Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number	Candidate Number

Predicted Paper 2

Time: (1 hour 30 minutes)

Mathematics

Paper 2 (Calculator)
Higher Tier

4th June 2025

Total Marks

Instructions

- Use black ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- Fill in the boxes at the top of this page with your name, center number and candidate number.
- Answer all questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- There are 80 marks. You have 1 hour and 30 minutes!
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may not be used.

FOR MORE MATHSWITHDAN RESOURCES, SCAN THE QR CODES:

Hello there! I hope your revision is going splendidly and Paper 1 went well for you!

Welcome to my Predicted Paper 2 for GCSE Maths Higher Summer 2025!
My name is Dan, I am a full-time GCSE and A Level Maths tutor with a First-Class degree in BSc Mathematics.

After reviewing what did and didn't appear in Paper 1, I've carefully put this Paper 2 together to reflect the topics that are most likely to come up – based on past exam trends and the gaps left by Paper 1.

This paper includes a variety of questions gathered from past exam papers (all publicly available) as well as original questions written by me. I've uploaded a full video walkthrough for this paper on my YouTube channel – it's a great way to check your answers and understand the methods. You can access it by scanning the QR code below or in the top right corner of each page.

Make sure you attempt the paper FIRST before watching the video!

DISCLAIMER:

There is no guarantee the topics in this paper will come up. Use this paper as extra practice alongside comprehensive revision. Good luck!!!

SCAN THE QR CODE FOR THE ENTIRE WALKTHROUGH

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a) Work out the value of $\frac{18-\sqrt{37.62}}{5+1.8^2}$

Write down all the figures on your calculator display.

.....

(2)

(b) Work out the value of the reciprocal of 0.578

.....

(1)

(Total for Question 1 is 3 marks)

2 There are some people in a cinema.

$\frac{3}{5}$ of the people in the cinema are children.
For the children in the cinema,

number of girls : number of boys = 2 : 7

There are 170 girls in the cinema.

Work out the number of adults in the cinema.

.....

(Total for Question 2 is 5 marks)

3 The table shows information about the weights, in kg, of 40 parcels.

Weight of parcel (p kg)	Frequency
$0 < p \leqslant 1$	19
$1 < p \leqslant 2$	12
$2 < p \leqslant 3$	5
$3 < p \leqslant 4$	2
$4 < p \leqslant 5$	2

(a) Write down the modal class.

.....

(1)

(b) Work out an estimate for the mean weight of the parcels.

..... kg

(4)

(Total for Question 3 is 5 marks)

4 Prosperity Bank has two types of account.
Both accounts pay compound interest

Cash savings account
Interest
2.8% per annum

Investment account
Interest
3.6% per annum

Carter invests £2200 in the cash savings account.
Jahmelia invests £1700 in the investment account.

(a) Work out who will get the most interest by the end of 3 years.
You must show all your working.

(4)

In the 3rd year, the rate of interest for the investment account is changed to 4.2% per annum.

(b) Does this affect who will get the most interest by the end of 3 years?
Give a reason for your answer.

.....

.....

.....

(1)

(Total for Question 4 is 5 marks)

5

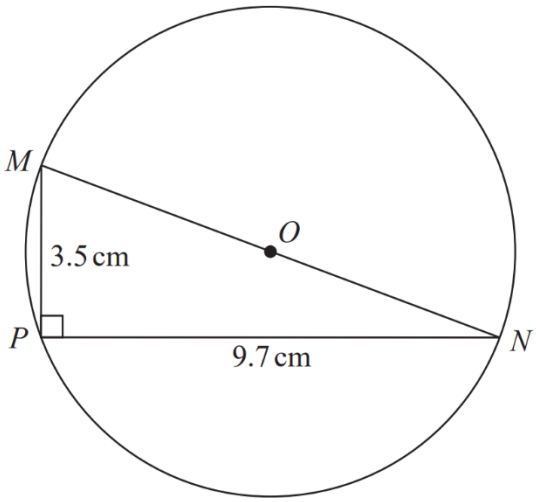


Diagram **NOT** accurately drawn

M, *N* and *P* are points on a circle, centre *O*.
MON is a diameter of the circle.

MP = 3.5 cm
PN = 9.7 cm

Angle *MPN* = 90°

Work out the circumference of the circle.
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 5 is 4 marks)

6

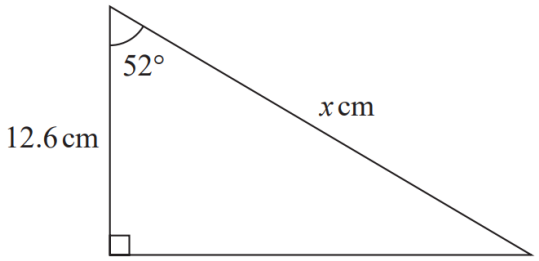


Diagram **NOT** accurately drawn

Work out the value of x.
Give your answer correct to 3 significant figures.

$x =$ .....

(Total for Question 6 is 3 marks)

7 Make x the subject of the formula $y = a + \frac{4x}{7}$

.....

(Total for Question 7 is 3 marks)

8 Adetola has 12 identical rectangular tiles.
She arranges the tiles to fit exactly round the edge of a shaded rectangle, as shown in the diagram below.

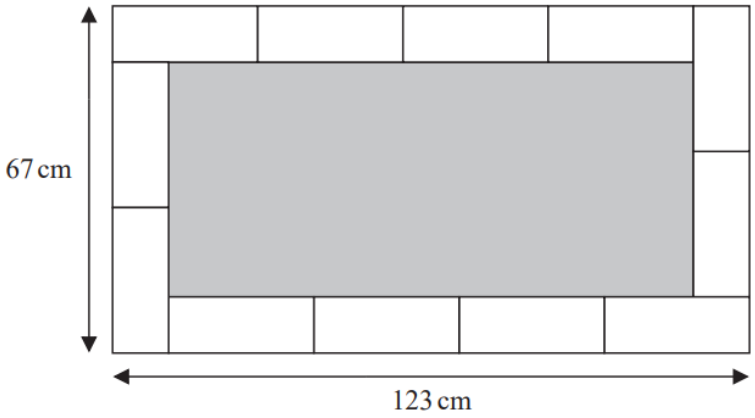


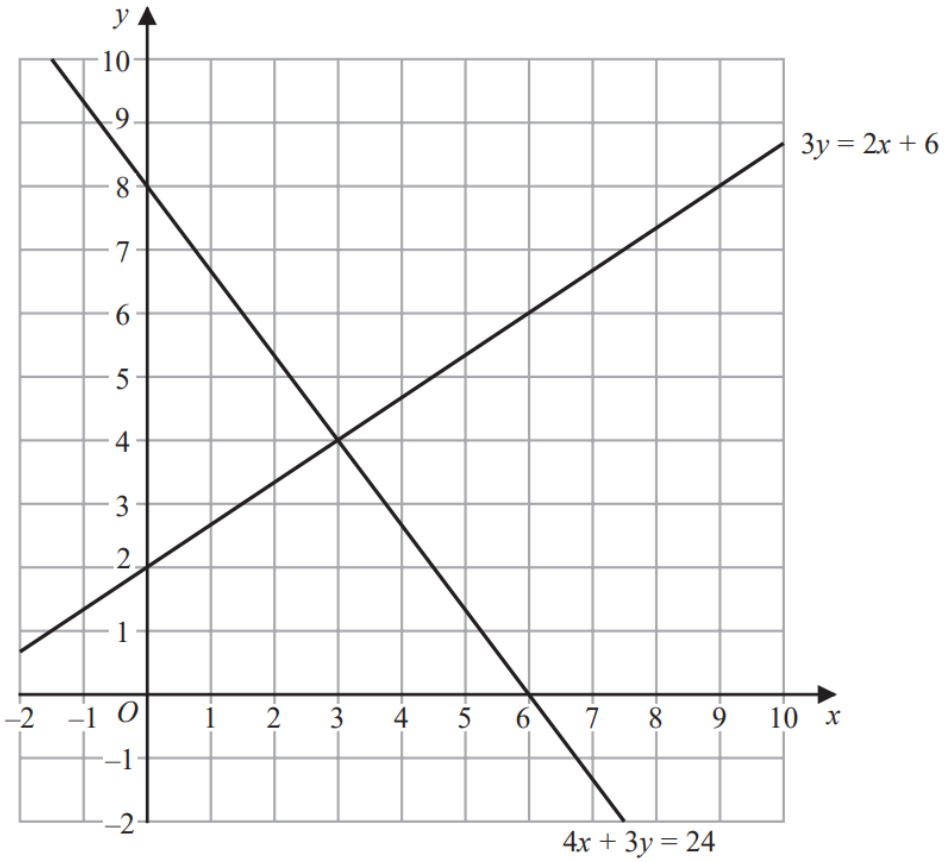
Diagram **NOT** accurately drawn

Work out the area of the shaded rectangle.

..... cm^2

(Total for Question 8 is 5 marks)

9 The diagram shows two straight lines drawn on a grid.



(a) Write down the solution of the simultaneous equations

$$3y = 2x+6$$
$$4x+3y = 24$$

$x =$ .....

$y =$ .....

(1)

(b) Show, by shading on the grid, the region defined by all five of the inequalities

$x \geqslant 0$ $y \geqslant 0$ $x + y \geqslant 4$ $3y \leqslant 2x + 6$ $4x + 3y \leqslant 24$

Label the region **R**.

(3)

(Total for Question 9 is 4 marks)

10 (a) Express $\sqrt{\frac{7^{240}}{7^{100}\times 7^{80}}}$ as a power of 7

.....

(3)

Krishaal was asked to express $(13^{-6})^4 \times 13^5$ as a single power of 13

Krishaal wrote $(13^{-6})^4 \times 13^5 = 13^{-24\times 5} = 13^{-120}$

Krishaal's method is wrong.

(b) Explain why.

.....

.....

.....

(1)

(Total for Question 10 is 4 marks)

11 Anu wants to work out an estimate for the total number of frogs in a pond.

On Monday, Anu catches 160 frogs from the pond.
She puts a tag on each of these frogs and puts them back into the pond.

On Tuesday, Anu catches 320 frogs from the same pond.
She finds that 40 of the 320 frogs are tagged.

Work out an estimate for the total number of frogs in the pond.

.....

(Total for Question 11 is 3 marks)

12 *A* is the point with coordinates (6, 10)
B is the point with coordinates (0, 20)
C is the point with coordinates (12, 30)

M is the midpoint of *AB*.
N is the midpoint of *BC*.

Work out the distance between *M* and *N*.
Give your answer correct to 1 decimal place.

.....

(Total for Question 12 is 3 marks)

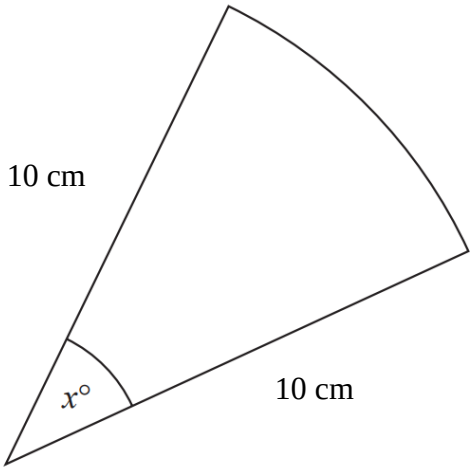
13 $a = 9.74$ correct to 2 decimal places
$b = 1.28$ correct to 2 decimal places

Work out the lower bound for the value of $a - b$
Show your working clearly.

.....

(Total for Question 13 is 2 marks)

14 The diagram shows a sector of a circle of radius 10 cm.



The sector has a perimeter of 27 cm.

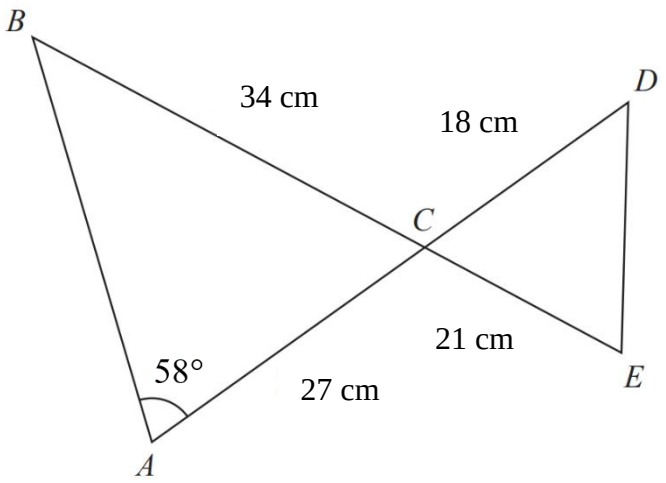
Work out the value of x.
Give your answer correct to 1 decimal place.

.....

(Total for Question 14 is 4 marks)

15 Here is a shape formed from two triangles *ABC* and *CDE*
ACD and *BCE* are straight lines.

Diagram **NOT** accurately drawn



AC = 27 cm *BC* = 34 cm *CE* = 21 cm *CD* = 18 cm

Angle *BAC* = 58°

Work out the length of *DE*
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 15 is 5 marks)

16 Write down the coordinates of the turning point on the graph of $y = 2(x + 15)^2 - 9$

(..... , ...)

(Total for Question 16 is 1 mark)

17 Write

$\frac{17}{3x-15} + \left[(x-1) \div \frac{2x^2-12x+10}{2x+3}\right]$ in the form $\frac{ax+b}{cx+d}$ where a,b,c and d are integers.

.....

(Total for Question 17 is 4 marks)

18

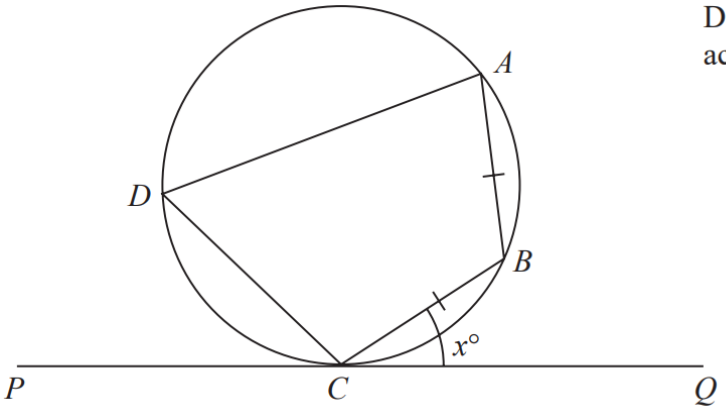


Diagram **NOT** accurately drawn

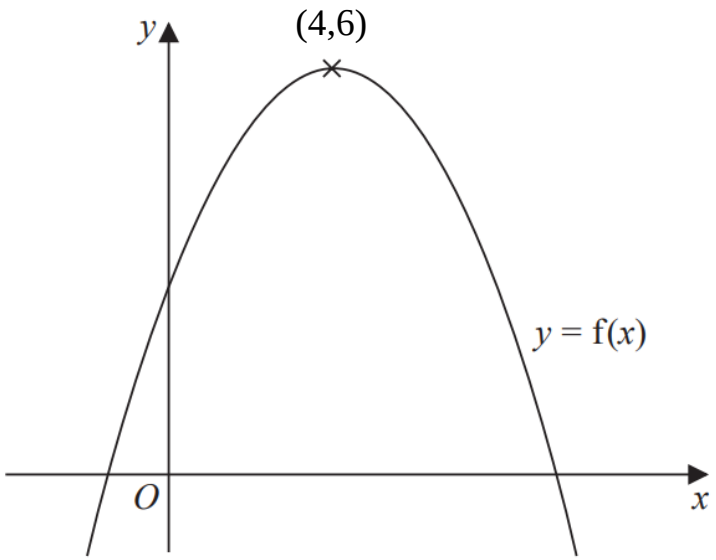
A, *B*, *C* and *D* are points on a circle.
PCQ is a tangent to the circle.
AB = *CB*.

Angle *BCQ* = $x°$

Prove that angle *CDA* = $2x°$
Give reasons for each stage in your working.

(Total for Question 18 is 5 marks)

19 The diagram shows a sketch of the curve with equation $y = f(x)$



There is only one maximum point on the curve.
The coordinates of this maximum point are (4, 6)

Write down the coordinates of the maximum point on the curve with equation

(i) $y = f(x + 5)$

(..... , ...)

(ii) $y = f(x) - 3$

(..... , ...)

(Total for Question 19 is 2 marks)

20 Work out the coordinates of the points of intersection of

$$y - 2x = 1 \text{ and } y^2 + xy = 7$$

Show clear algebraic working.

(..... , ...)

(..... , ...)

(Total for Question 20 is 5 marks)

21 The diagram shows triangle *OAB*

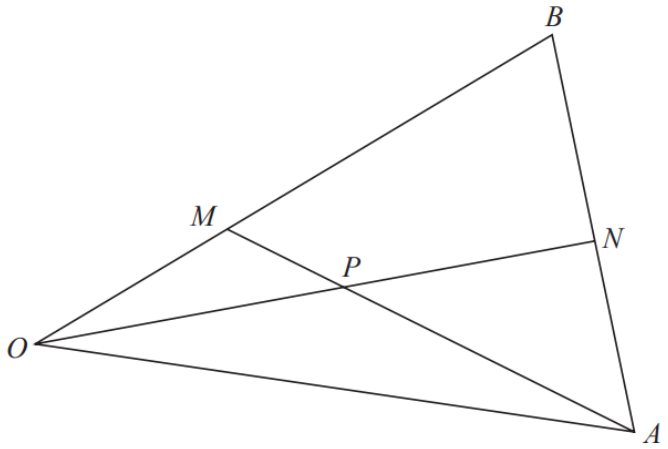


Diagram **NOT** accurately drawn

$\overrightarrow{OA} = 8\mathbf{a}$ $\overrightarrow{OB} = 6\mathbf{b}$

M is the point on *OB* such that *OM*:*MB* = 1 : 2
N is the midpoint of *AB*
P is the point of intersection of *ON* and *AM*

Using a vector method, find $\overrightarrow{OP}$ as a simplified expression in terms of **a** and **b**
Show your working clearly.

$\overrightarrow{OP}$ = ...

(Total for Question 21 is 5 marks)

TOTAL FOR PAPER IS 80 MARKS

Scan here:

Congratulations on completing the paper! I hope it has helped you with your revision.

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Buy Me a Coffee

Take care!