



# Cambridge IGCSE™

CANDIDATE  
NAME

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CENTRE  
NUMBER

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## MATHEMATICS

0580/31

### Paper 3 Calculator (Core)

May/June 2026

**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. Do **not** use correction fluid or tape.
- Do **not** write on any bar codes.
- You should use a scientific calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For  $\pi$ , use either your calculator value or 3.142.

## 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.

## 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  $r$ .

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



- 1 The table shows a shopping bill for three items.

| item       | cost per kg | number of kg | total   |
|------------|-------------|--------------|---------|
| potatoes   | \$2.18      | 3.5          | \$7.63  |
| oranges    | \$1.48      | 6            | \$      |
| onions     | \$          | 5.2          | \$      |
| total cost |             |              | \$29.25 |

Complete the table.

[3]

- 2 (a) Write  $7 \times 7 \times 7 \times 7 \times 7 \times 7$  as a power of 7.

..... [1]

- (b) Calculate  $17.4^2$ .

..... [1]

- 3 Arya changes 250 pounds into dollars.  
The exchange rate is 1 pound = \$1.26 .

Calculate the amount that Arya receives.

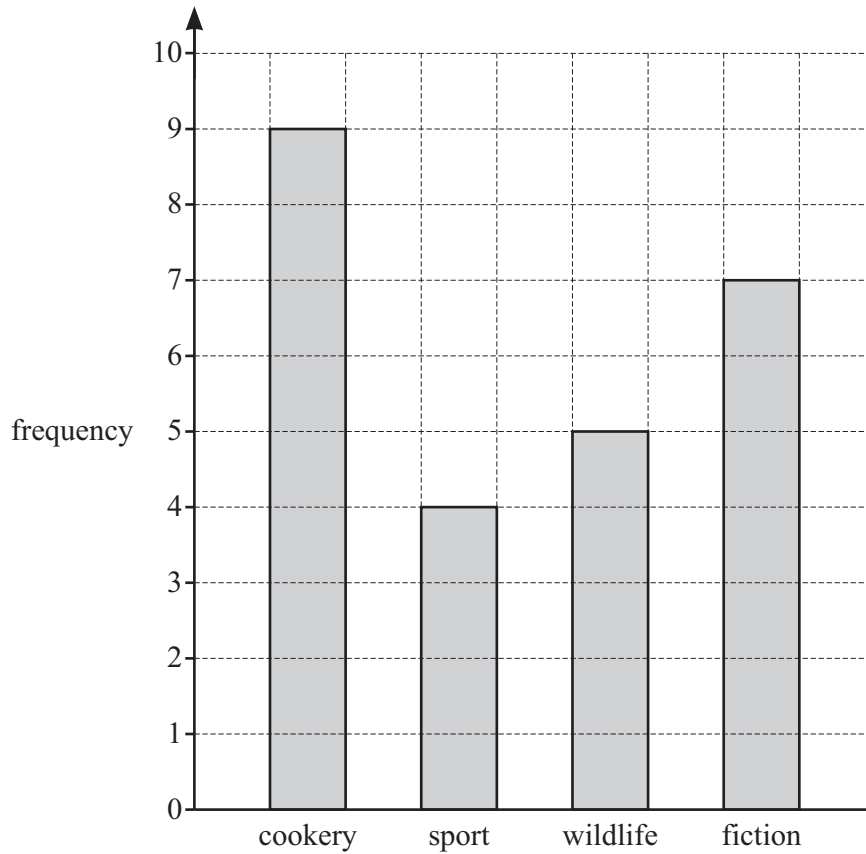
\$ ..... [1]

- 4 Find 18% of \$65.

\$ ..... [1]



- 5 The bar chart shows the number of each type of book sold in a shop on one day.



Work out the percentage of books sold that are cookery.

..... % [3]

- 6 Write these numbers in order, starting with the smallest.

$$\sqrt[3]{0.1}$$

$$\frac{4}{9}$$

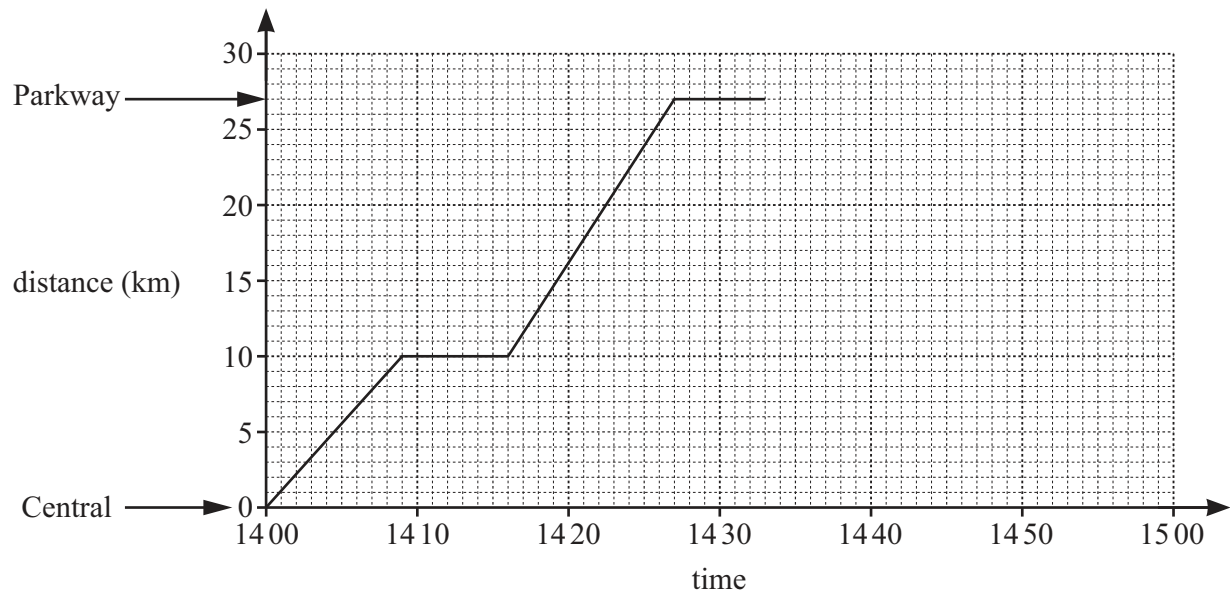
45%

0.443

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



- 7 The travel graph shows the journey of a train from Central station to Parkway station.



- (a) For how many minutes does the train stop between Central and Parkway?

..... min [1]

- (b) Write down the time the train arrives at Parkway.

..... [1]

- (c) The train leaves Parkway at 14:33 and returns to Central at a constant speed. The return journey takes 21 minutes.

Complete the graph to show this return journey.

[1]

- 8 Solve.

(a)  $6 + x = 2$

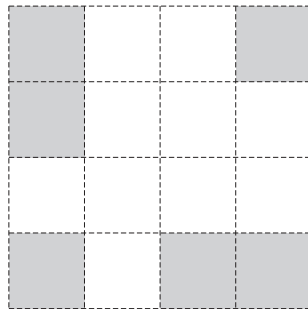
$x =$  ..... [1]

(b)  $5x + 2 = 18$

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



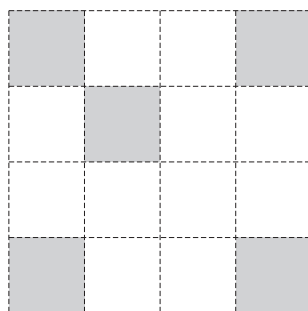
9 (a) (i)



On the diagram, draw the line of symmetry.

[1]

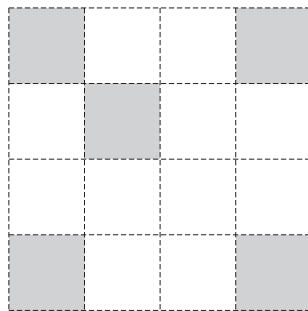
(ii)



On the diagram, shade **one** more square so that it has **one** line of symmetry.

[1]

(b)



On the diagram, shade **one** more square so that it has rotational symmetry of order 2.

[1]



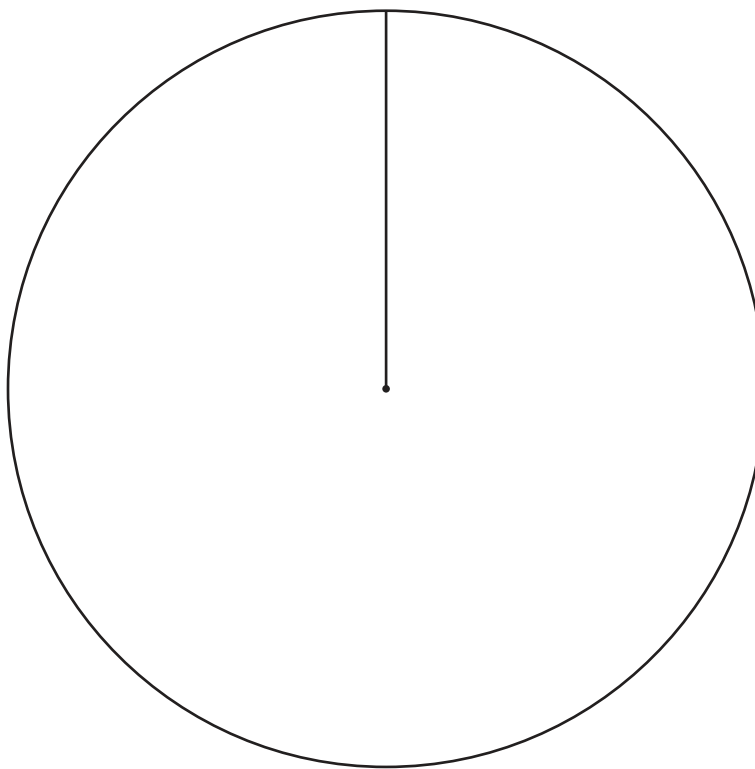
10 The table shows how 40 students travel to school.

| type of transport | frequency | pie chart sector angle |
|-------------------|-----------|------------------------|
| bus               | 8         |                        |
| car               | 15        |                        |
| walk              | 17        |                        |

(a) Complete the table.

[2]

(b) Complete the pie chart.

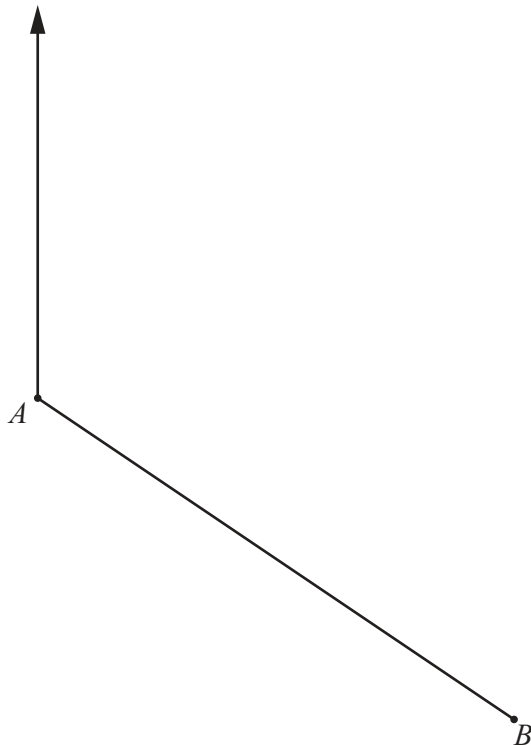


[2]



- 11 The scale diagram shows the positions of town  $A$  and town  $B$ .  
The scale is 1 cm represents 15 km.

North



scale : 1 cm to 15 km

- (a) Measure the bearing of town  $B$  from town  $A$ .

..... [1]

- (b) Find the actual distance  $AB$ .

..... km [2]

- 12 Write one of the symbols  $<$ ,  $>$  or  $=$  in each statement to make it correct.

$$\frac{5}{8} \quad \dots\dots\dots 62.5\%$$

$$0.2^2 \quad \dots\dots\dots 0.4$$

$$\frac{2}{3} \quad \dots\dots\dots 0.67$$

[2]



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

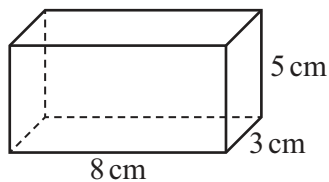
(a)  $10 + 12 - 8 \times 5 = 30$  [1]

(b)  $10 + 20 \times 7 \div 5 = 30$  [1]

14 Write down the reciprocal of  $\frac{5}{7}$ .

..... [1]

15 (a) The diagram shows a cuboid.



NOT TO SCALE

Calculate the surface area of the cuboid.

.....  $\text{cm}^2$  [3]

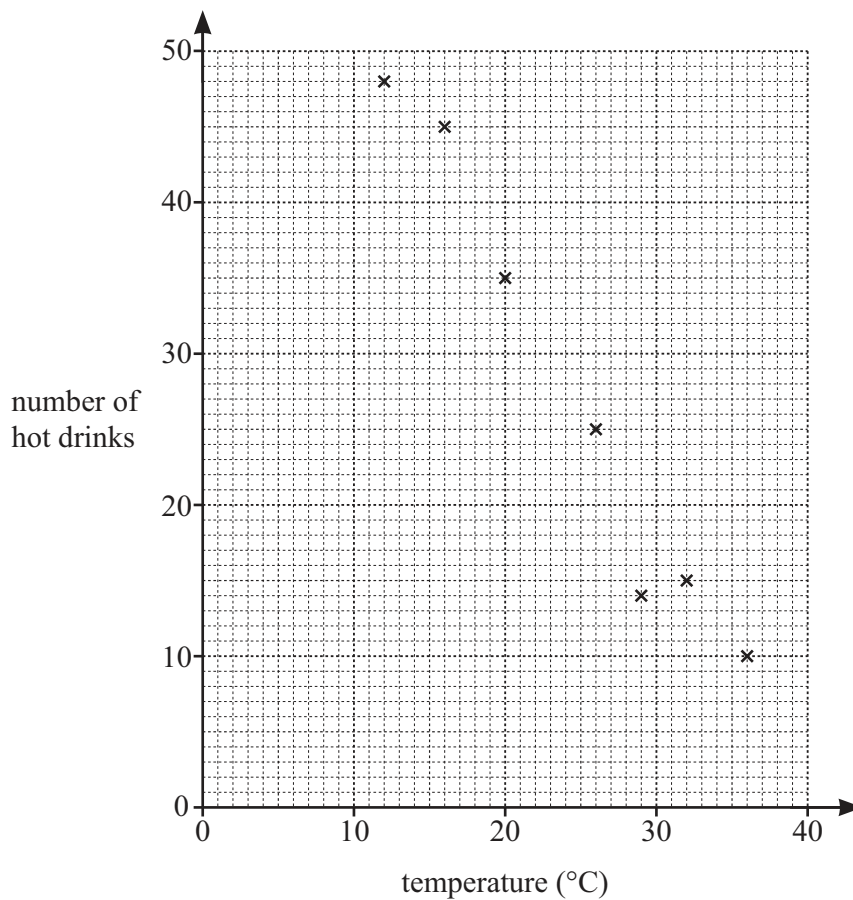
(b) A sphere has a radius of 6.4 cm.

Calculate the volume of the sphere.

.....  $\text{cm}^3$  [2]



- 16 The scatter diagram shows the number of hot drinks sold by a café each day and the average temperature for that day.



- (a) These are the results for two more days.

|                                                    |    |    |
|----------------------------------------------------|----|----|
| <b>temperature (<math>^{\circ}\text{C}</math>)</b> | 18 | 28 |
| <b>number of hot drinks sold</b>                   | 40 | 21 |

Plot this information on the scatter diagram.

[1]

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

..... [1]

- (c) (i) On the scatter diagram, draw a line of best fit.

[1]

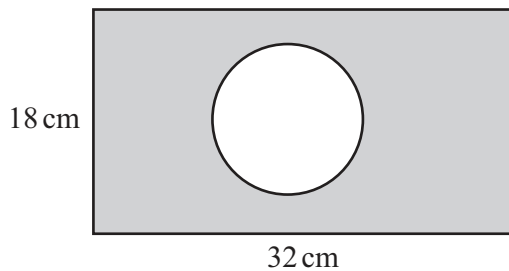
- (ii) One day the average temperature was  $24^{\circ}\text{C}$ .

Use your line of best fit to estimate the number of hot drinks sold.

..... [1]



17 The diagram shows a circle inside a rectangle.



NOT TO SCALE

The shaded area is  $450 \text{ cm}^2$ .

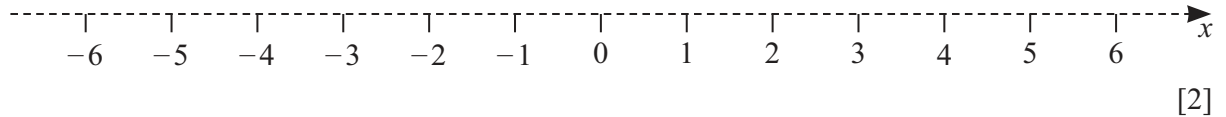
Find the radius of the circle.

..... cm [4]

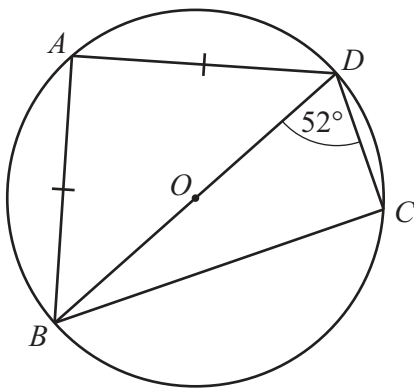
- 18 (a) Write down the smallest integer that satisfies  $x > -8$ .

..... [1]

- (b) Represent the inequality  $-4 \leq x < 3$  on the number line.



19



NOT TO SCALE

$A, B, C$  and  $D$  are points on the circumference of a circle with centre  $O$ .  
 $AB = AD$  and angle  $BDC = 52^\circ$ .  
 $BD$  is a diameter of the circle.

Calculate angle  $ABC$ .

angle  $ABC =$  ..... [3]



20 (a)  $P = 5x + 4y$

Find the value of  $x$  when  $P = 18$  and  $y = -3$ .

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

(b) Factorise.

$$6x^2 + 12x$$

$$\dots\dots\dots [2]$$

21 Calculate  $(8.7 \times 10^8) + (2.4 \times 10^7)$ .

Write your answer in standard form.

$$\dots\dots\dots [2]$$



- 22 Joseph invests \$36 000 at a rate of 6.2% per year compound interest.

Calculate the total interest earned at the end of 4 years.

\$ ..... [3]

- 23 Calculate the interior angle of a regular pentagon.

..... [2]

- 24 Ali drives 56 km at an average speed of 48 km/h.  
He then drives for 30 minutes at 54 km/h.

Calculate the average speed for his whole journey.

..... km/h [4]





25 (a) These are the first four terms of a sequence.

3      7      11      15

(i) Find the  $n$ th term.

..... [2]

(ii) Show that 603 is a term in the sequence.

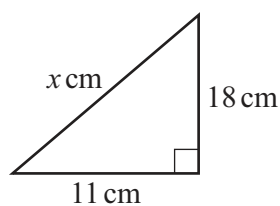
[2]

(b) The  $n$ th term of a different sequence is  $n^2 - 6$ .

Find the first three terms of this sequence.

....., ....., ..... [2]

26 The diagram shows a right-angled triangle.



NOT TO SCALE

Calculate the value of  $x$ .

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

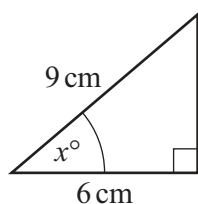
Question 27 and Question 28 are on the back page.



- 27 Find the equation of the line parallel to  $y = 4x + 3$  that passes through  $(2, 9)$ .

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

- 28 The diagram shows a right-angled triangle.



NOT TO SCALE

Calculate the value of  $x$ .

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

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