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2039278722

MATHEMATICS **0580/12**

Paper 1 Non-calculator (Core) **May/June 2025**

1 hour 30 minutes

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Any blank pages are indicated.

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List of formulas

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle of radius r.	$A = \pi r^2$
Circumference, C, of circle of radius r.	$C = 2\pi r$
Curved surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Curved surface area, A, of cone of radius r, sloping edge l.	$A = \pi rl$
Surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of pyramid, base area A, height h.	$V = \frac{1}{3}Ah$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of cone of radius r, height h.	$V = \frac{1}{3}\pi r^2 h$
Volume, V, of sphere of radius r.	$V = \frac{4}{3}\pi r^3$

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Calculators must **not** be used in this paper.

1 Write the number sixteen thousand and sixty-two in figures.

..... [1]

2 Write three-quarters as

(a) a decimal

..... [1]

(b) a percentage.

.....% [1]

3 Write down the value of

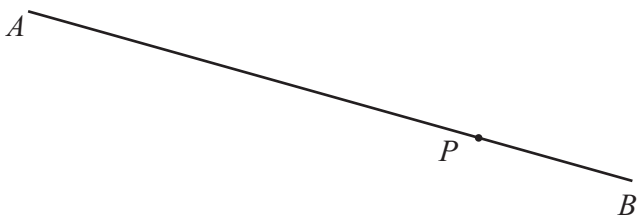
(a) $\sqrt{36}$

..... [1]

(b) 10^3.

..... [1]

4 The diagram shows a line AB and a point P.



(a) Measure the length of line AB in millimetres.

..... mm [1]

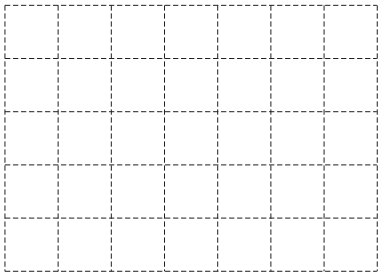
(b) Draw a line through point P that is perpendicular to line AB. [1]

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5 Complete this statement.

10 weeks is ..... days. [1]

6



Shade $\frac{2}{5}$ of the rectangle. [1]

7 **(a)** Find the value of the reciprocal of $\frac{1}{3}$.

..... [1]

(b) Write 2^{-3} as a fraction.

..... [1]

8 Put **one** pair of brackets into each calculation to make it correct.

(a) $-12+4\div2-3=-16$ [1]

(b) $-3-4+5-7=-5$ [1]

9 Write these fractions in order, starting with the smallest.

$\frac{5}{8}$ $\frac{11}{12}$ $\frac{2}{3}$ $\frac{3}{4}$ $\frac{13}{24}$

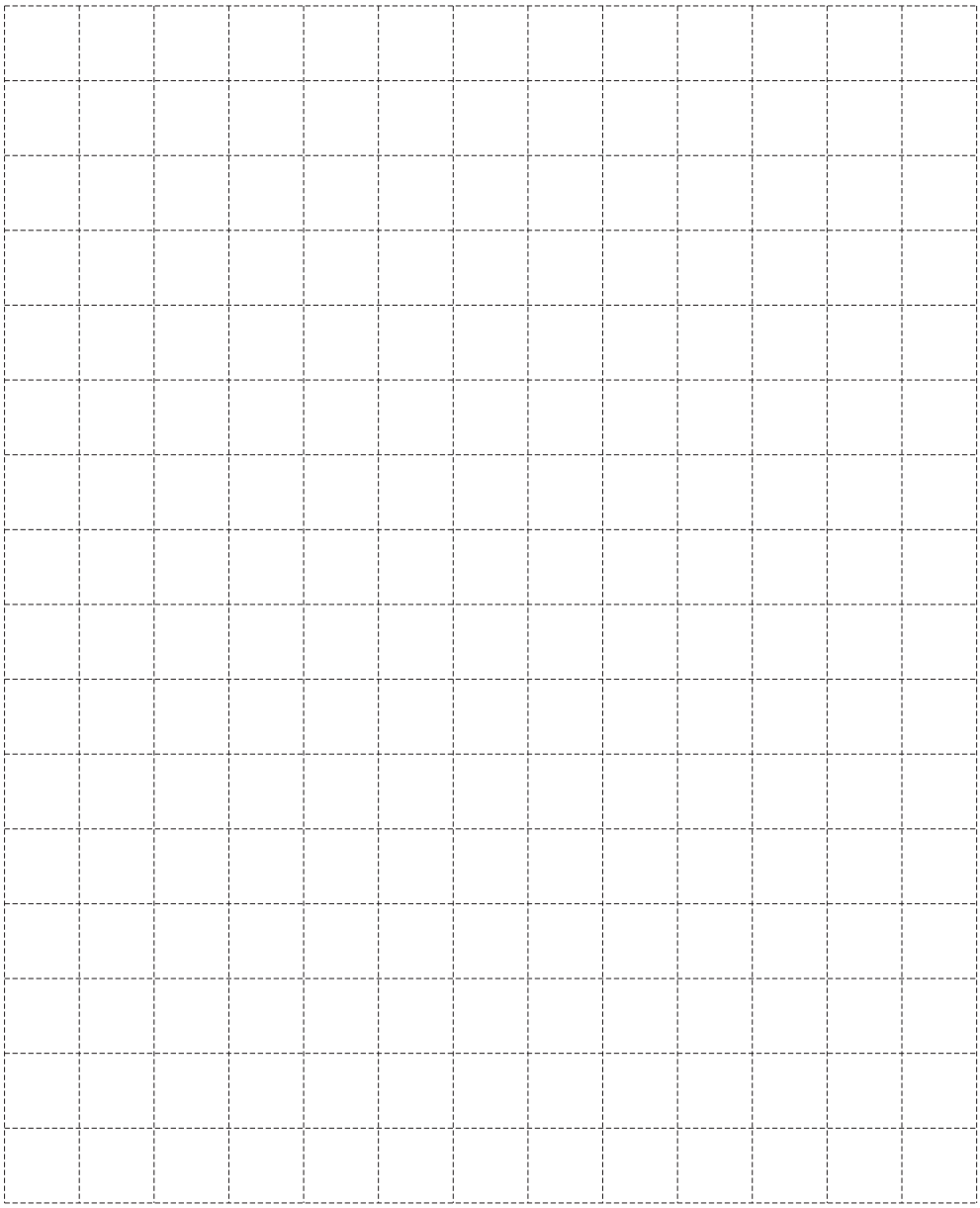
..... < ..... < ..... < ..... < ..... [2]

smallest

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10 A cuboid has length 5 cm, width 2 cm and height 3 cm.

(a) Draw a net of the cuboid on the 1 cm^2 grid.



[3]

(b) Work out the volume of the cuboid.
Give the units of your answer.

.... [2]

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11

0	2	2	3	4	7

For these six numbers

(a) write down the mode

..... [1]

(b) work out the range

..... [1]

.

(c) work out the median

..... [1]

(d) work out the mean.

..... [2]

12 Tim has a method for multiplying a number by 99.
He shows his method for 53×99.

$$\begin{aligned} & 53 \times 99 \\ = \; & 53 \times 100 - 53 \\ = \; & 5300 - 53 \\ = \; & 5247 \end{aligned}$$

Work out 85×99 using Tim's method.

..... [2]

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13 **(a)** A quadrilateral has the geometrical properties

- 4 equal length sides
- 2 lines of symmetry
- rotational symmetry of order 2.

Write down the mathematical name of this quadrilateral.

..... [1]

(b) Write down two geometrical properties of a rectangle.

1. .....

2. .....

[2]

(c)



The parallel sides of a trapezium have lengths 6 cm and 4 cm.
The area of the trapezium is 15 cm^2.

On the 1 cm^2 grid, draw a trapezium with these lengths and area.

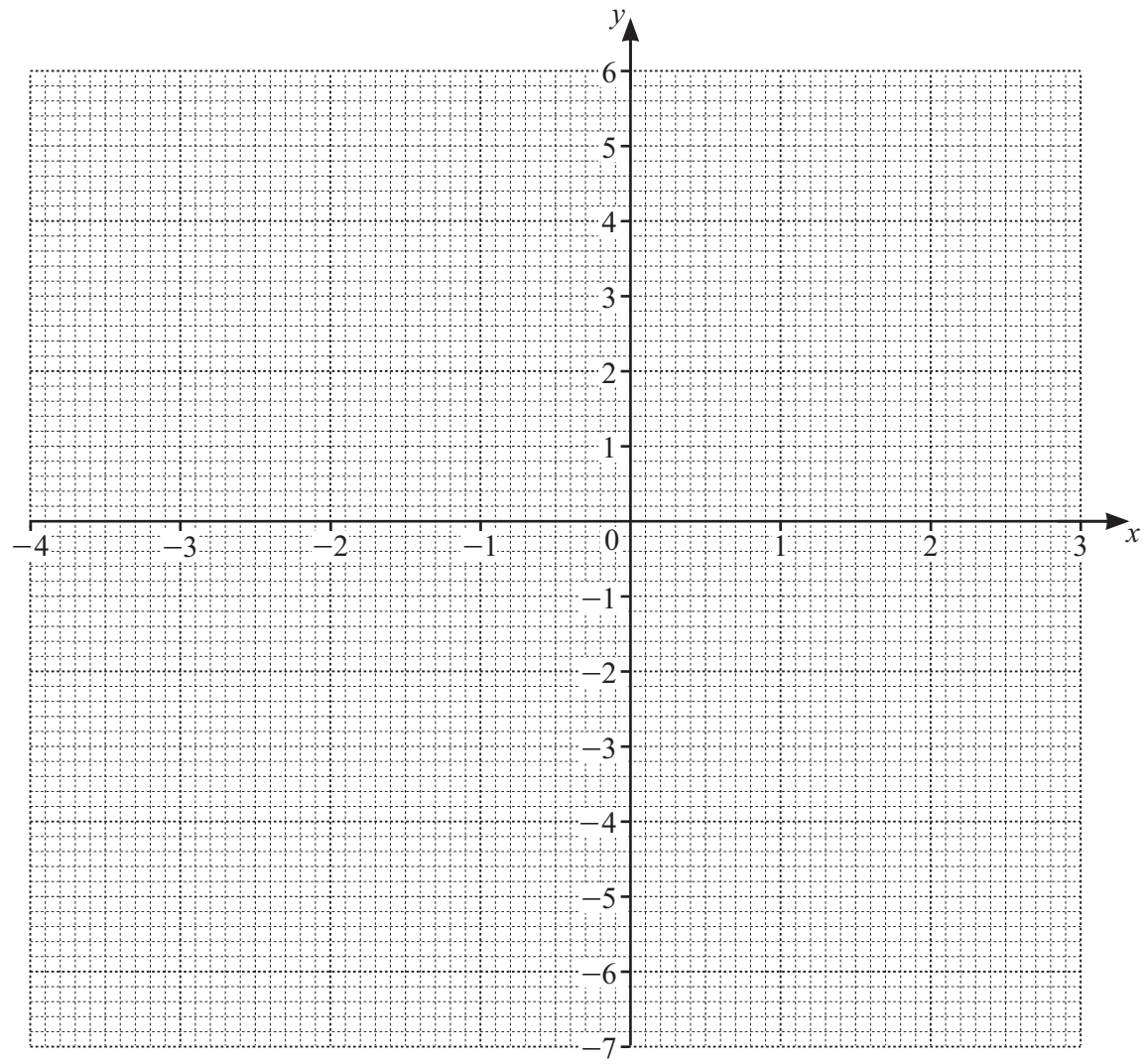
[3]

14 **(a)** Complete the table of values for $y = (x+3)(x-2)$.

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

[3]

(b) On the grid, draw the graph of $y = (x+3)(x-2)$ for $-4 \leqslant x \leqslant 3$.



[4]

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(c) Write down the coordinates of the lowest point of the graph.

(..... , ...) [1]

(d) Write down the equation of the line of symmetry of the graph.

..... [1]

(e) Use your graph to solve the equation $(x+3)(x-2) = 3$.

$x =$ ..... or $x =$ ..... [2]

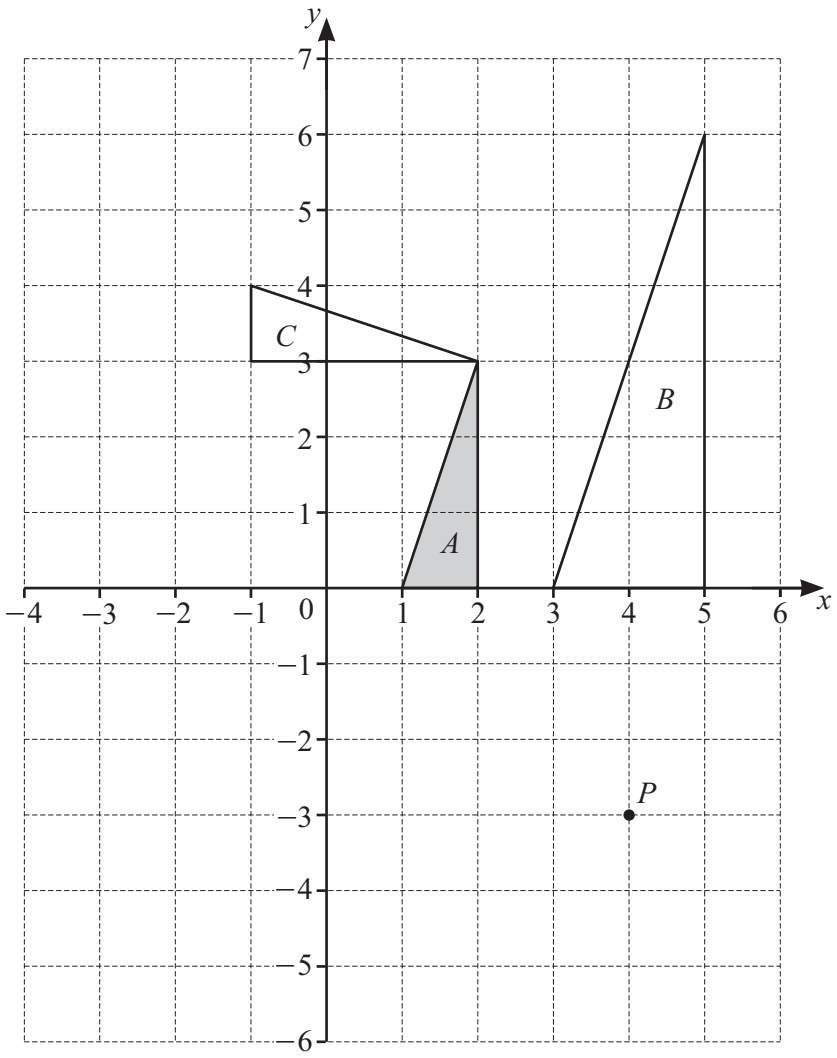
15 Beth thinks of a positive number, n.
She squares n then subtracts 55.
The answer is 9.

Work out the value of n.

$n =$ ..... [2]

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16 The diagram shows a point P and three triangles, A, B and C, on a 1 cm^2 grid.



(a) Find the area of triangle B.

..... cm^2 [1]

(b) (i) Write down the coordinates of point P.

(..... , ...) [1]

(ii) Work out the coordinates of point P after a translation by the vector $\begin{pmatrix} -20 \\ 12 \end{pmatrix}$.

(..... , ...) [1]

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(c) Draw the image of triangle A after a reflection in the line $y = -1$. [2]

(d) Describe fully the **single** transformation that maps

(i) triangle A onto triangle B

.....

..... [3]

(ii) triangle A onto triangle C.

.....

..... [3]

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17 By writing each number in the calculation correct to 1 significant figure, find an estimate for the value of

$$\frac{17.8 + 10.3}{5.5}.$$

..... [2]

18 Find the highest common factor (HCF) of 66 and 110.

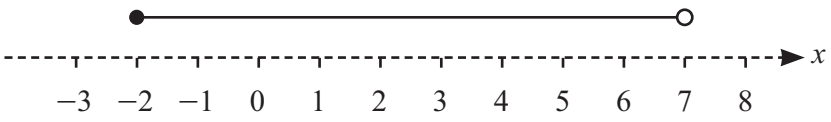
..... [2]

19 **(a)** P is a prime number.

Write down the value of P that satisfies the inequality $13 < P < 19$.

$P =$ ..... [1]

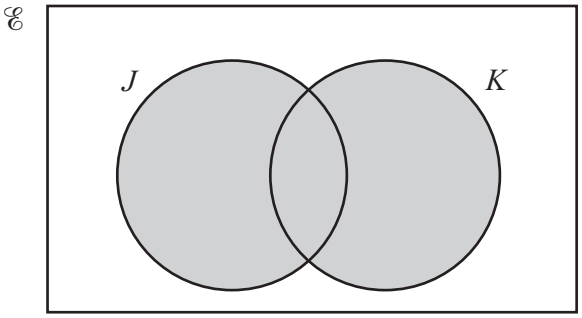
(b) Write down the inequality represented on the number line.



..... [2]

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20



Use set notation to describe the shaded region.

..... [1]

21 Work out $2\frac{7}{9} \times 1\frac{1}{5}$.

Give your answer as a mixed number in its simplest form.

..... [3]

22 The mass, m kg, of a stone is 3.2 kg, correct to the nearest 100 g.

Complete this statement about the value of m.

..... $\leqslant m <$ ..... [2]

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23 **(a)** Factorise.

$$9x - 6xy$$

..... [2]

(b) Expand and simplify.

$$(2x + 3)(x - 4)$$

..... [2]

24 Solve the simultaneous equations.

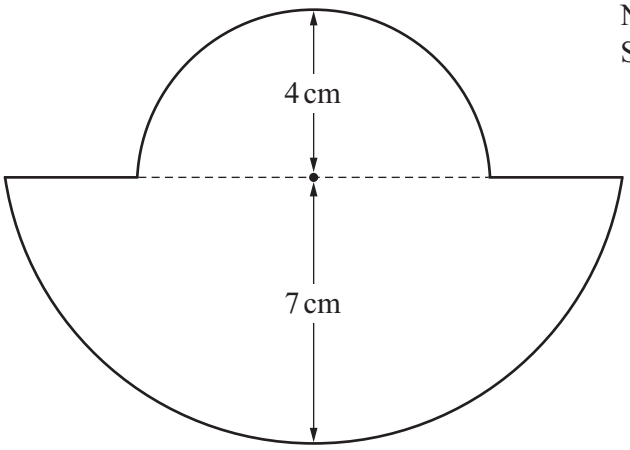
$$5x + 2y = 3$$
$$3x + 4y = 27$$

$x =$ .....

$y =$ ..... [3]

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25 The diagram shows a shape made from two different semicircles, with the same centre.



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The radius of the large semicircle is 7 cm.
The radius of the small semicircle is 4 cm.

Work out the perimeter of the shape.
Give your answer in terms of π.

..... cm [3]

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