

Surname

Centre Number

Other names

Candidate Number

GCSE (9-1) Mathematics

Predicted Practice Paper

PAPER 2 (Calculator)

Higher Tier

Predicted paper for Summer 2027 examinations

Written in the style of the Edexcel 1MA1 specification

Time: 1 hour 30 minutes Total marks: 80

IMPORTANT — PLEASE READ: This is a predicted practice paper. It is NOT an official Edexcel paper, NOT a past paper, and is NOT endorsed by or affiliated with Pearson Edexcel. All questions are original. Topics were chosen by analysing previous exam papers, but they are NOT guaranteed to appear in any real examination. Revise the full specification.

You must have:

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

Instructions

- Answer every question.
- Write your answers in the spaces provided and show all your working clearly.
- Calculators may be used, but you must show all your working.
- Diagrams are not drawn accurately unless the question says otherwise.

Information

- The paper is worth 80 marks in total.
- The marks available for each question are shown in brackets — use them to judge how long to spend.

Advice

- Read each question carefully before you begin.
- Attempt every question, even if you are unsure.
- If you finish early, use the time to check your answers.

Turn over

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Work out 8.4^2

(Total for Question 1 is 1 mark)

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2 Write $\frac{7}{8}$ as a percentage.

(Total for Question 2 is 2 marks)

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3 A concert ticket costs £45.

A booking fee of 8% is added to the price of the ticket.

Work out the total cost of the ticket.

(Total for Question 3 is 2 marks)

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4 ABC is a triangle.

Angle $ABC = 52^\circ$ and angle $BAC = 68^\circ$.

Work out the size of angle ACB .

(Total for Question 4 is 2 marks)

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5 A circle has radius 7 cm.
Work out the area of the circle.
Give your answer correct to 1 decimal place.

(Total for Question 5 is 3 marks)

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6 Solve the inequality $5x - 3 > 27$

(Total for Question 6 is 2 marks)

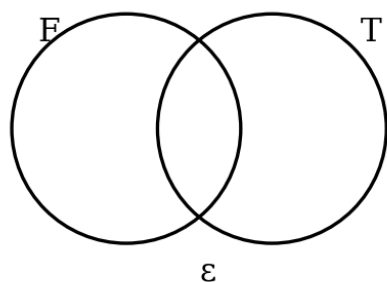
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7 A lorry travels 240 km in 3 hours 20 minutes.
Work out the average speed of the lorry in km/h.

(Total for Question 7 is 3 marks)

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- 8** In a class of 30 students, 18 like football, 14 like tennis and 6 like both football and tennis.



- (a) Complete the Venn diagram.

----- (1)

- (b) One of the students is chosen at random. Work out the probability that this student likes neither football nor tennis.

----- (2)

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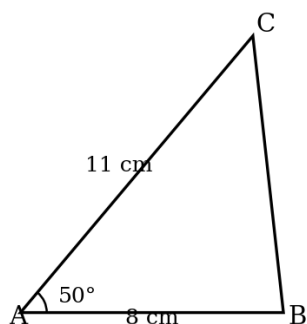
(c) Work out the probability that this student likes football but does not like tennis.

----- (1)

(Total for Question 8 is 4 marks)

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9 ABC is a triangle.
AB = 8 cm, AC = 11 cm and angle BAC = 50° .
Work out the length of BC.
Give your answer correct to 1 decimal place.



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(Total for Question 9 is 3 marks)

10 Triangle P has vertices at (1, 1), (3, 1) and (1, 4).

Triangle P is reflected in the y-axis.

Write down the coordinates of the vertices of the image of triangle P.

(Total for Question 10 is 2 marks)

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11 The table shows information about the heights of 60 plants.

Height, h (cm)	$120 \leq h < 130$	$130 \leq h < 140$	$140 \leq h < 150$	$150 \leq h < 160$	$160 \leq h < 170$
Frequency	8	15	21	11	5

(a) Write down the modal class.

..... (1)

(b) Work out an estimate for the mean height.

..... (3)

(Total for Question 11 is 4 marks)

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12 Write $x^2 + 6x + 5$ in the form $(x + a)^2 + b$, where a and b are integers.

(Total for Question 12 is 2 marks)

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13 The iteration formula $x_{n+1} = (x_n^3 + 4) \div 7$ can be used to find a solution to an equation.

Starting with $x_0 = 2$, find the values of x_1 , x_2 and x_3 .

Give each answer correct to 3 decimal places.

(Total for Question 13 is 3 marks)

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14 Solve $x^2 - 5x + 6 < 0$

(Total for Question 14 is 3 marks)

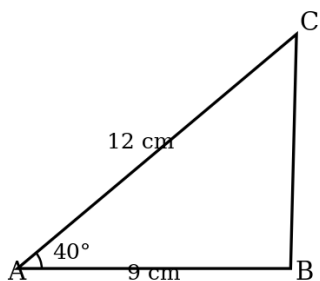
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15 ABC is a triangle.

$AB = 9 \text{ cm}$, $AC = 12 \text{ cm}$ and angle $BAC = 40^\circ$.

Work out the area of triangle ABC.

Give your answer correct to 1 decimal place.

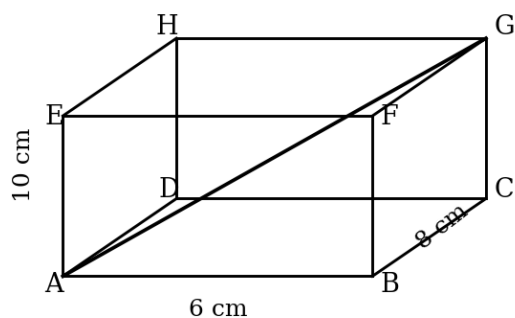


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(Total for Question 15 is 3 marks)

16 The diagram shows a cuboid ABCDEFGH.

$AB = 6\text{ cm}$, $AD = 8\text{ cm}$ and $AE = 10\text{ cm}$.



- (a) Work out the length of AG, the space diagonal of the cuboid. Give your answer correct to 1 decimal place.

(2)

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(b) Work out the size of the angle between AG and the base ABCD. Give your answer correct to the nearest degree.

----- (3)

(Total for Question 16 is 5 marks)

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17 T is inversely proportional to x^2 .

When $x = 4$, $T = 18$.

Find the value of T when $x = 6$.

(Total for Question 17 is 3 marks)

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18 (a) Simplify fully $(x^2 - 9) \div (x^2 + 5x + 6)$.

----- (2)

(b) Write $\frac{3}{x+1} + \frac{2}{x-2}$ as a single fraction in its simplest form.

----- (3)

(Total for Question 18 is 5 marks)

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19 A school has 240 students in Year 7, 180 students in Year 8 and 120 students in Year 9.

A stratified sample of 90 students is to be taken.

Work out the number of Year 8 students in the sample.

(Total for Question 19 is 2 marks)

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20 A sector of a circle has radius 9 cm and angle 120° .

Work out the area of the sector.

Give your answer correct to 1 decimal place.

(Total for Question 20 is 2 marks)

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21 $f(x) = 2x + 5$ and $g(x) = x^2 - 3$

(a) Work out $fg(4)$.

..... (2)

(b) Find an expression for $g^{-1}(x)$.

..... (2)

(c) Solve $fg(x) = 11$.

..... (2)

(Total for Question 21 is 6 marks)

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22 The line L has equation $y = 3x - 7$.

The line M is perpendicular to L and passes through the point (2, 5).

Find an equation for line M.

(Total for Question 22 is 3 marks)

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23 A circle has equation $x^2 + y^2 = 25$.

(a) Write down the radius of the circle.

----- (1)

(b) The point P(3, 4) lies on the circle. Work out an equation of the tangent to the circle at P.

----- (3)

(Total for Question 23 is 4 marks)

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24 The probability that it rains on a given day is 0.3.
If it rains, the probability that Tom cycles to work is 0.2.
If it does not rain, the probability that Tom cycles to work is 0.7.
Work out the probability that Tom cycles to work.

(Total for Question 24 is 3 marks)

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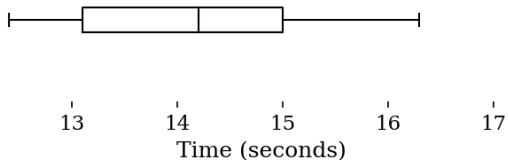
25 The box plots show the times, in seconds, taken by boys and girls to run 100 m.

Write down two comparisons between the boys' times and the girls' times.

Girls



Boys



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(Total for Question 25 is 2 marks)

26 A gold bar has a mass of 2.4 kg and a volume of 125 cm³.
Work out the density of the gold bar in g/cm³.

(Total for Question 26 is 2 marks)

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27 Solve the simultaneous equations

$$x^2 + y^2 = 25$$

$$y = 2x - 5$$

(Total for Question 27 is 4 marks)

END OF PAPER

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