total for Question 12 is 3 marks)

13

A factory produces 8,000 toys. A sample of 200 toys is inspected, and 12 of them are found to be defective.

(a) Estimate how many defective toys are in the entire production.

.....

(2)

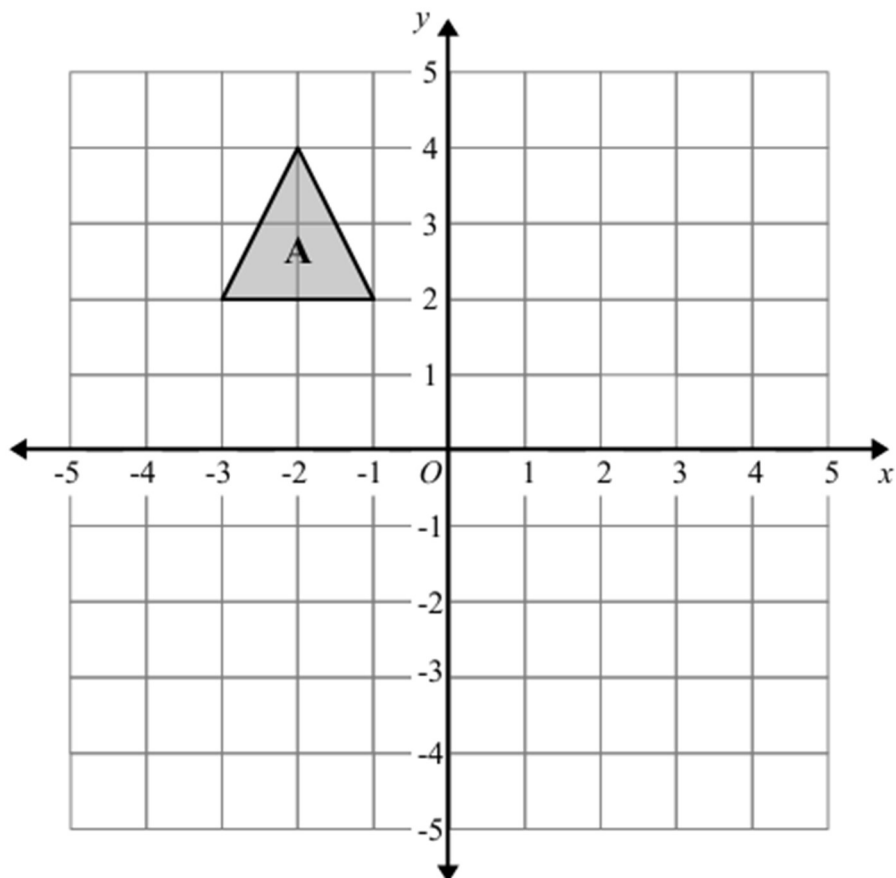
(b) If the factory wants to ensure that no more than 1.5% of toys are defective, will this production batch meet the standard? Show your working.

.....

(2)

(Total for Question 13 is 4 marks)

14

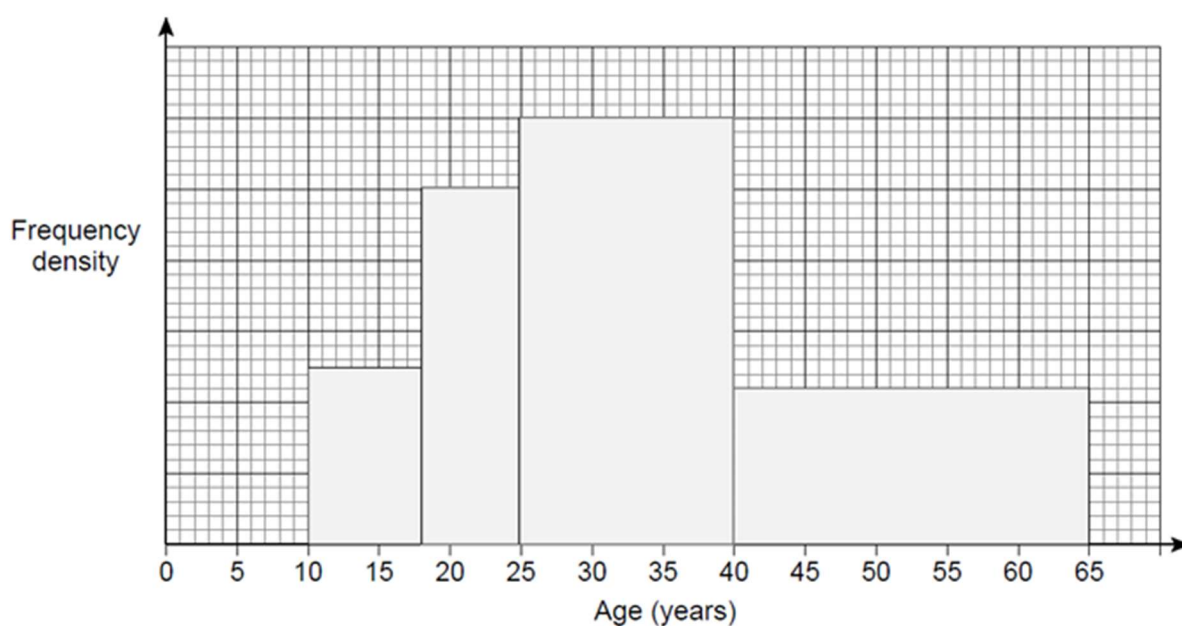


Rotate shape *A* 180° about the point $(1, 0)$

(Total for Question 14 is 2 marks)

15

The histogram shows the ages, in years, of members of a darts club



There are 22 members with ages in the range $40 \leq \text{age} < 65$.

Work out the number of members with ages in the range $25 \leq \text{age} < 40$

.....
(Total for Question 15 is 4 marks)

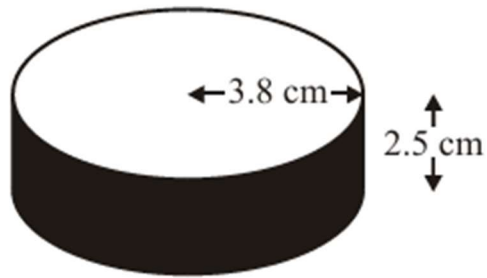


Diagram **NOT**
accurately drawn

An ice hockey puck is in the shape of a cylinder with a radius of 3.8 cm and a thickness of 2.5 cm
It is made out of rubber with a density of 1.5 grams per cm^3 .

Work out the mass of the ice hockey puck.

Give your answer correct to 3 significant figures.

.....
(Total for Question 16 is 4 marks)

17

In triangle ABC :

- Side $AB = 7$ cm,
- Side $BC = 9$ cm,
- Angle $B = 120^\circ$.

(a) Calculate the length of side AC . Give your answer correct to 2 decimal places.

.....

(3)

(b) Calculate the area of triangle ABC . Give your answer correct to 2 decimal places.

.....

(2)

(Total for Question 17 is 5 marks)

18

There are n counters in a bag

4 of the counters are green and the rest are yellow

Sam takes a counter from the bag at random and does not replace it. He then takes another counter at random from the bag

The probability that Sam takes two yellow counters is $\frac{1}{3}$

(a) Show that $n^2 - 13n + 30 = 0$

.....

(4)

(b) Solve the equation to find the value of n .

.....

(2)

(Total for Question 18 is 6 marks)

19

The equation $x^3 - 3x + 1 = 0$ has a root between 0 and 1.

(a) Show that $x = \sqrt[3]{3x - 1}$ can be used as an iterative formula to solve $x^3 - 3x + 1 = 0$

.....

(2)

(b) Use the iterative formula:

$$x_{n+1} = \sqrt[3]{3x_n - 1}$$

with $x_1 = 1$ to find x_5 , the fifth approximation.

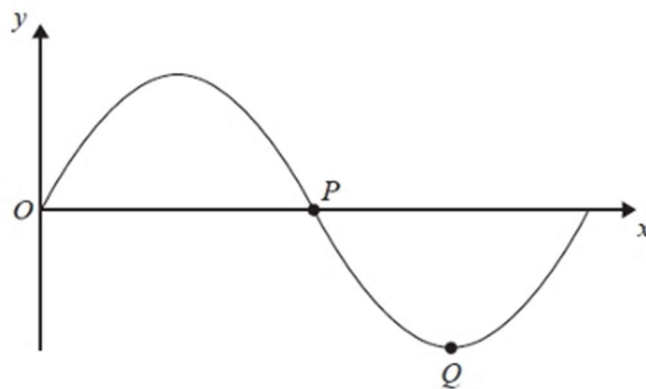
Give your answer to **3 decimal places**, showing all your working

.....

(3)

(Total for Question 19 is 5 marks)

The diagram shows part of a sketch of the curve $y = \sin x^\circ$



(a) Write down the coordinates of the point P

.....

(1)

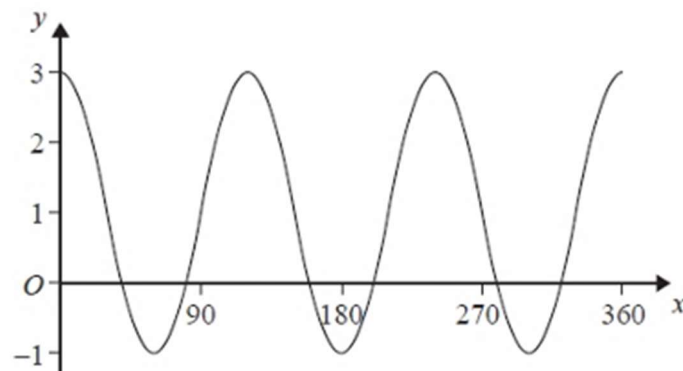
(b) Write down the coordinates of the point Q

.....

(1)

The second diagram shows the curve $y = a \cos bx^\circ + c$, for $0 \leq x \leq 360$

(c) Find the values of a , b , and c .



.....

(2)

(Total for Question 20 is 4 marks)

END OF PAPER