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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 π , 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 .

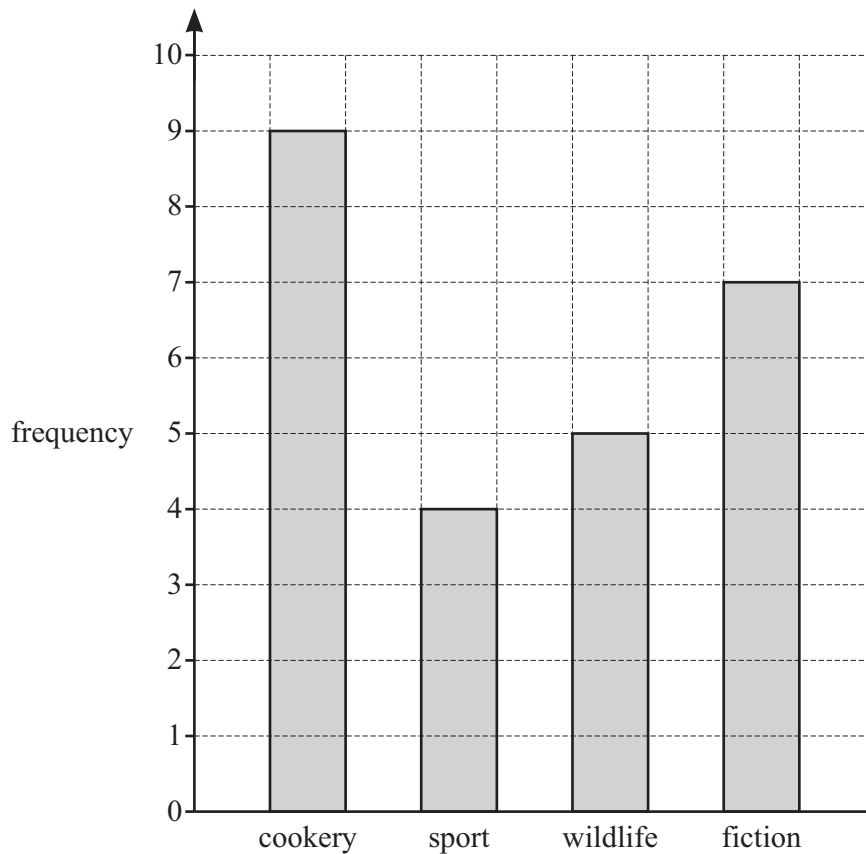
Calculate the amount that Arya receives.

\$ [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.

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

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

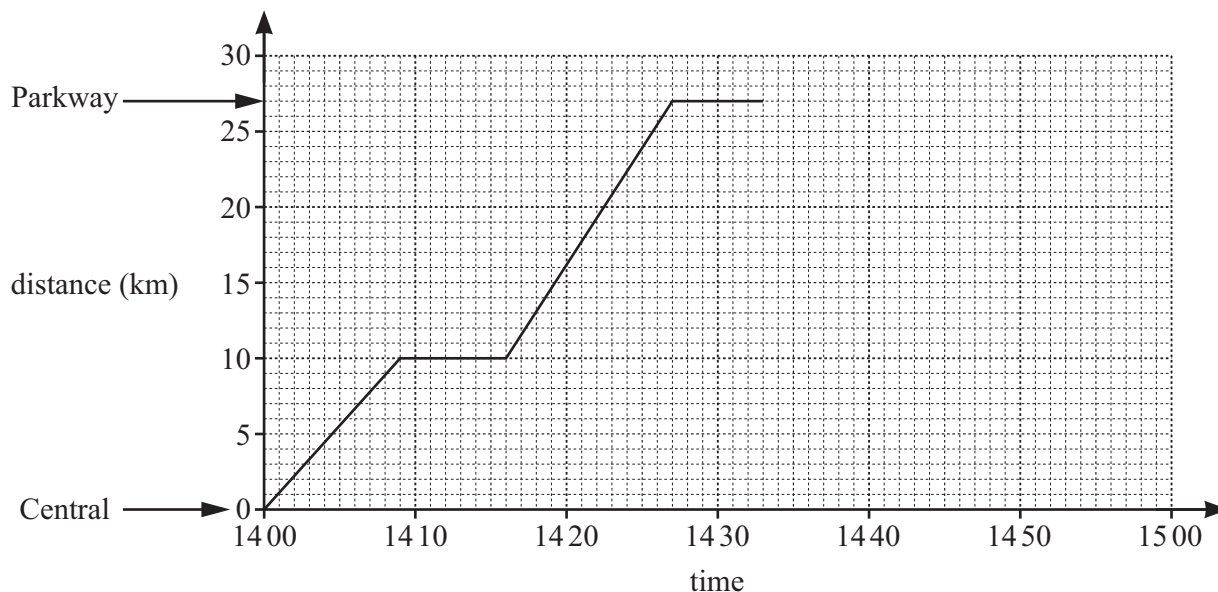
45%

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) $6 + x = 2$

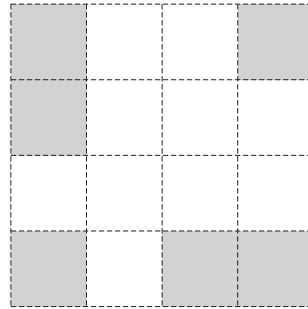
$x =$ [1]

(b) $5x + 2 = 18$

$x =$ [2]



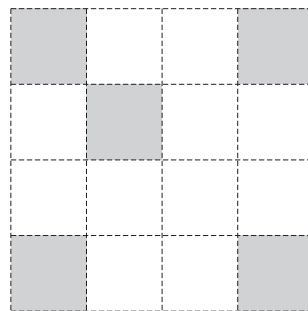
9 (a) (i)



On the diagram, draw the line of symmetry.

[1]

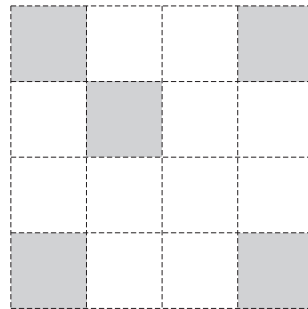
(ii)



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]



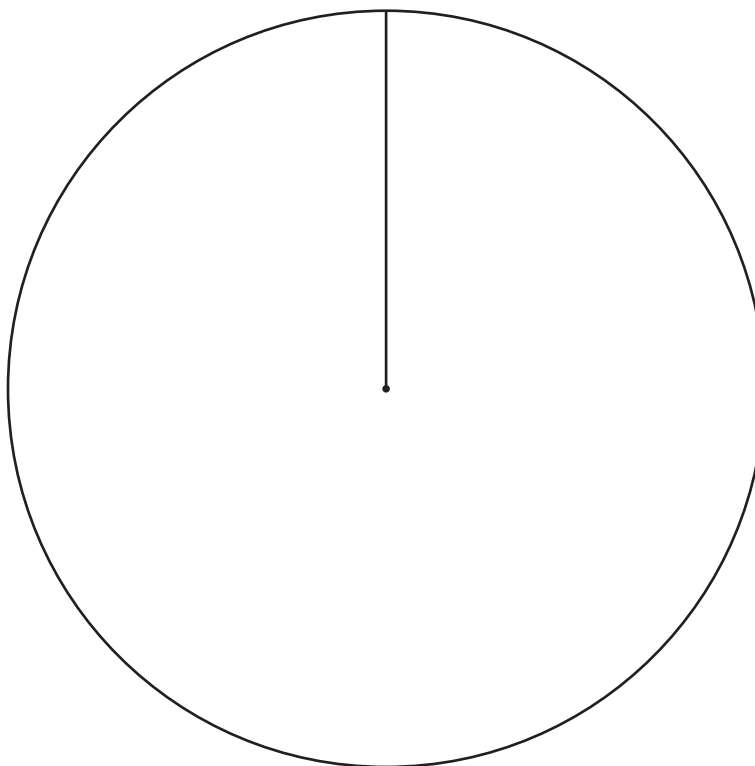
10 The table shows how 40 students travel to school.

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

(a) Complete the table.

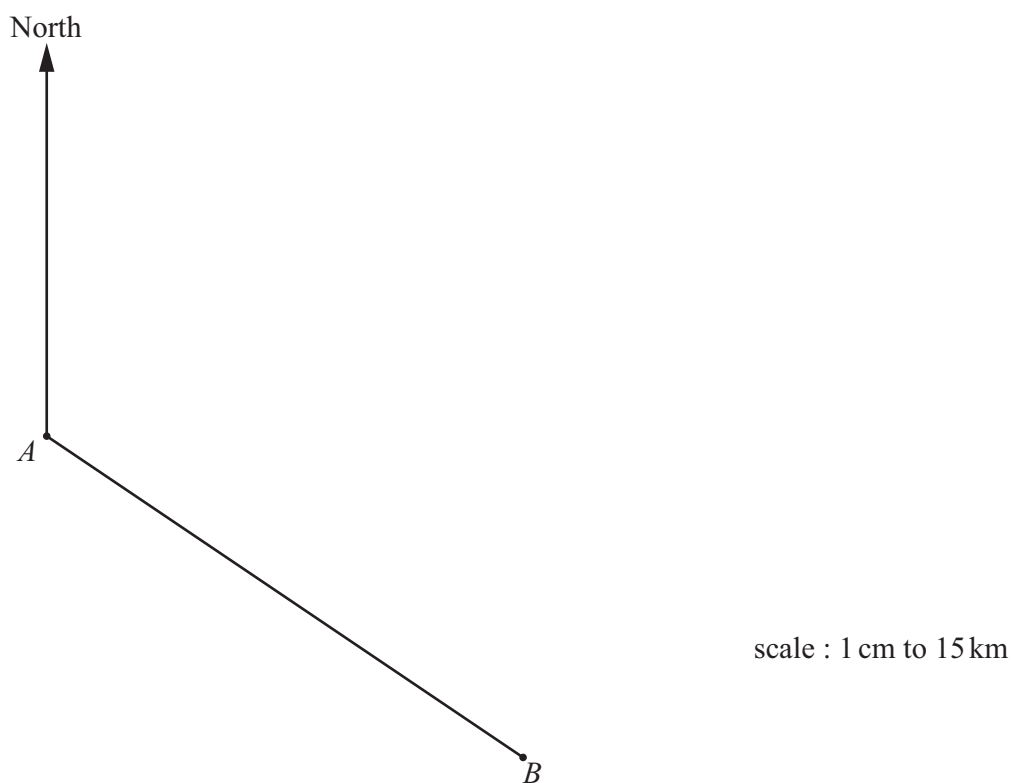
[2]

(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.



- (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.

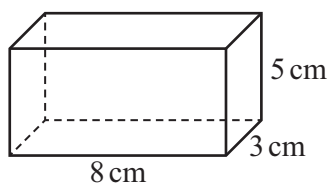
(a) $10 + 12 - 8 \times 5 = 30$ [1]

(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.

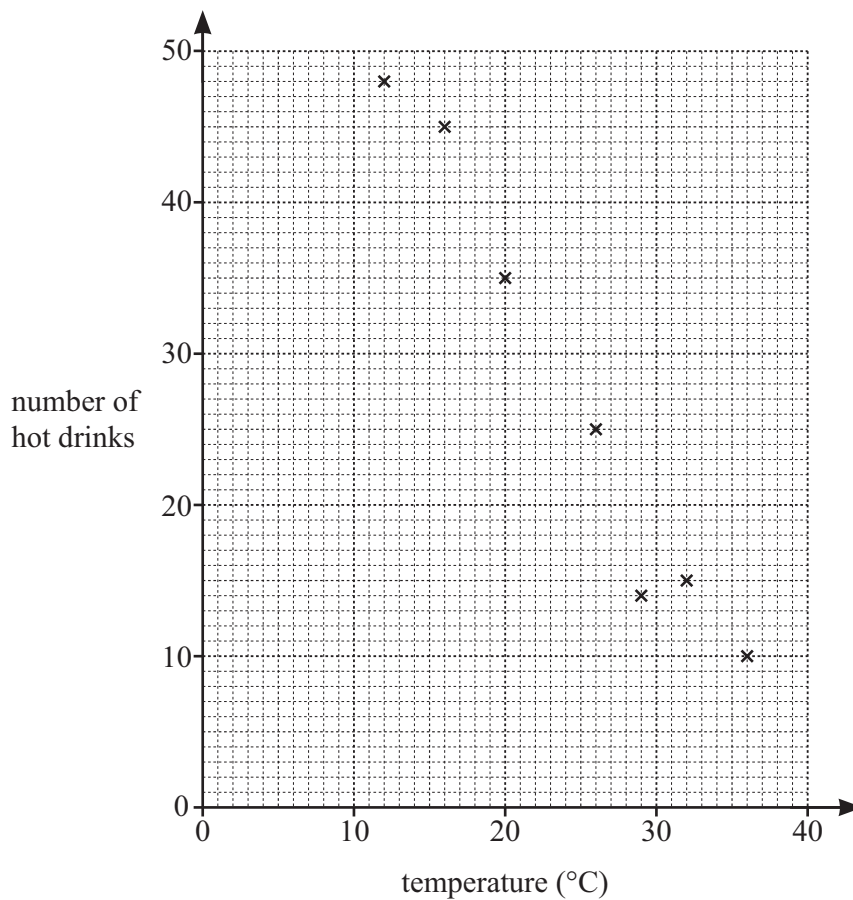
..... cm^2 [3]

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

Calculate the volume of the sphere.

..... 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.

temperature ($^{\circ}\text{C}$)	18	28
number of hot drinks sold	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]

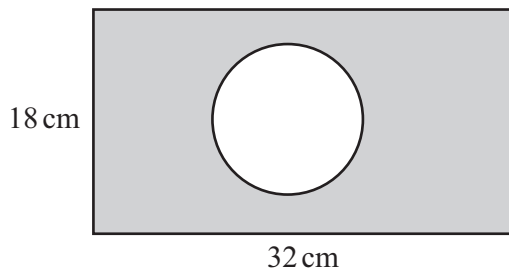
- (ii) One day the average temperature was 24°C .

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 cm^2 .

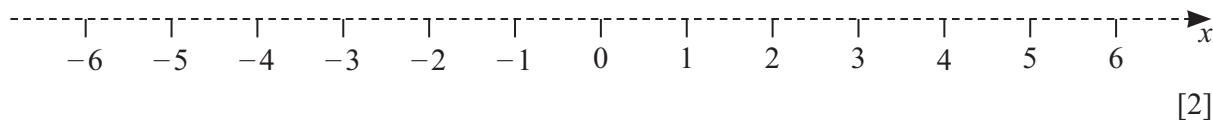
Find the radius of the circle.

..... cm [4]

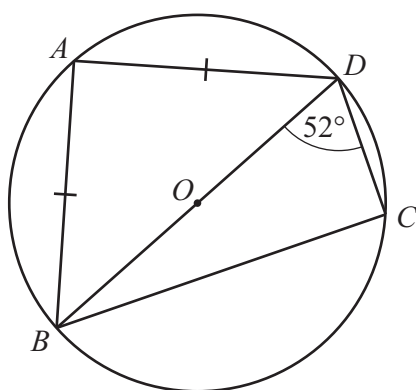
- 18 (a) Write down the smallest integer that satisfies $x > -8$.

..... [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.

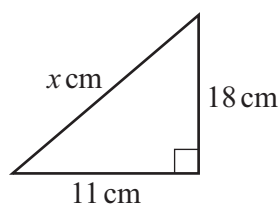
[2]

(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]

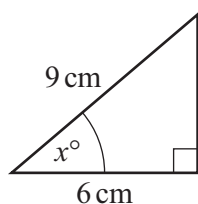
Question 27 and Question 28 are on the back page.



- 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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