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**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.

## 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  $r$ .

$$V = \frac{4}{3}\pi r^3$$



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

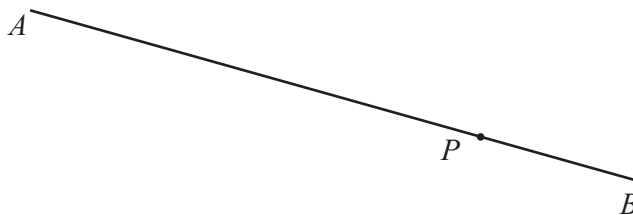
(a)  $\sqrt{36}$

..... [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]

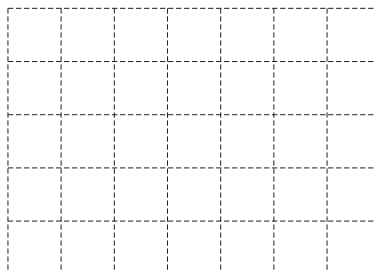


5 Complete this statement.

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)  $-12 + 4 \div 2 - 3 = -16$

[1]

(b)  $-3 - 4 + 5 - 7 = -5$

[1]

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

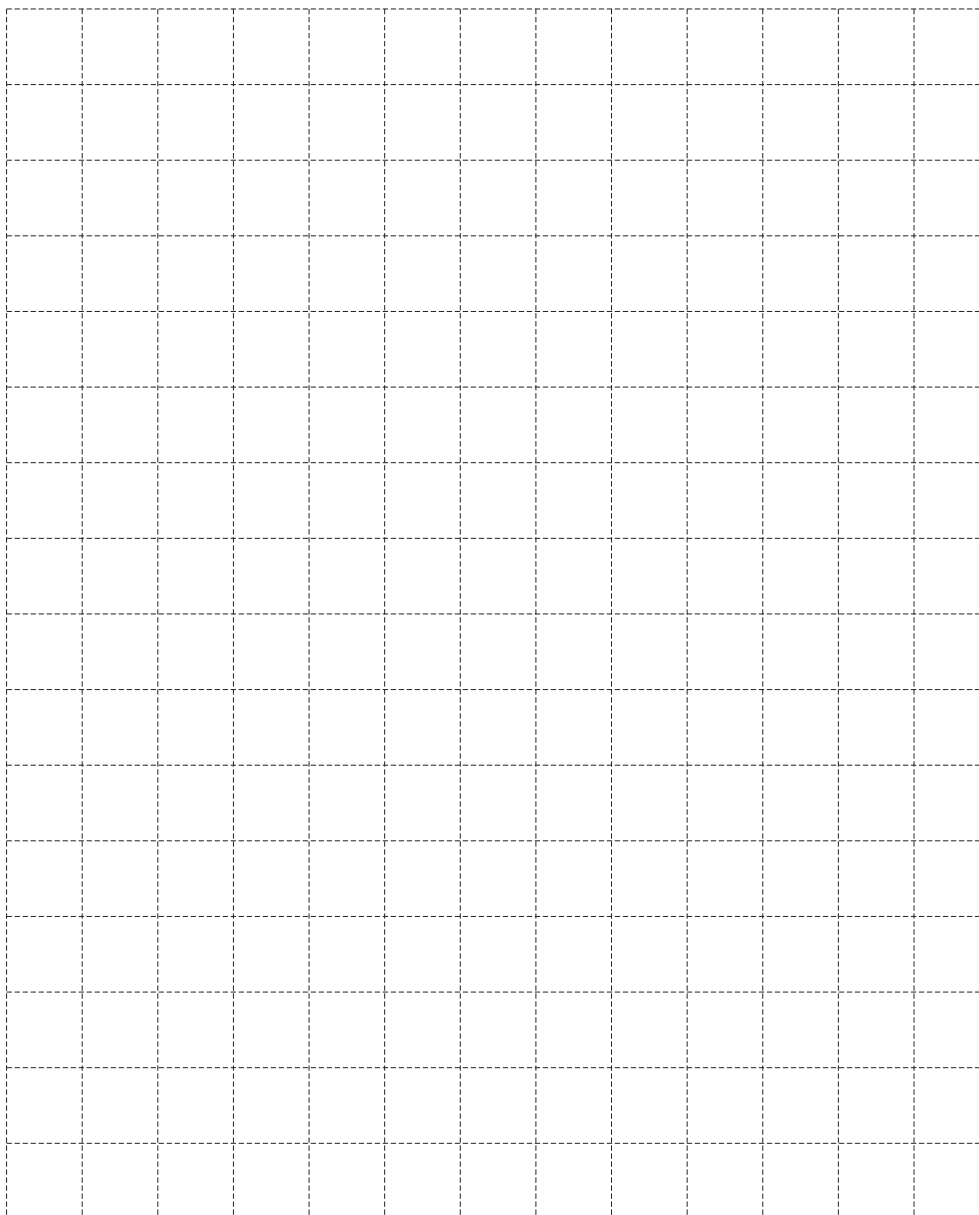
$\frac{5}{8}$        $\frac{11}{12}$        $\frac{2}{3}$        $\frac{3}{4}$        $\frac{13}{24}$

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



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<sup>2</sup> grid.



[3]

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

..... [2]





11

0	2	2	3	4	7
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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  $53 \times 99$ .

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

Work out  $85 \times 99$  using Tim's method.

..... [2]



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  $15 \text{ cm}^2$ .

On the  $1 \text{ cm}^2$  grid, draw a trapezium with these lengths and area.

[3]

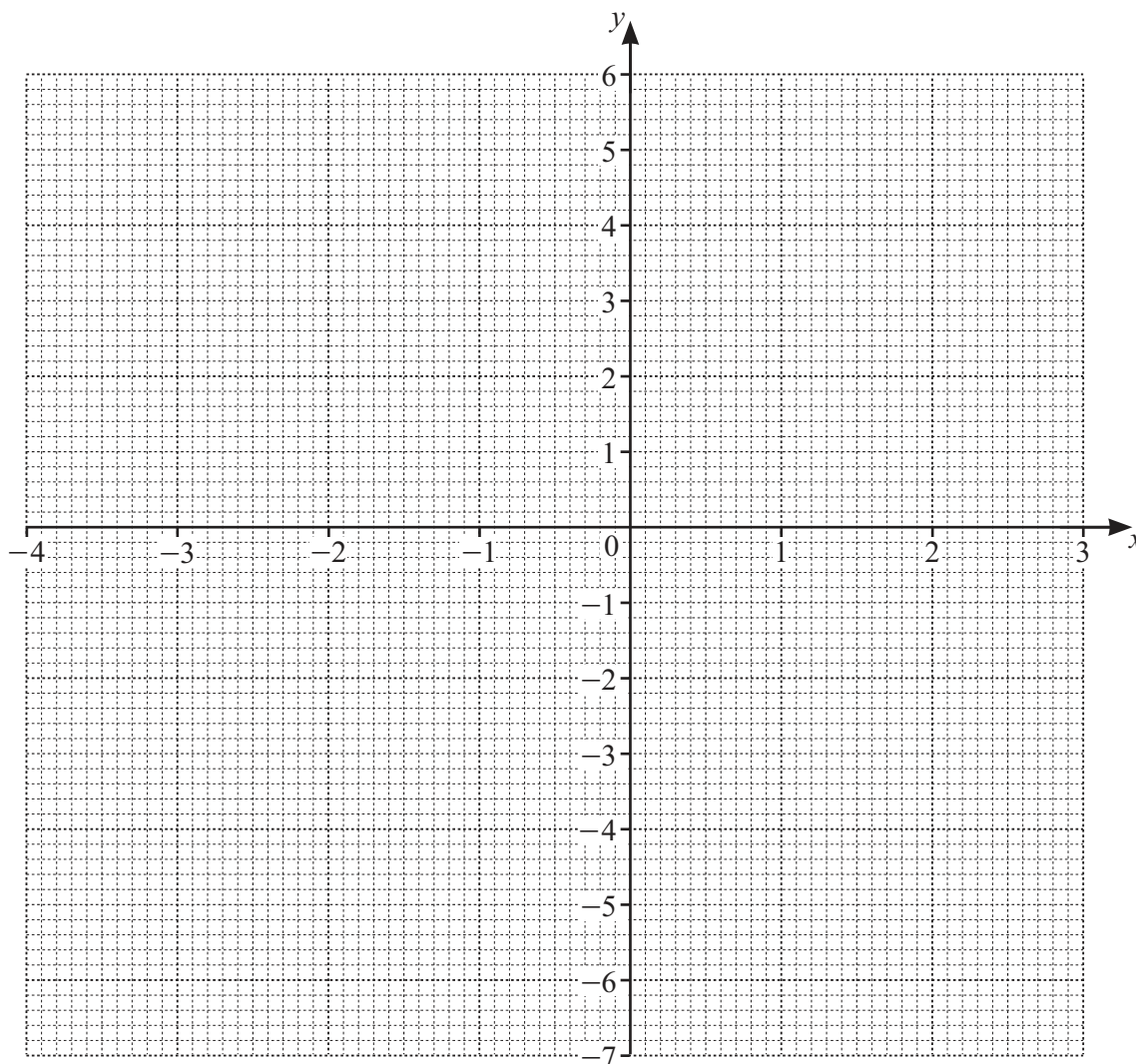


14 (a) Complete the table of values for  $y = (x+3)(x-2)$ .

$x$	-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  $-4 \leq x \leq 3$ .



[4]





(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  $(x + 3)(x - 2) = 3$ .

$x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [2]

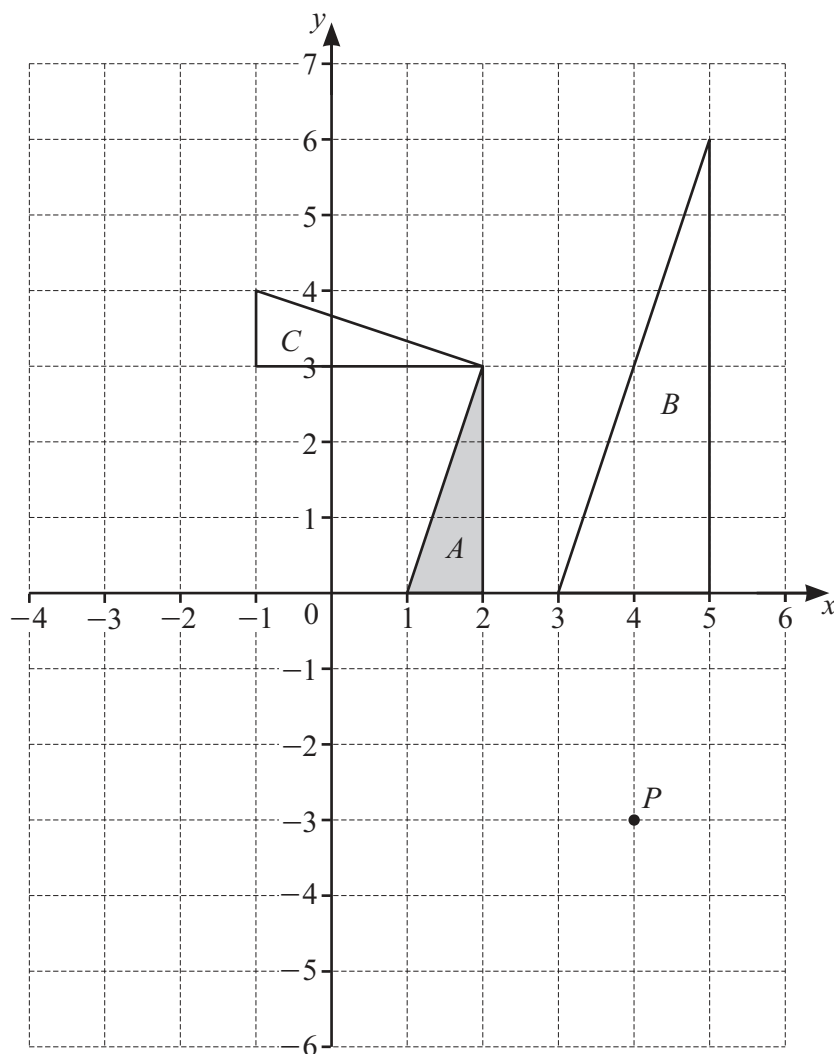
- 15 Beth thinks of a positive number,  $n$ .  
She squares  $n$  then subtracts 55.  
The answer is 9.

Work out the value of  $n$ .

$n = \dots\dots\dots$  [2]



- 16 The diagram shows a point  $P$  and three triangles,  $A$ ,  $B$  and  $C$ , on a  $1 \text{ cm}^2$  grid.



- (a) Find the area of triangle  $B$ .

.....  $\text{cm}^2$  [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]



(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]



- 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.

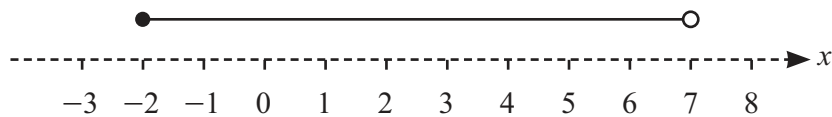
..... [2]

- 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.

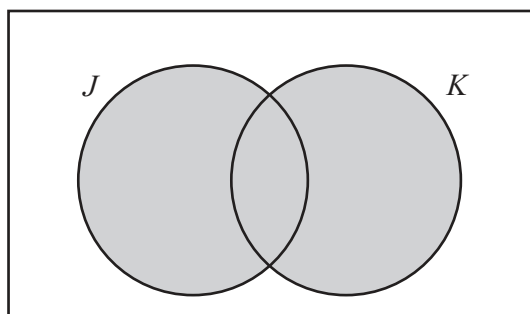


..... [2]





8



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  $m$ .

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



23 (a) Factorise.

$$9x - 6xy$$

..... [2]

(b) Expand and simplify.

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

..... [2]

24 Solve the simultaneous equations.

$$5x + 2y = 3$$

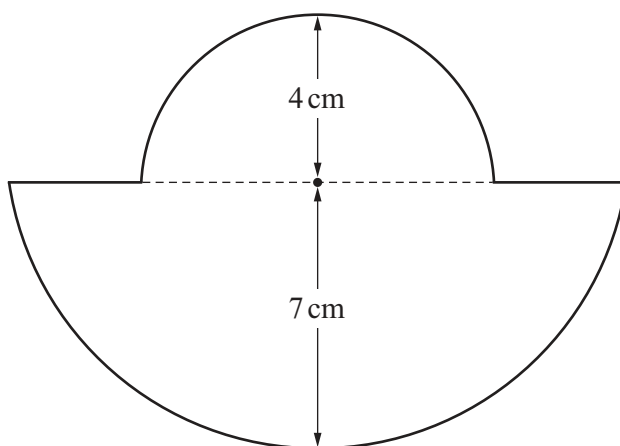
$$3x + 4y = 27$$

$x =$  .....

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



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



NOT TO  
SCALE

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  $\pi$ .

..... cm [3]





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