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MATHEMATICS**0580/13**

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 **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 (a) Write the number 70 000 000 in words.

..... [1]

- (b) (i) Write down the value of the 5 in the number 0.25 .
Give your answer as a fraction.

..... [1]

- (ii) Find the value of the reciprocal of 0.25 .

..... [2]

- 2 (a) Write down the mathematical name for an angle between 90° and 180° .

..... [1]

- (b) Write down the mathematical term that describes two polygons that are the same shape and size.

..... [1]





3 (a) Write down $\sqrt{169}$.

..... [1]

(b) Work out the value of 2^4 .

..... [1]

(c) Work out the value of 10^{-2} .

..... [1]

(d) Work out $-18 \div -4$.

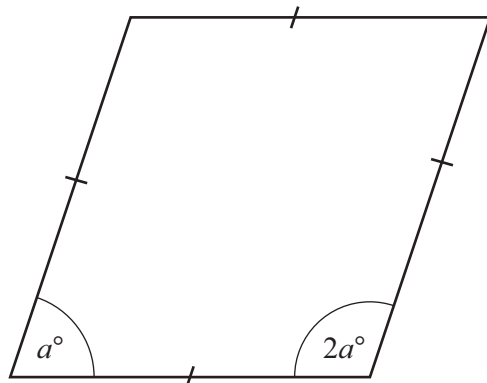
..... [1]

(e) Work out 1.6×0.02 .

..... [1]



- 4 The diagram shows a quadrilateral with sides of equal length.



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- (a) Write down the mathematical name for this quadrilateral.

..... [1]

- (b) Work out the value of a .

$a =$ [2]

- 5 Find the next term in each sequence.

- (a) 1, 5, 10, 16, 23, ...

..... [1]

- (b) 1, 2, 4, 8, 16, ...

..... [1]





6

6 These are the lengths of time, in minutes, of seven phone calls.

10 22 5 7 35 8 75

(a) (i) Find the median.

..... min [2]

(ii) Find the range.

..... min [1]

(b) The longest phone call is 75 minutes.

Write 75 minutes in hours.

..... h [1]

7 70 students study one of French, Spanish and German.

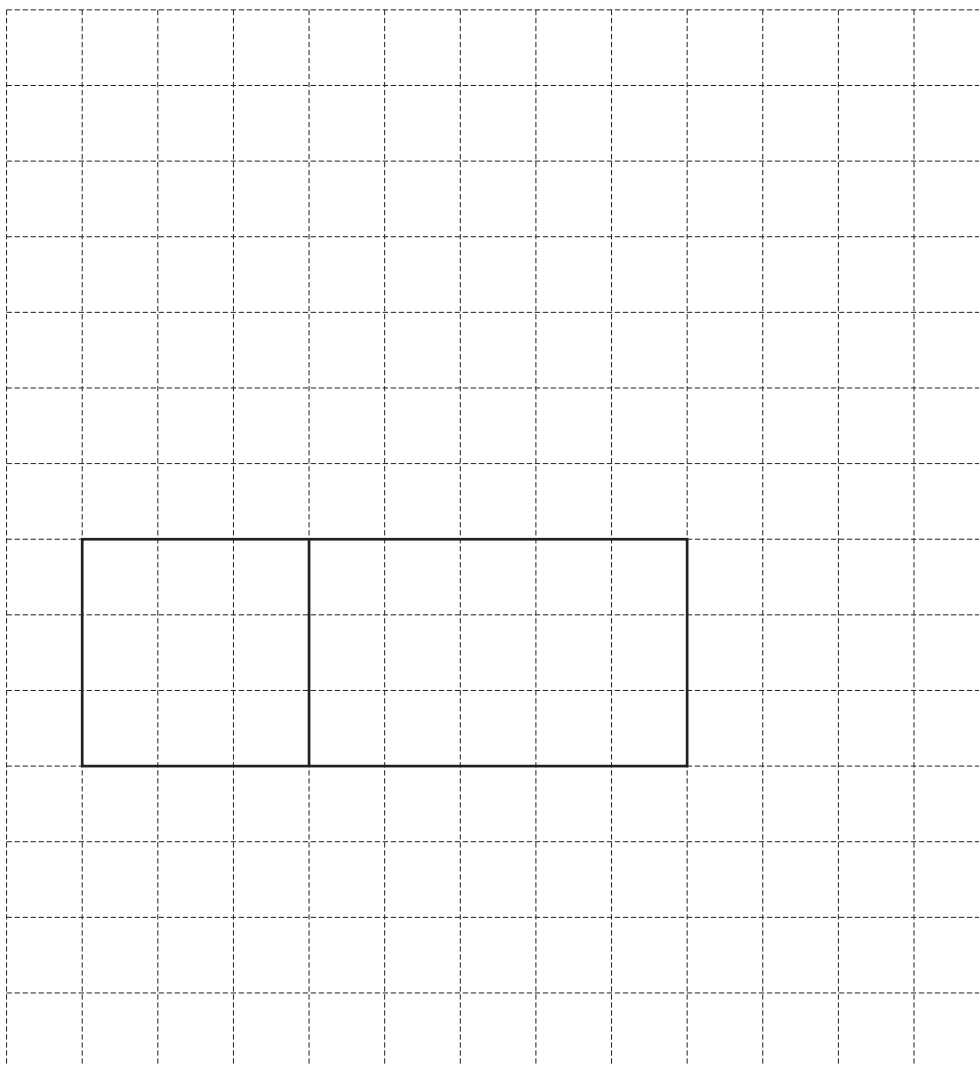
The ratio number who study French : number who study Spanish = 3 : 7.
15 students study French.

Find the number of students who study German.

..... [3]



- 8 The diagram shows two faces of a net of a cuboid on a 1 cm^2 grid.



- (a) Complete the statement.

The dimensions of the cuboid are cm by cm by cm. [1]

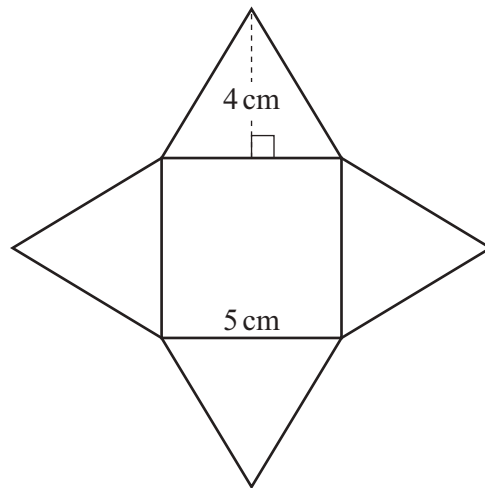
- (b) On the grid, complete a net of the cuboid. [3]

- (c) Work out the volume of the cuboid.

..... cm^3 [2]



- 9 The diagram shows the net of a square-based pyramid.



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The perpendicular height of each triangle is 4 cm.
The base has side length 5 cm.

- (a) Calculate the surface area of the pyramid.

..... cm^2 [2]

- (b) Write down the number of edges of the square-based pyramid.

..... [1]



- 10 (a) Line A has equation $y = 3x + 1$.
Line B has equation $y = 3x - 1$.

Draw a ring around the description that is correct.

Line A intersects
line B

Line A has a
steeper gradient
than line B

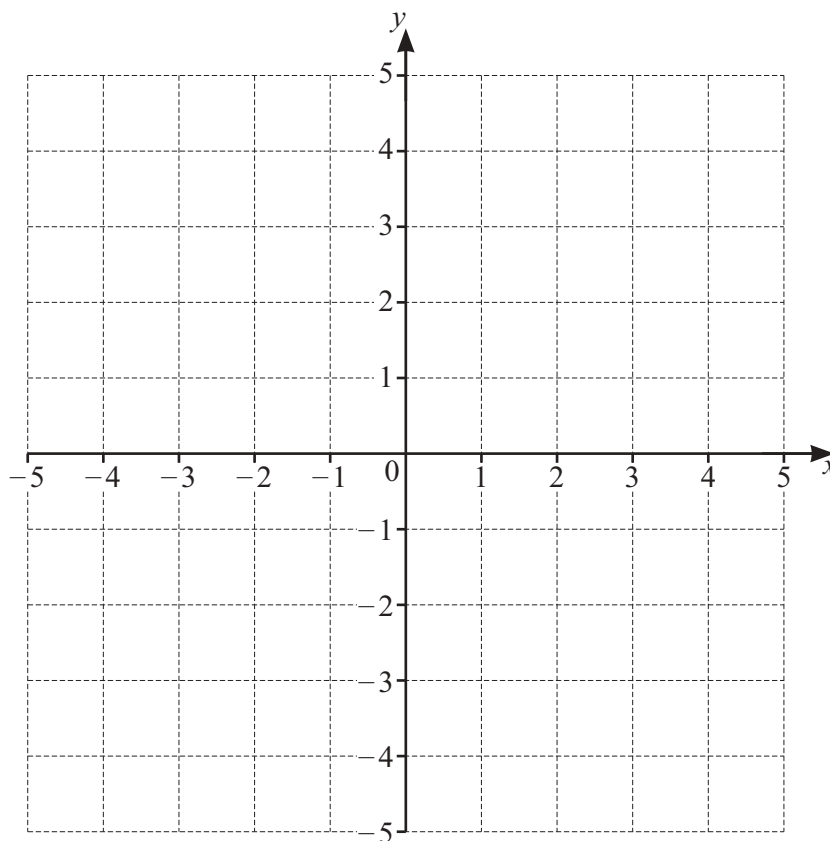
Line A is
perpendicular to
line B

Line A is parallel
to line B

Line A and Line B
intersect the y -axis
at the same point

[1]

(b)



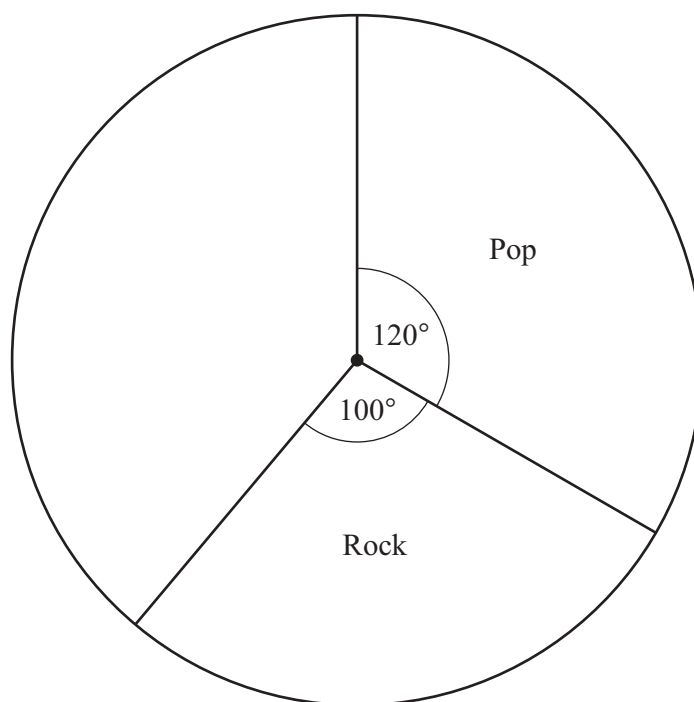
On the grid, draw the graph of $y = 2x - 1$.

[2]





- 11 Jo asks 90 people whether they prefer pop, rock, classical, jazz or folk music. The pie chart shows some of the results.



- (a) Work out the number of people who prefer pop.

..... [2]

- (b) The sector angle for classical is 80° .

Draw this sector on the pie chart.

[1]

- (c) 9 people prefer jazz and the rest prefer folk.

- (i) Work out the size of the sector angle for jazz.

..... [2]

- (ii) Complete the pie chart.

[1]



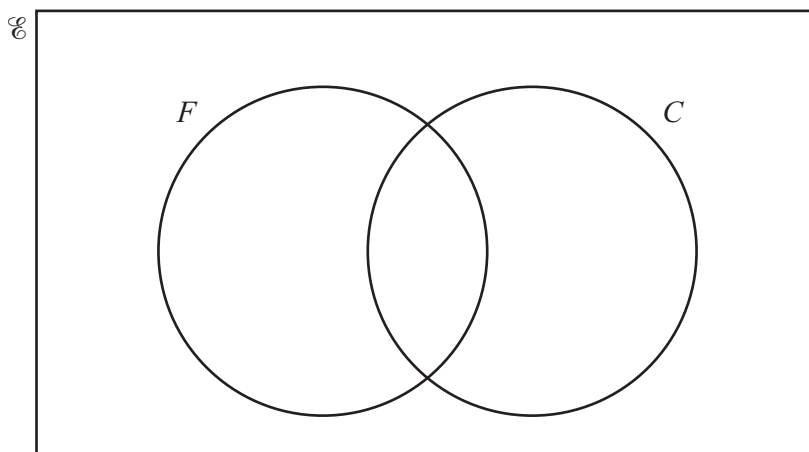
- 12 A music group has 30 members.

7 members play a flute (F) and play a clarinet (C).

12 members play a flute.

1 member does not play a flute and does not play a clarinet.

- (a) Use this information to complete the Venn diagram.



[2]

- (b) Find $n(C)$.

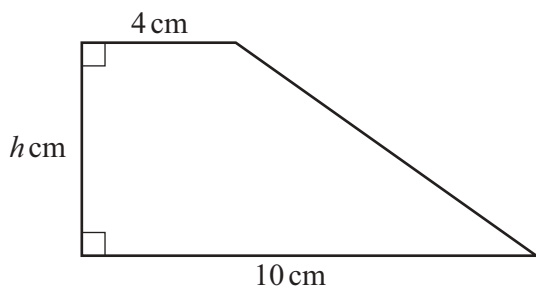
..... [1]

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

$$\frac{62.5}{9.7 \times 0.52}.$$

..... [2]





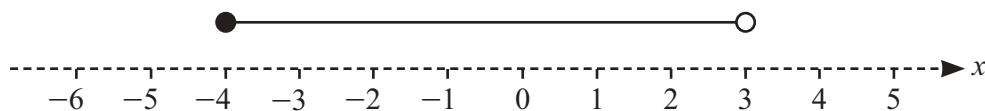
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The diagram shows a trapezium.
The area of the trapezium is 42 cm^2 .

Work out the value of h .

$h = \dots\dots\dots$ [2]

- 15 (a) Write down the inequality represented on the number line.



$\dots\dots\dots$ [2]

- (b) Write down the smallest integer that satisfies the inequality $d > -3\frac{1}{4}$.

$\dots\dots\dots$ [1]



- 16 On Monday the cost of a concert ticket is \$ x .
On Tuesday the cost of a ticket for the same concert is 20% more than the cost on Monday.

Jack buys 4 tickets on Monday and 5 tickets on Tuesday.
Jack pays \$270 in total.

Work out the value of x .

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

- 17 Simplify.

(a) $y^4 \times y^6$

$$\dots\dots\dots [1]$$

(b) $\frac{p^5}{p^8}$

$$\dots\dots\dots [1]$$

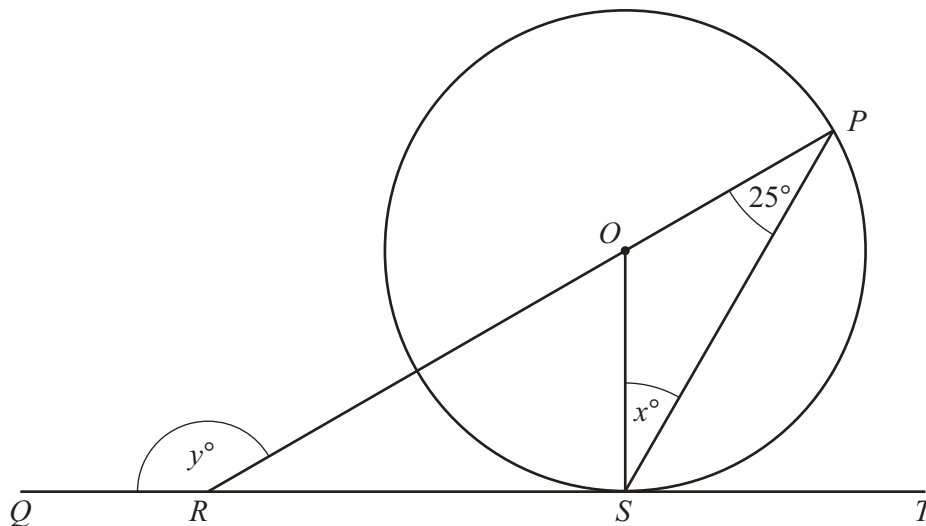
(c) $(w^4)^3$

$$\dots\dots\dots [1]$$





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The diagram shows a circle, centre O .
 P and S are points on the circle.
 POR is a straight line.
 $QRST$ is a tangent to the circle at S .

- (a) Find the value of x .
 Give a geometrical reason for your answer.

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

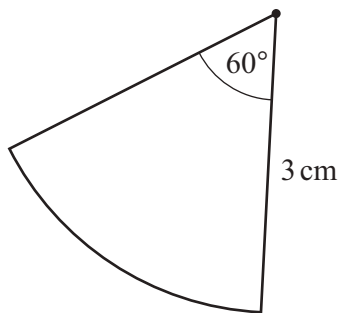
- (b) Find the value of y .

$y = \dots\dots\dots$ [3]





19



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The diagram shows a sector of a circle with radius 3 cm and sector angle 60° .

Calculate the area of the sector.

Give your answer in terms of π in its simplest form.

..... cm^2 [2]

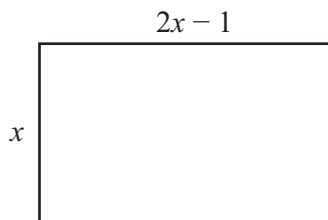
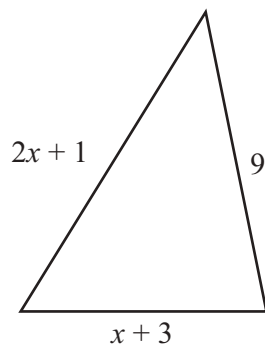
20 Find the highest common factor (HCF) of 36 and 54.

..... [2]





21 In this question, all lengths are in centimetres.



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The perimeter of the triangle is equal to the perimeter of the rectangle.

Form an equation and solve it to find the value of x .

$$x = \dots\dots\dots [4]$$

22 $g = \frac{h}{3} - 8$

Rearrange the formula to make h the subject.

$$h = \dots\dots\dots [2]$$



23



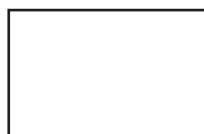
8 cm



x cm

Rectangle A

2 cm



1.5 cm

Rectangle B

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Rectangle A is mathematically similar to rectangle B .

Work out the value of x .

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

24 Work out $3\frac{1}{2} - 1\frac{4}{7}$.

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

$\dots\dots\dots$ [3]





25 Solve the simultaneous equations.

$$8x + 5y = 4$$

$$2x - y = 10$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

[3]

