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MATHEMATICS**0580/12**

Paper 1 Non-calculator (Core)

February/March 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 **20** 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 twenty thousand in figures.

..... [1]

- 2 Write 0.07

(a) as a percentage

..... % [1]

(b) as a fraction

..... [1]

(c) in standard form.

..... [1]

- 3 Write down all the factors of 18.

..... [2]

- 4 Find the value of

(a) 10^3

..... [1]

(b) $\sqrt[3]{27}$

..... [1]

(c) 7^0 .

..... [1]



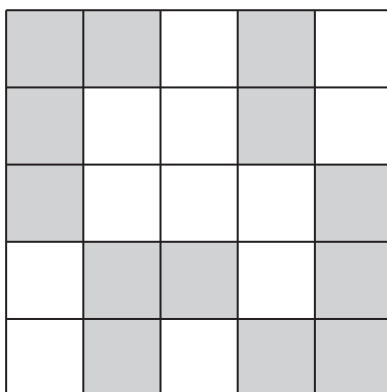


- 5 (a) On the diagram, draw all the lines of symmetry.



[2]

- (b) Shade one square so that the diagram has rotational symmetry of order 2.



[1]

- 6 Find the value of the reciprocal of 0.25 .

..... [2]





7 Work out $-6 \times -3 + 7 \times 2$.

..... [2]

8 Write these numbers in order, starting with the smallest.

34% π $\frac{1}{3}$ 3 $\frac{3}{10}$

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

9 A film starts at 19 35.
 The film lasts for 70 minutes.

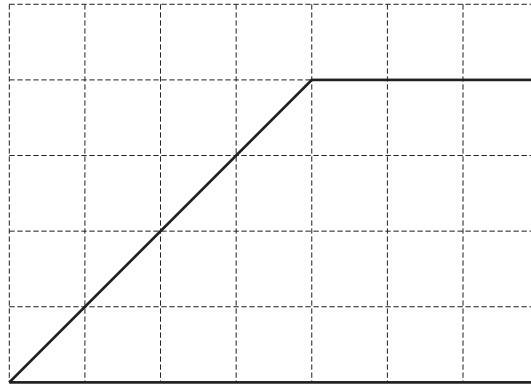
Work out the time the film finishes.

..... [1]





10 A shape is drawn on a 1 cm^2 grid.



(a) Find the area of the shape.

..... cm^2 [1]

(b) On the grid, shade 50% of the shape.

[1]

11

$$19.5 \times 20.4 = 397.8$$

Work out.

(a) 1.95×2.04

..... [1]

(b) $3978 \div 204$

..... [1]





- 12 (a) Kat has a method for finding the difference between two square numbers, $a^2 - b^2$. Her method is
 (the sum of a and b) $\times$ (the difference between a and b).

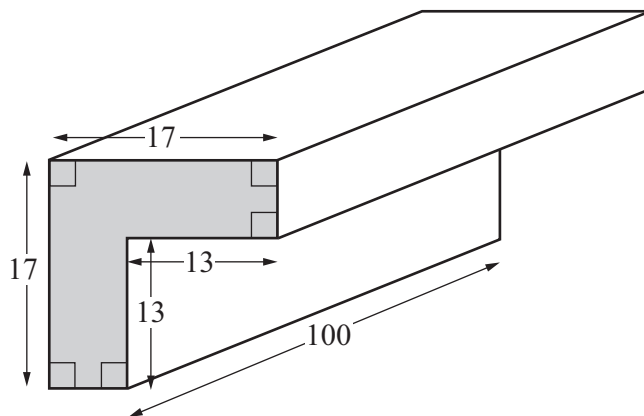
She shows her method for $17^2 - 13^2$.

$$\begin{aligned} 17^2 - 13^2 \\ &= (17 + 13) \times (17 - 13) \\ &= 30 \times 4 \\ &= 120 \end{aligned}$$

Work out $29^2 - 21^2$ using Kat's method.

..... [2]

- (b) In this part, all lengths are in centimetres.



NOT TO
SCALE

The diagram shows a prism.

Work out the volume of the prism.

..... cm^3 [2]

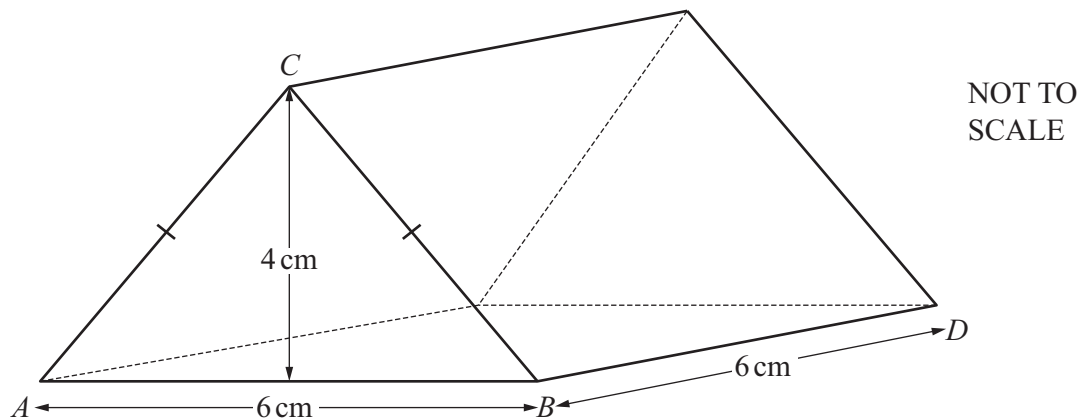




13 Convert 8 litres into cm^3 .

..... cm^3 [1]

14



The diagram shows a triangular prism.
 ABC is an isosceles triangle with $AC = BC$.
 The perpendicular height of triangle ABC is 4 cm.
 $AB = 6$ cm and $BD = 6$ cm.

(a) Complete this statement.

The prism has faces and edges. [2]

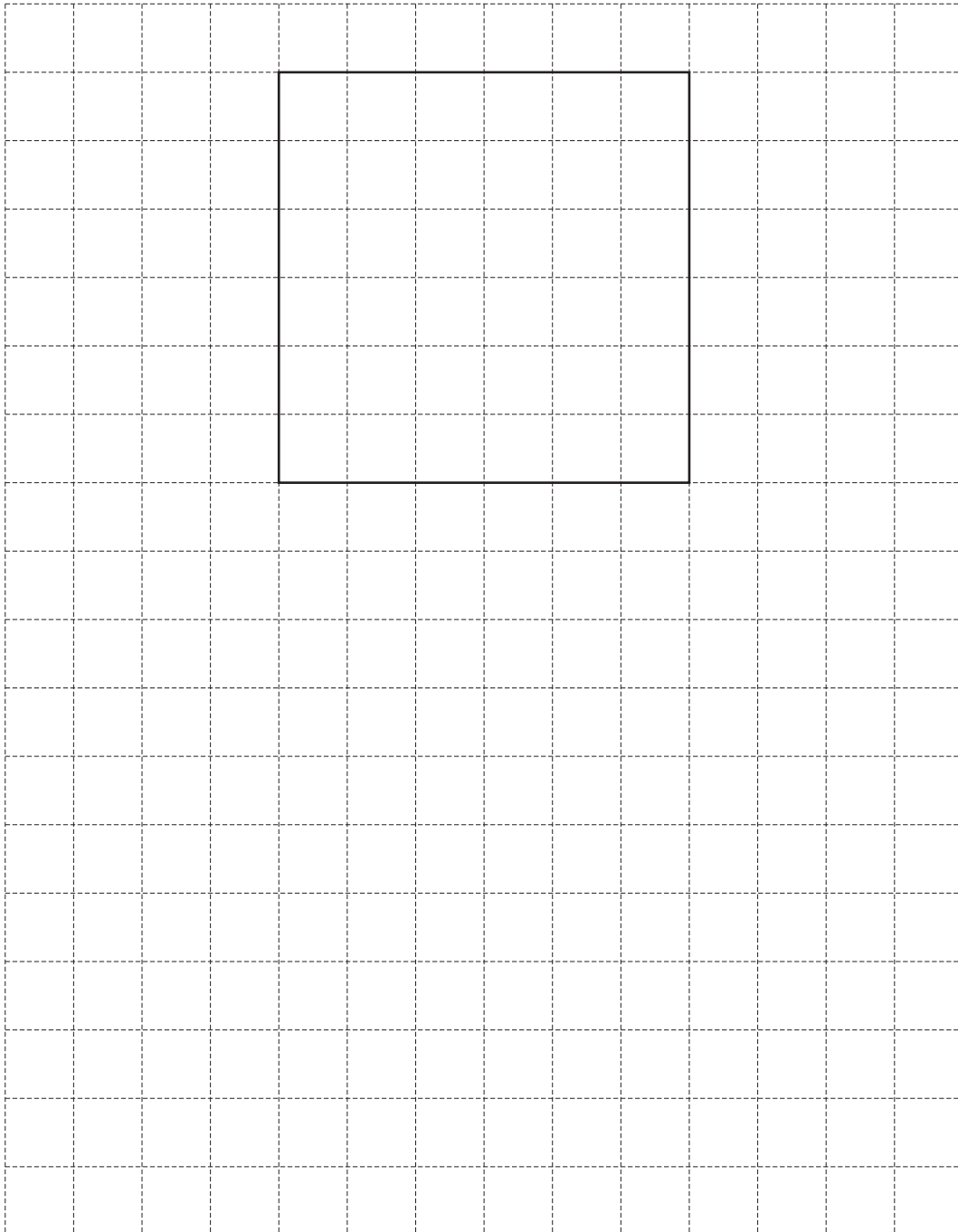
(b) Show that the length of BC is 5 cm.

[2]



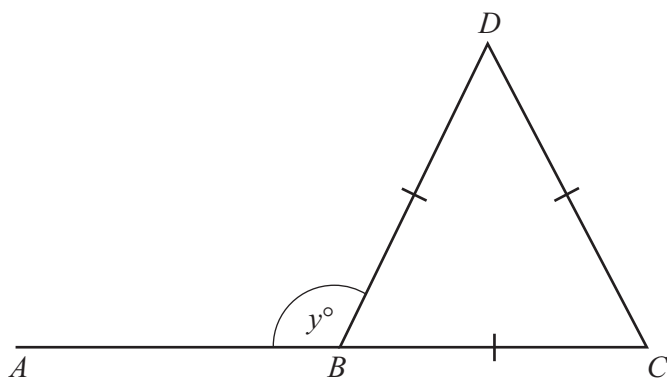


- (c) Complete the net of the prism on the 1 cm^2 grid.
The base has been drawn for you.



[3]





NOT TO
SCALE

The diagram shows a triangle BCD and a straight line ABC .
 $DB=DC=BC$.

- (a) Write down the mathematical name for triangle BCD .

..... [1]

- (b) Work out the value of y .
Give two geometrical reasons for your answer.

$y =$ because

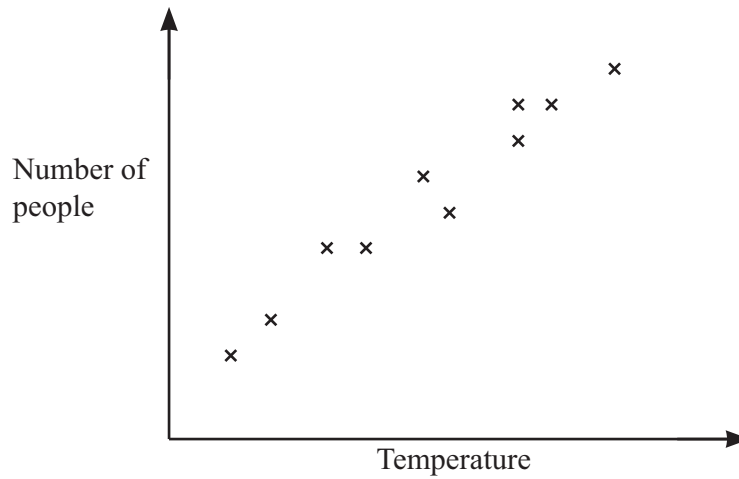
1.

2.

[4]



- 16 Jill records the temperature and the number of people on a beach for each of ten days. The results are shown in the scatter diagram.



- (a) What type of correlation is shown in the scatter diagram?

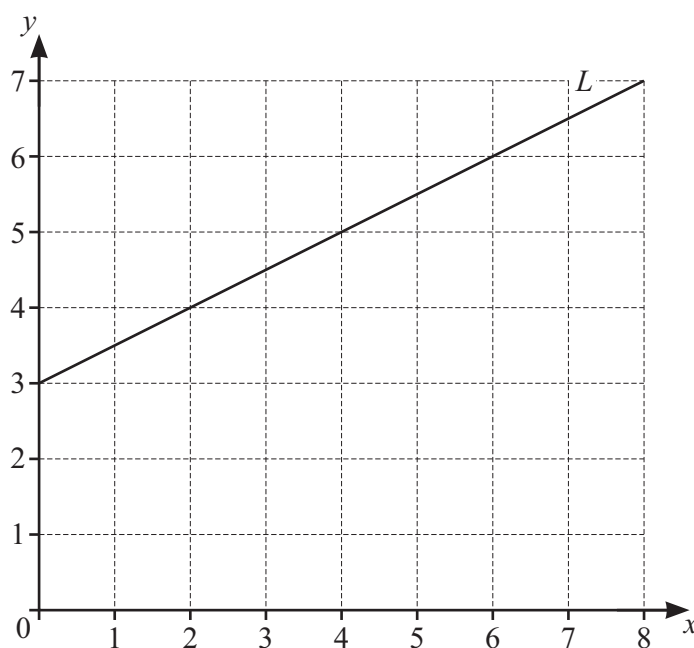
..... [1]

- (b) Describe the relationship between the temperature and the number of people on the beach.

.....
 [1]



17 Line L is shown on the grid.



(a) Find the equation of line L in the form $y = mx + c$.

$$y = \dots\dots\dots [2]$$

(b) Line L crosses the x -axis at P .

Find the coordinates of P .

$$(\dots\dots\dots, \dots\dots\dots) [2]$$



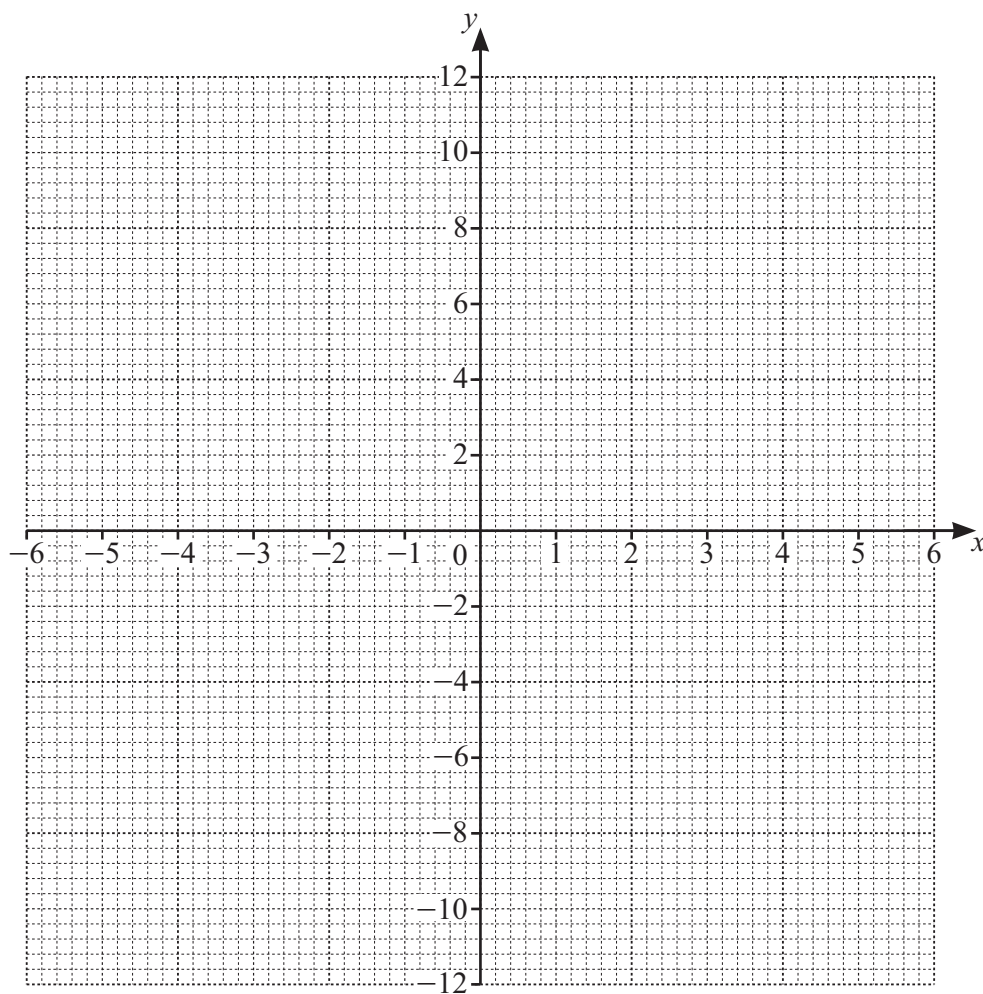


18 (a) Complete the table of values for $y = \frac{12}{x}$.

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

[3]

(b) On the grid, draw the graph of $y = \frac{12}{x}$ for $-6 \leq x \leq -1$ and $1 \leq x \leq 6$.



[4]

(c) On the grid, draw the line $y = -9$.

[1]

(d) Use your graph to solve $\frac{12}{x} = -9$.

$x = \dots\dots\dots$ [1]



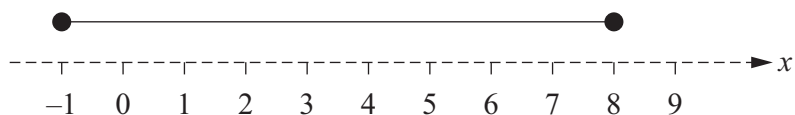


19 (a) n is an **odd** number.

Write down the values of n that satisfy $7 < n \leq 15$.

..... [2]

(b)



Pip thinks $-1 < x < 8$ is the inequality represented on the number line.

Complete the statement.

Pip's inequality is not correct because

..... [1]

20 The height, h metres, of a building is 635 m, correct to the nearest metre.

Complete this statement about the value of h .

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





21

$$X = \frac{1}{3}w^2p$$

(a) Find the value of X when $w = 5$ and $p = 6$.

$X =$ [2]

(b) Make p the subject of the formula.

$p =$ [2]

22 Work out $1\frac{7}{15} - \frac{4}{5}$.

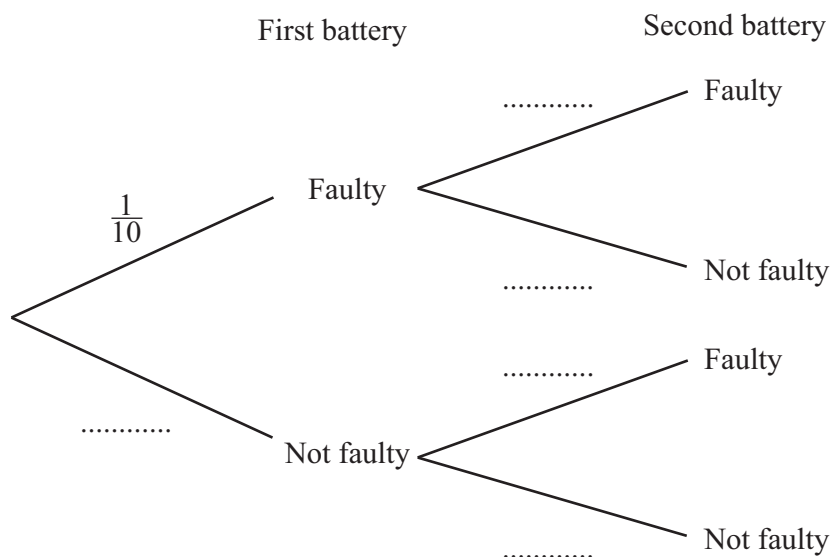
Give your answer as a fraction in its simplest form.

..... [3]





- 23 Mai buys two batteries.
The probability that a battery is faulty is $\frac{1}{10}$.



(a) Complete the tree diagram. [2]

(b) Find the probability that Mai buys two faulty batteries.

..... [2]

(c) A shop sells 3000 batteries in one month.

Work out the expected number of faulty batteries the shop sells.

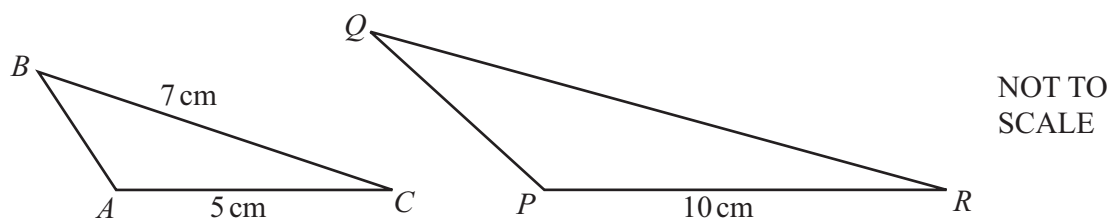
..... [1]



- 24 A circle has radius 7 cm.
A square has side x cm.
The circumference of the circle is the same length as the perimeter of the square.
- Find the value of x .
Give your answer in terms of π .

$x = \dots\dots\dots$ [3]

25



Triangle ABC is mathematically similar to triangle PQR .

Show that $QR = 14$ cm.

[1]



26 Solve the simultaneous equations.

$$\begin{aligned} 4t - 3w &= 11 \\ 6t + 2w &= -3 \end{aligned}$$

$$t = \dots\dots\dots$$

$$w = \dots\dots\dots [4]$$







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