

**Cambridge IGCSE™**CANDIDATE
NAMECENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--

MATHEMATICS**0580/31**

Paper 3 Calculator (Core)

October/November 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.
- 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 .

$$V = \frac{1}{3}\pi r^2 h$$

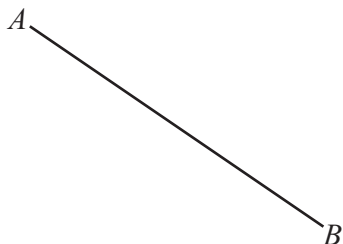
Volume, V , of sphere of radius r .

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





1



(a) Measure the length of line AB in centimetres.

..... cm [1]

(b) Draw a line that is perpendicular to the line AB .

[1]

2 Complete this shopping bill.

3.4 kg of flour at \$4.60 per kg = \$

2.75 kg of sugar at \$ per kg = \$ 9. 90

Total = \$

[3]

3 Total cost of a journey = number of litres of fuel used $\times$ cost of fuel per litre.

A journey uses 128 litres of fuel.

The cost of fuel is \$1.52 per litre.

Calculate the total cost of this journey.

\$ [1]





4

4

$$\frac{6}{15}$$

$$\frac{1}{10}$$

$$\frac{16}{80}$$

$$\frac{10}{25}$$

$$\frac{5}{2}$$

Draw a ring around the fractions which are **not** equivalent to $\frac{2}{5}$.

[2]

5 Find the value of

(a) (i) $\sqrt{1.96}$

..... [1]

(ii) 17^3

..... [1]

(iii) -0.8×-1.2 .

..... [1]

(b) Write these numbers in order, starting with the smallest.

$$\frac{11}{19}$$

58%

$$\frac{27}{47}$$

0.574

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

6

17	4	25	18	14	6	3	18	12
----	---	----	----	----	---	---	----	----

Find

(a) the mode

..... [1]

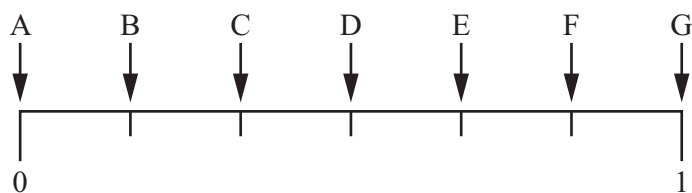
(b) the range.

..... [1]



- 7 A bag contains 6 red balls, 4 green balls and 2 blue balls.
Zia takes a ball from the bag at random.

The diagram shows a probability scale.



Which arrow shows the probability that,

- (a) Zia takes a green ball

..... [1]

- (b) Zia takes a yellow ball

..... [1]

- (c) Zia does **not** take a blue ball.

..... [1]

- 8 Solve.

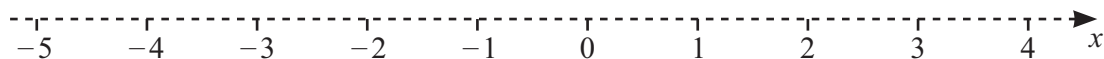
- (a) $8x = 32$

$x =$ [1]

- (b) $6x - 3 = 12$

$x =$ [2]

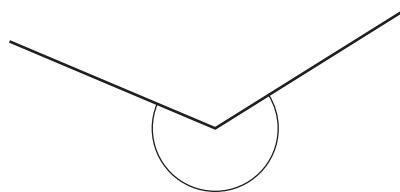
- (c) Represent the inequality $-4 \leq x < 2$ on the number line.



[2]



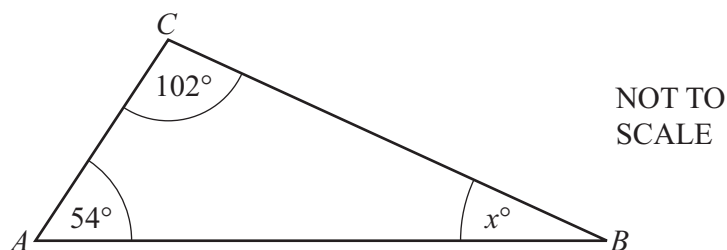
9 (a)



Write down the mathematical name for this type of angle.

..... [1]

(b) ABC is a triangle.

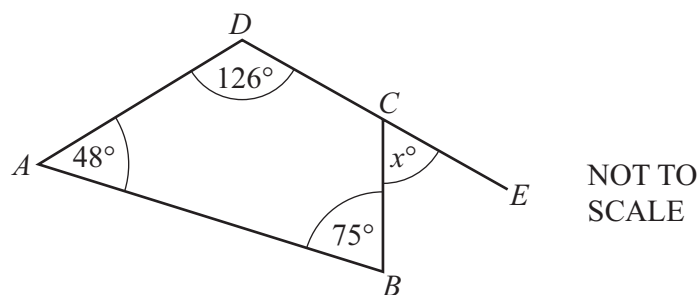


Lily says x is 34.

Give a geometrical reason why Lily is not correct.

.....
 [1]

(c)



$ABCD$ is a quadrilateral.
 DCE is a straight line.

Calculate the value of x .

$x =$ [2]



- 10 Anna and Bruno share some money in the ratio Anna : Bruno = 3 : 7.
Bruno receives \$36 more than Anna.

Calculate the total amount of money they share.

\$ [2]

- 11 (a) Naz pays \$76.25 per day to hire a car.
He hires this car for 7 days.
He also pays \$146 for fuel.

Calculate the total amount Naz pays.

\$ [2]

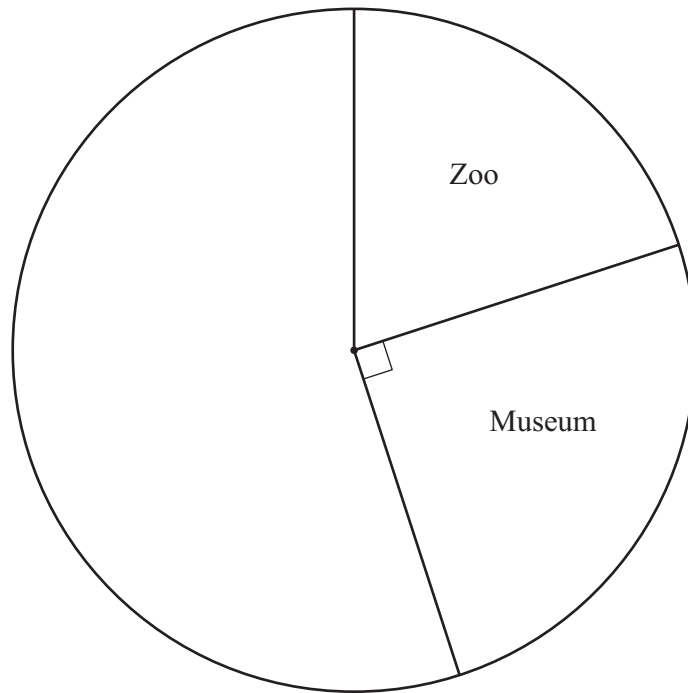
- (b) Li pays \$1400 to hire a car.
\$364 of this is insurance.

Calculate the insurance as a percentage of the \$1400.

..... % [1]



- 12 300 students choose where to go on a trip.
The students choose either a zoo, a museum, an art gallery or a sports stadium.



- (a) Show that 75 students choose the museum.

[1]

- (b) 45 students choose the art gallery and 120 students choose the sports stadium.

Complete the pie chart to show this information.

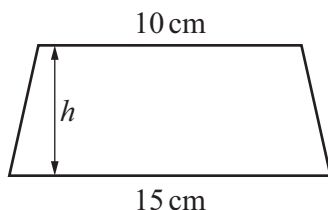
[2]



- 13 (a) The surface area of a solid cube is 121.5 cm^2 .

Calculate the length of the side of the cube.

(b)



NOT TO
SCALE

The area of the trapezium is 106.25 cm^2 .

- (i) Calculate the height of the trapezium.

..... cm [3]

- (ii) Convert 106.25 cm^2 into m^2 .

..... cm [2]

..... m^2 [1]

- 14 A bag contains red, yellow, blue and green cards.
The table shows the probability of taking a red card and a yellow card.
The probability of taking a blue card or a green card is in the ratio blue : green = 5 : 2 .

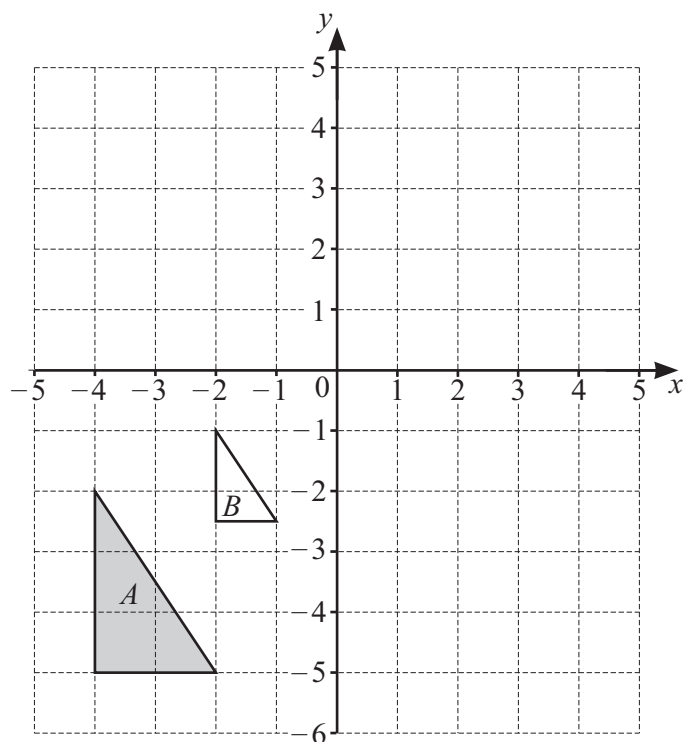
Complete the table.

Colour	red	yellow	blue	green
Probability	0.53	0.19		

[3]



15 Shapes A and B are shown on the grid.



(a) Describe fully the **single** transformation that maps shape A onto shape B .

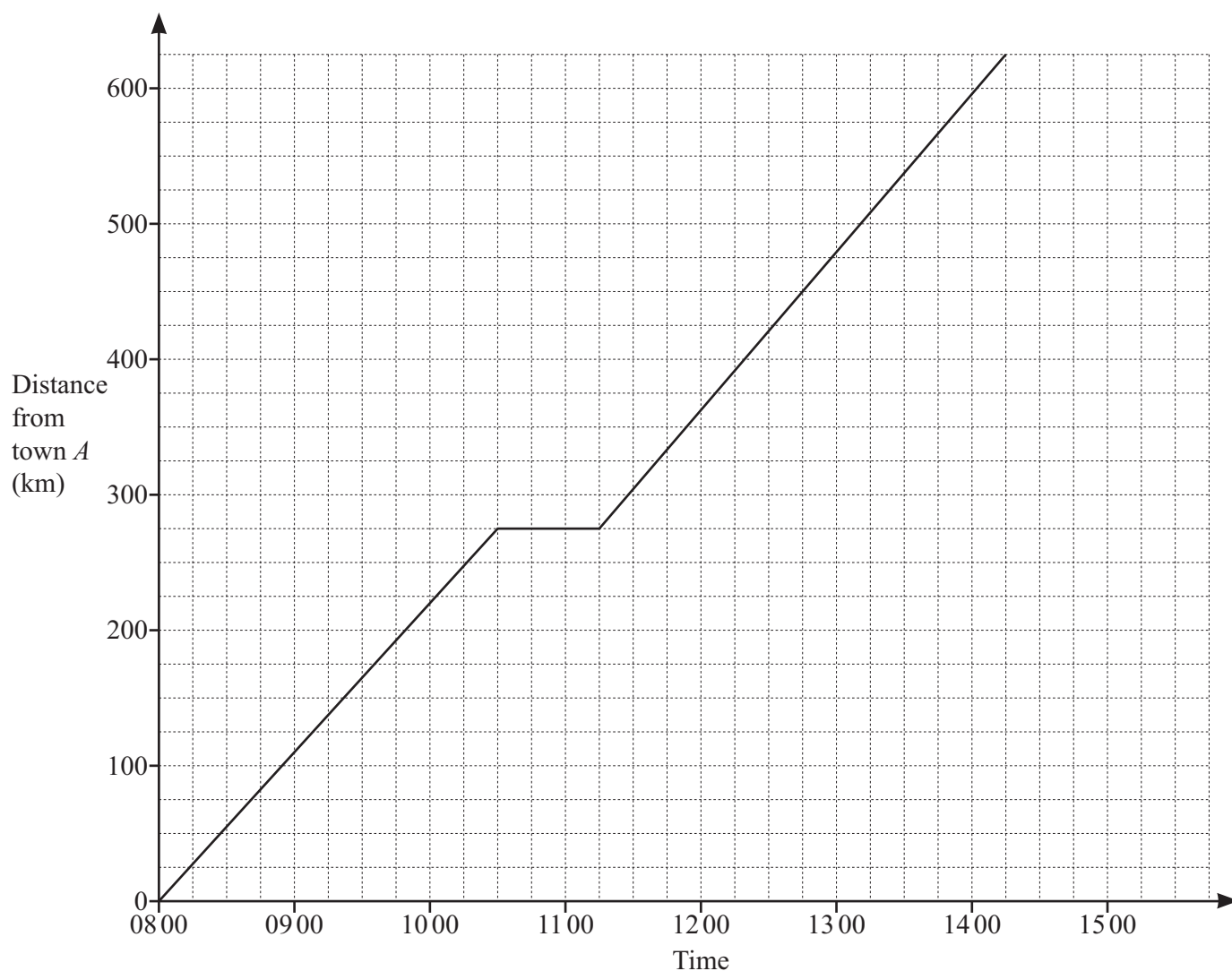
.....
 [3]

(b) On the grid, draw the image of shape A after a translation by the vector $\begin{pmatrix} 6 \\ 7 \end{pmatrix}$.

[2]



- 16 Bob travels from town *A* to town *B*.
The travel graph shows his journey.



- (a) Between which two times did Bob stop for a rest?
Explain how you know.

..... and because

..... [2]

- (b) Calculate Bob's average speed, in km/h, for the whole journey.

..... km/h [3]



17 Factorise.

$$21x - 7xy$$

..... [2]

18 (a) The n th term of a sequence is $n^2 - 4$.

Find the first 3 terms of this sequence.

.....,, [2]

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

5 2 -1 -4

Find the n th term.

..... [2]

19 Jo invests \$500 at a rate of 2% per year compound interest.

Calculate the amount of interest earned at the end of 7 years.

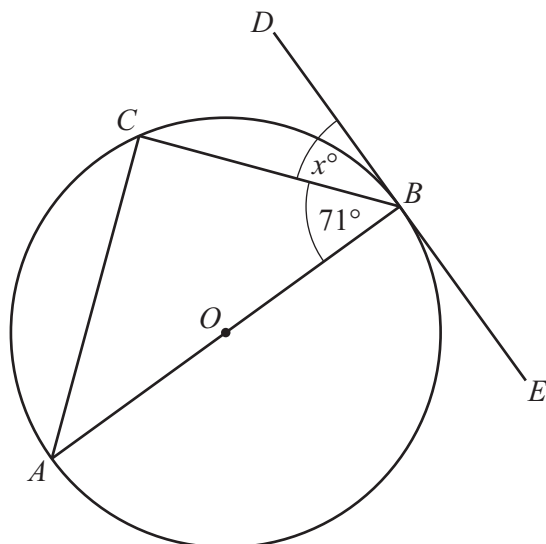
\$ [3]



- 20 (a) Work out the size of one interior angle of a regular 8-sided polygon.

..... [2]

(b)



NOT TO
SCALE

A , B and C lie on the circumference of the circle, centre O .
 AB is a diameter.
 DBE is a tangent to the circle at B .

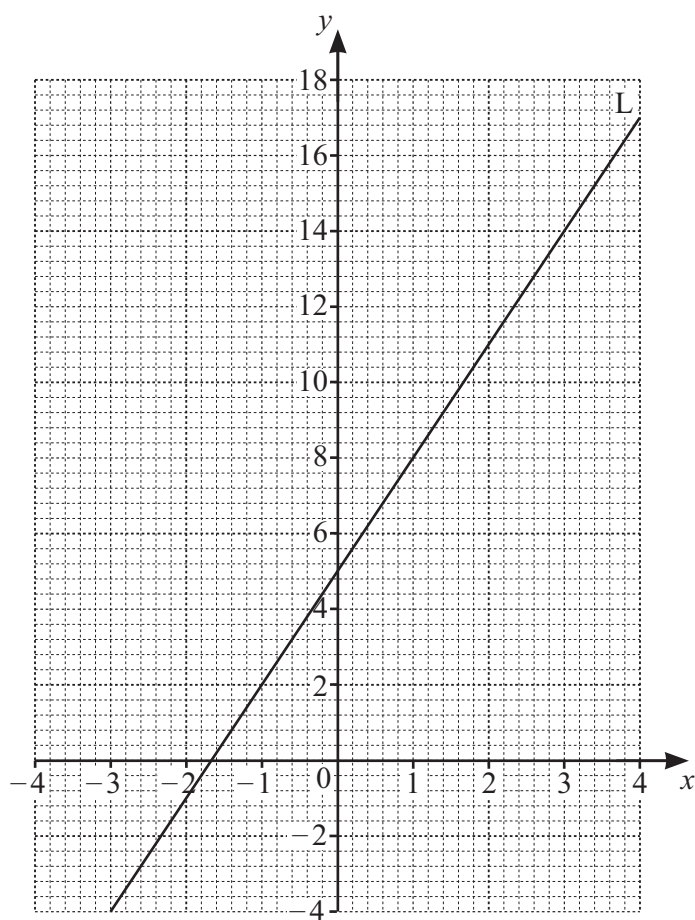
Find the value of x .
 Give a geometrical reason for your answer.

..... because

..... [2]



21 The line L is shown on the grid.



Find the equation of the line L .

Give your answer in the form $y = mx + c$.

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



- 22 (a) A train to town P leaves a station every 20 minutes.
A train to town Q leaves the same station every 35 minutes.
Both trains leave at 09 30.

Find the next time both trains leave together.

..... [3]

- (b) The distance, d km, between town P and town Q is 97 km, correct to the nearest kilometre.

Complete the statement about the value of d .

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

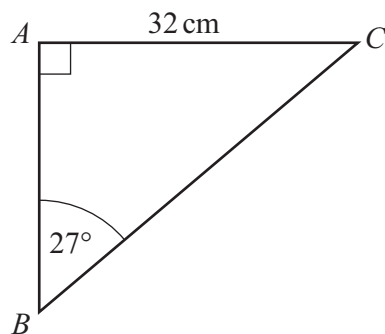
- 23 Calculate $\frac{4.6 \times 10^3}{1.84 \times 10^5}$.

Give your answer in standard form.

..... [2]

Question 24 is printed on the next page





NOT TO
SCALE

ABC is a right-angled triangle.

Calculate BC .

$BC = \dots\dots\dots$ cm [3]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of Cambridge Assessment. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which is a department of the University of Cambridge.

