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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.

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

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1 The table shows a shopping bill for three items.

View solution

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 $7\times7\times7\times7\times7\times7$ as a power of 7.

View solution

..... [1]

(b) Calculate 17.4^2.

View solution

..... [1]

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

Calculate the amount that Arya receives.

View solution

\$ ..... [1]

4 Find 18% of \$65.

View solution

\$ ..... [1]

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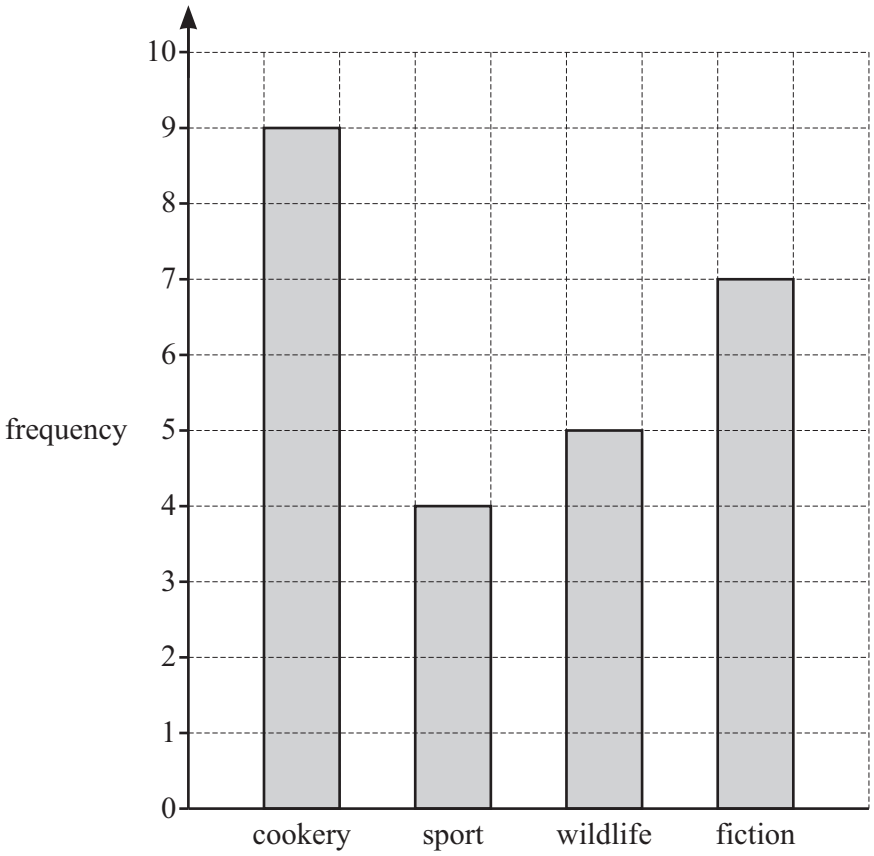
5 The bar chart shows the number of each type of book sold in a shop on one day.

View solution



Work out the percentage of books sold that are cookery.

..... % [3]

View solution

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

$\sqrt[3]{0.1}$ $\frac{4}{9}$ 45% 0.443

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

smallest

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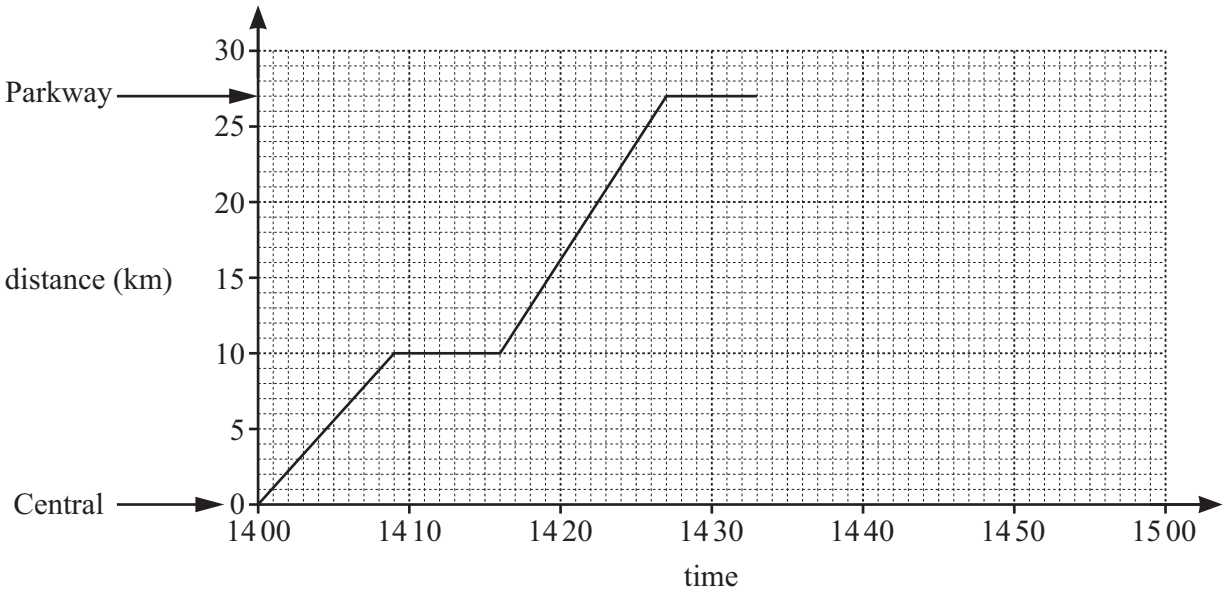
7 The travel graph shows the journey of a train from Central station to Parkway station.



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

View solution

..... min [1]

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

View solution

..... [1]

(c) The train leaves Parkway at 1433 and returns to Central at a constant speed.
The return journey takes 21 minutes.

Complete the graph to show this return journey.

View solution

[1]

8 Solve.

(a) $6+x=2$

View solution

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

(b) $5x+2=18$

View solution

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

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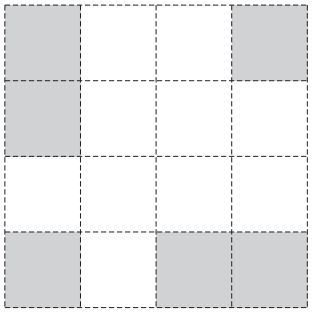
9 (a) (i)

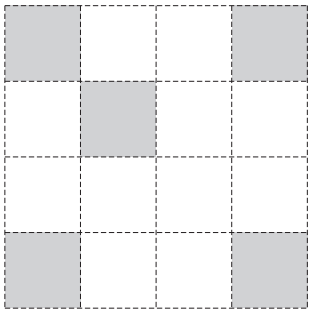
View solution



On the diagram, draw the line of symmetry. [1]

(ii)

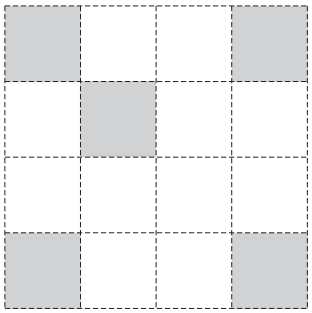
View solution



On the diagram, shade **one** more square so that it has **one** line of symmetry. [1]

(b)

View solution



On the diagram, shade **one** more square so that it has rotational symmetry of order 2. [1]

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10 The table shows how 40 students travel to school.

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

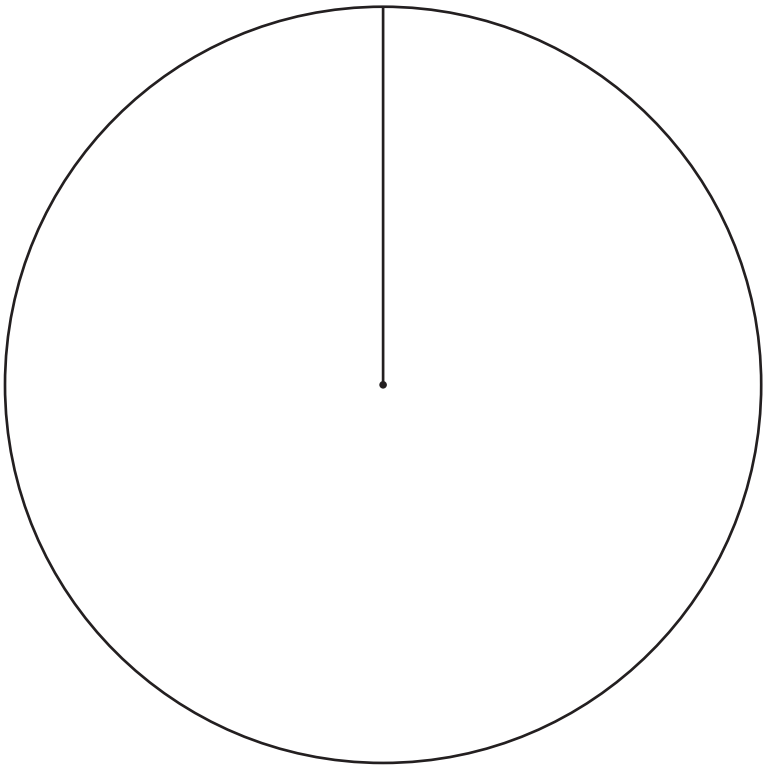
(a) Complete the table.

View solution

[2]

(b) Complete the pie chart.

View solution



[2]

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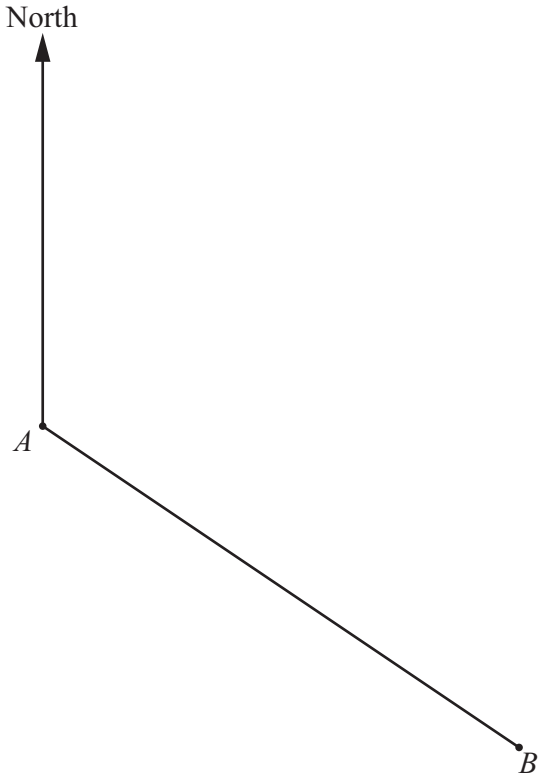
11 The scale diagram shows the positions of town A and town B.
The scale is 1 cm represents 15 km.



scale : 1 cm to 15 km

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

View solution

..... [1]

(b) Find the actual distance AB.

View solution

..... km [2]

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

View solution

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

0.2^2 ..... 0.4

$\frac{2}{3}$ 0.67

[2]

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

View solution

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

View solution

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

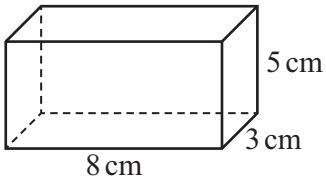
14 Write down the reciprocal of $\frac{5}{7}$.

View solution

..... [1]

15 **(a)** The diagram shows a cuboid.

View solution



NOT TO SCALE

Calculate the surface area of the cuboid.

..... cm^2 [3]

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

View solution

Calculate the volume of the sphere.

..... cm^3 [2]

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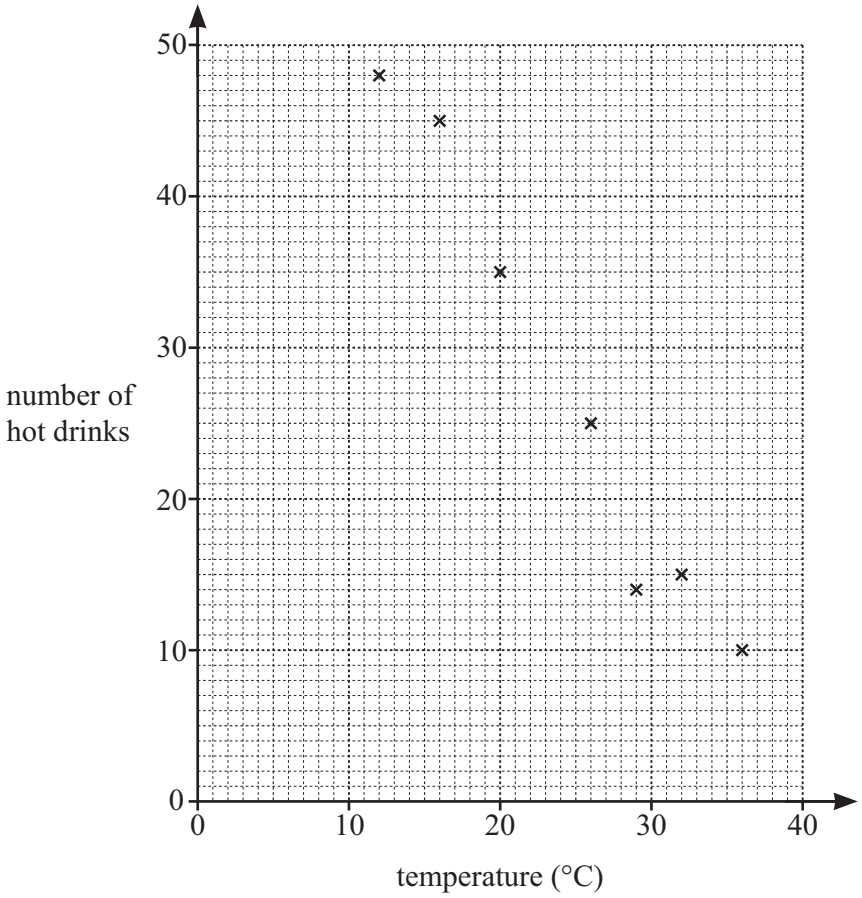
16 The scatter diagram shows the number of hot drinks sold by a café each day and the average temperature for that day.



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

temperature (°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]

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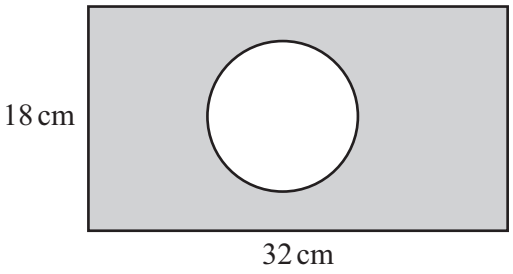
17 The diagram shows a circle inside a rectangle.

View solution



NOT TO SCALE

The shaded area is $450\,cm^2$.

Find the radius of the circle.

..... cm [4]

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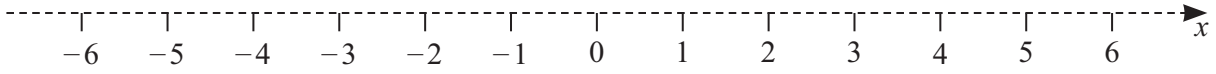
18 **(a)** Write down the smallest integer that satisfies $x > -8$.

View solution

..... [1]

View solution

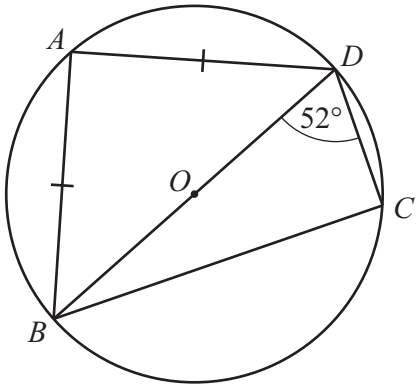
(b) Represent the inequality $-4 \leqslant x < 3$ on the number line.



[2]

View solution

19



NOT TO SCALE

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

Calculate angle ABC.

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

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

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

View solution

$x =$ ..... [3]

(b) Factorise.

$6x^2 + 12x$

View solution

..... [2]

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

View solution

Write your answer in standard form.

..... [2]

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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.

View solution

\$ ..... [3]

23 Calculate the interior angle of a regular pentagon.

View solution

..... [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.

View solution

..... km/h [4]

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

View solution

3 7 11 15

(i) Find the nth term.

..... [2]

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

View solution

[2]

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

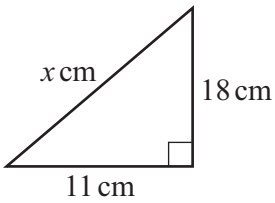
View solution

Find the first three terms of this sequence.

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

26 The diagram shows a right-angled triangle.

View solution



NOT TO SCALE

Calculate the value of x.

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

Question 27 and Question 28 are on the back page.

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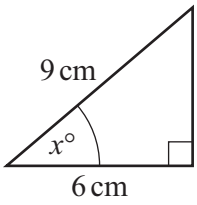
27 Find the equation of the line parallel to $y = 4x + 3$ that passes through (2, 9).

View solution

$y =$ ..... [2]

View solution

28 The diagram shows a right-angled triangle.



NOT TO SCALE

Calculate the value of x.

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

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