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MATHEMATICS

0580/33

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 **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 .

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



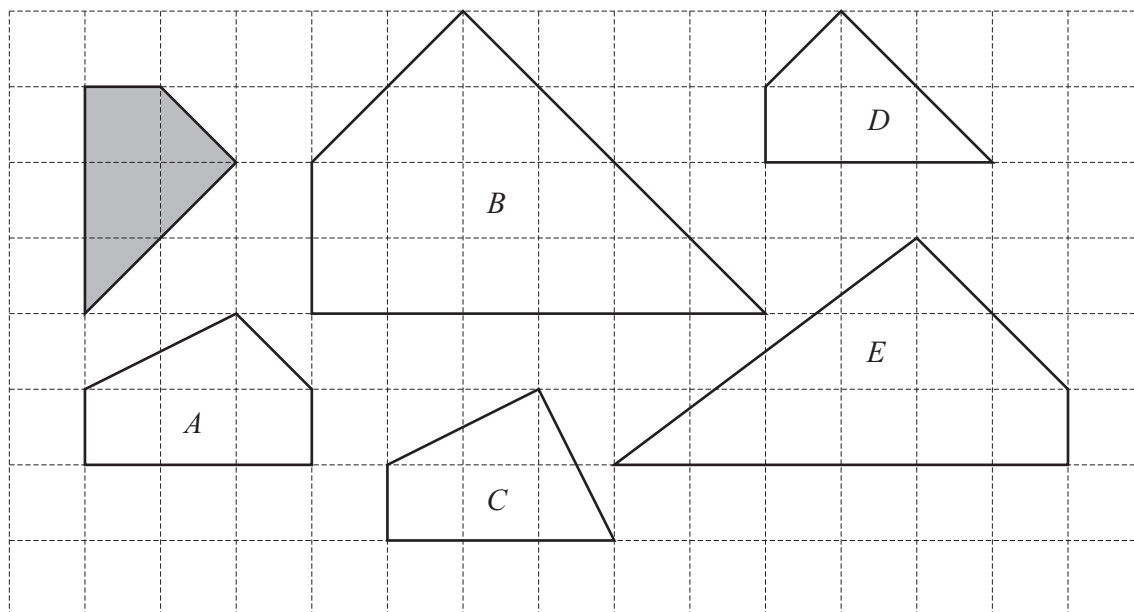
- 1 Write 4.25 pm using the 24-hour clock.

..... [1]

- 2 Write down all the factors of 26.

..... [2]

- 3 The diagram shows shapes drawn on a 1 cm^2 grid.



- (a) Write down the letter of the shape that is congruent to the shaded shape.

..... [1]

- (b) Find the area of shape *B*.

..... cm^2 [1]



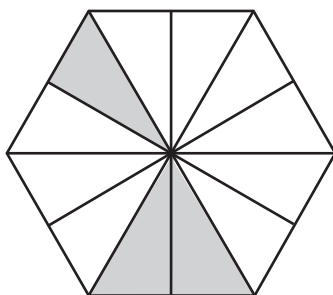
4 Calculate.

$$\frac{32.7}{8.54 - 2.6}$$

Give your answer correct to 2 decimal places.

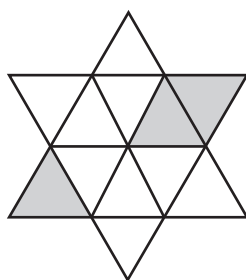
..... [2]

5 (a)



Shade some triangles so that the shape has rotational symmetry order 3. [1]

(b)



Shade **one** small triangle so that the shape has two lines of symmetry. [1]



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

0.581

$\sqrt[3]{0.2}$

$\frac{32}{55}$

$\frac{\pi}{5}$

58%

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

7

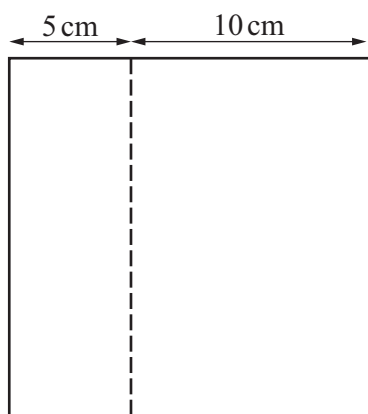
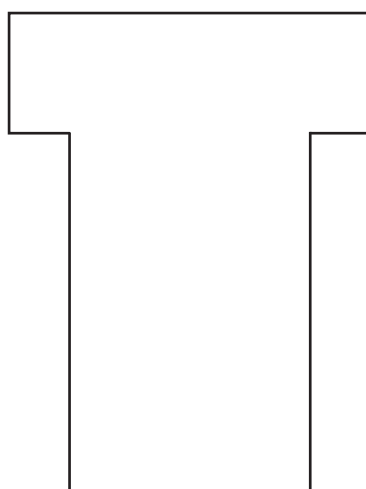


diagram *A*



10 cm
 diagram *B*

NOT TO SCALE

Diagram *A* shows a square of side 15 cm cut into two pieces.
 The pieces are rearranged to form diagram *B* with no overlaps.

Find the perimeter of diagram *B*.

..... cm [2]

- 8 (a) In this sequence the first term and the sixth term are missing.

....., 17, 13, 8, 2,

Fill in the first term and the sixth term.

[2]

- (b) These are the first 4 terms in a different sequence.

$\frac{3}{2}$, $\frac{6}{2}$, $\frac{9}{2}$, $\frac{12}{2}$, ...

Write down the n th term of the sequence.

..... [1]

- (c) Multiply by -2

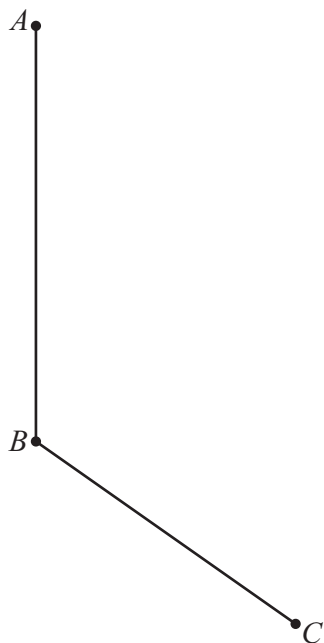
This is the term-to-term rule for another sequence.
The first term of this sequence is -1 .

Write down the next three terms.

-1
.....,,, [2]



- 9 The scale drawing shows the positions of three towns, A , B and C .
Town B is directly south of town A .
The scale is 1 cm represents 40 km.



scale: 1 cm = 40 km

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

..... [1]

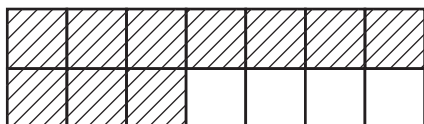
- (b) Work out the actual distance between town A and town B .

..... km [2]

- (c) Town D is 300 km from town A .
Town D is 240 km from town B .

Using a ruler and compasses only, construct the position of town D on the scale drawing.

10

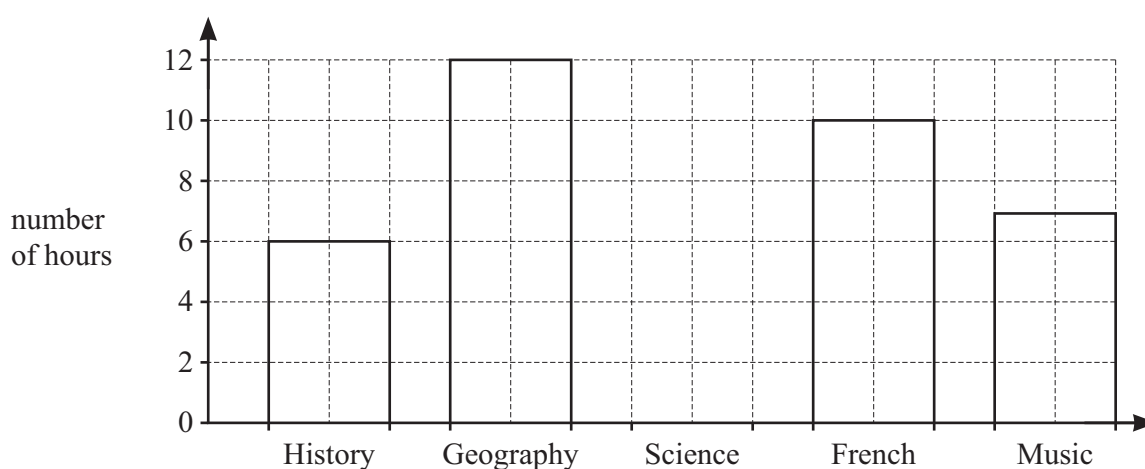


Fill in the box to complete the statement.

The fraction of the rectangle that is shaded is $\frac{\boxed{}}{7}$.

[1]

- 11 (a) The bar chart shows the number of hours Kim studies some subjects in one week.



Kim studies these 5 subjects for a total of 40 hours.

- (i) Complete the bar chart.

[2]

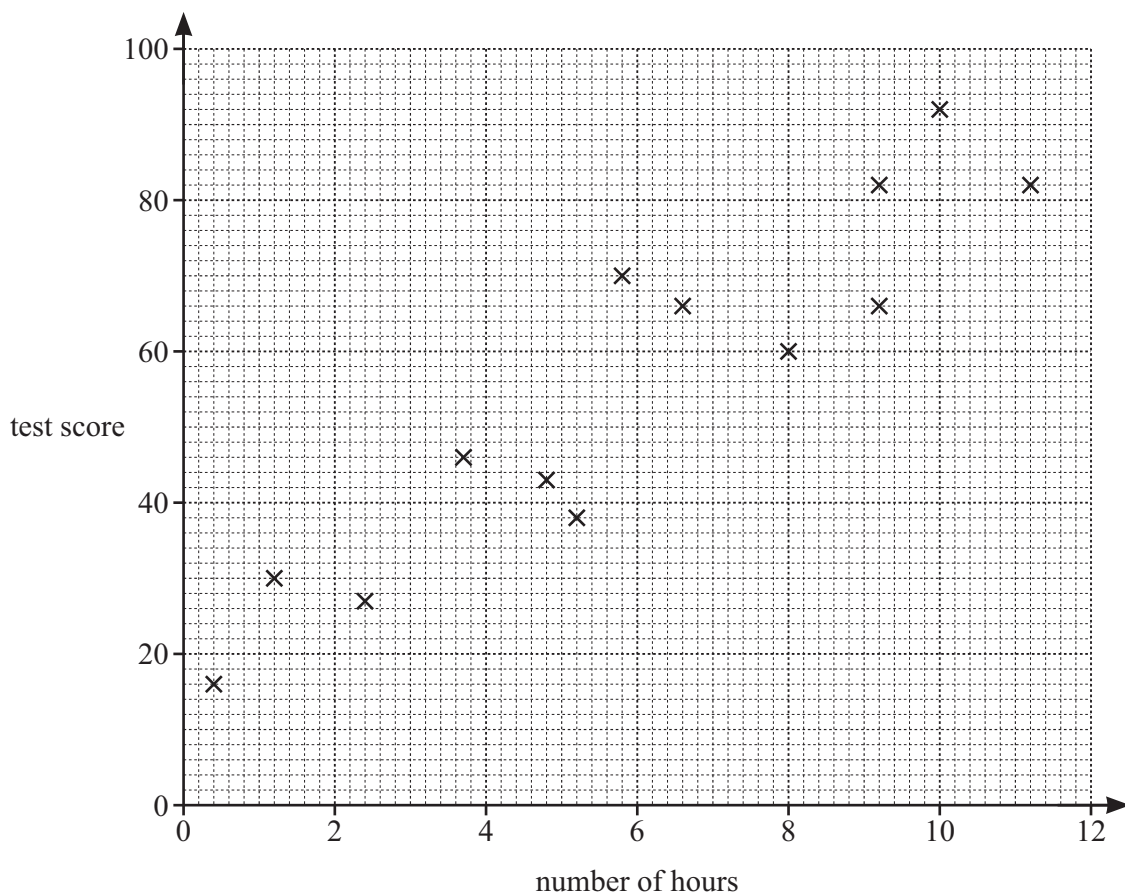
- (ii) Work out the percentage of the hours Kim studies geography.

..... % [1]



(b) Some students take a history test.

The scatter diagram shows the number of hours each student studies history and their test score.



(i) Sam studies history for 6 hours and scores 56 in the test.

Plot a point on the scatter diagram to represent Sam's data for this test.

[1]

(ii) Find the number of people who have a higher test score than Sam.

..... [1]

(iii) Draw a line of best fit on the scatter diagram.

[1]

(iv) Use your line of best fit to estimate the test score for another student who studies history for 7 hours.

..... [1]



12 Simplify.

$$9w + 5q - 7w + 3q$$

..... [2]

13 Solve.

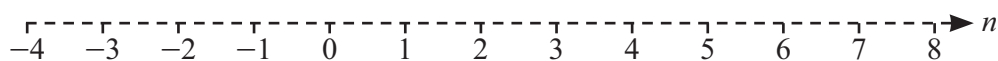
(a) $6 = \frac{32.4}{a}$

$a =$ [2]

(b) $3y - 7 = 5y - 10$

$y =$ [2]

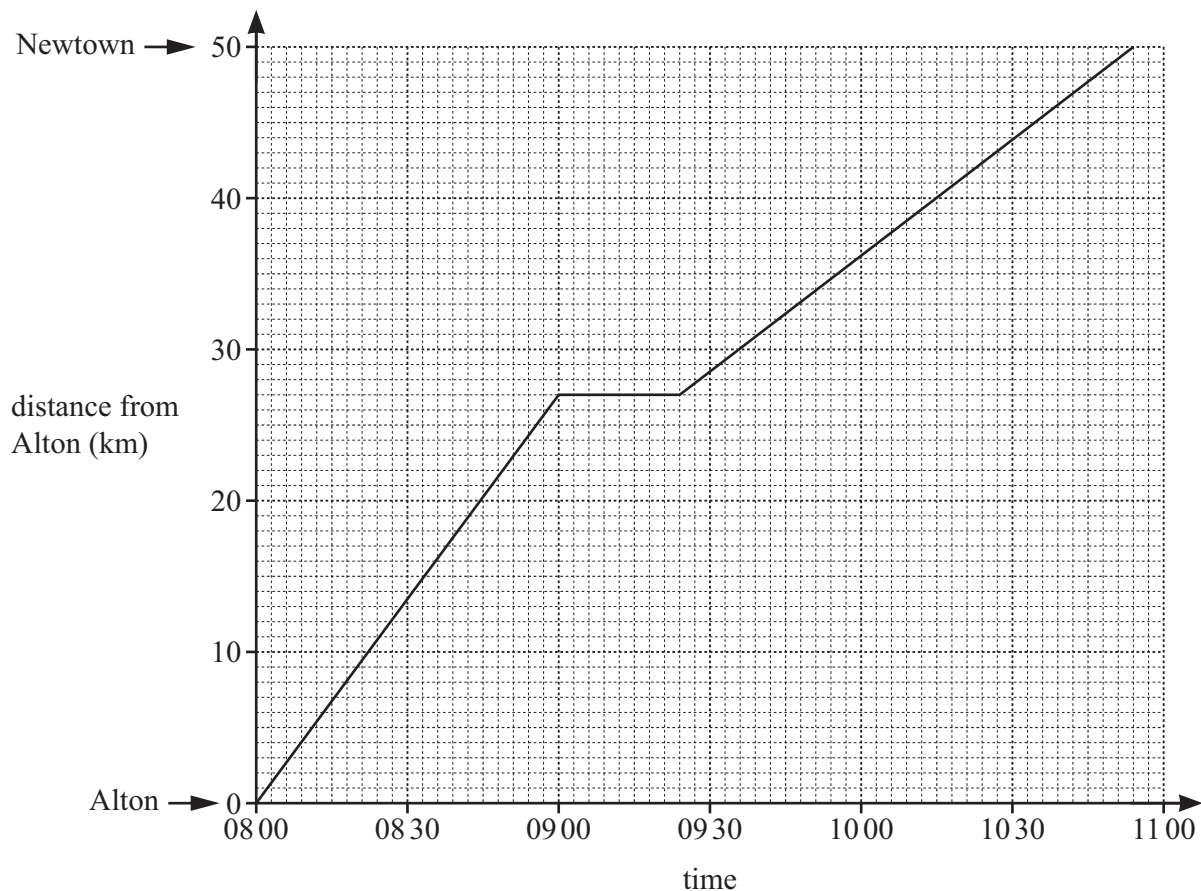
14 Represent the inequality $n < 5$ on the number line.



[1]



- 15 Tom leaves Alton at 08 00 and drives to Newtown. The travel graph shows Tom's journey.



- (a) Find how long it takes Tom to reach Newtown.
Give your answer in hours.

..... hours [2]

- (b) Find Tom's average speed, in km/h, from Alton to Newtown.

..... km/h [2]

- (c) Mei leaves Alton at 08 30 and drives to Newtown at a constant speed of 40 km/h.

(i) Draw a line on the travel graph to show Mei's journey. [1]

- (ii) Find the distance between Tom and Mei at 09 00.

..... km [1]



- 16 Jo invests \$34 500 for 5 years at a rate of 4.4% per year simple interest.

Calculate the total interest earned during the 5 years.

\$..... [2]

- 17 The table gives some information about two towns, *A* and *B*.

	population	area (km ²)
town <i>A</i>	4680	104
town <i>B</i>		760

The population density of the two towns is the same.

Calculate the population of town *B*.

$$\left[\text{Population density} = \frac{\text{population}}{\text{area}} \right]$$

..... [3]





- 18 A camera costs \$735 in Sydney and 435 euros in Rome.
The exchange rate is \$1 = 0.58 euros.

Calculate the difference in the cost.
Give your answer in dollars.

\$..... [3]

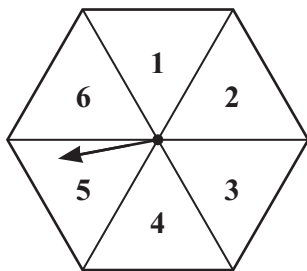
- 19 Calculate the interior angle of a regular polygon with 12 sides.

..... [2]



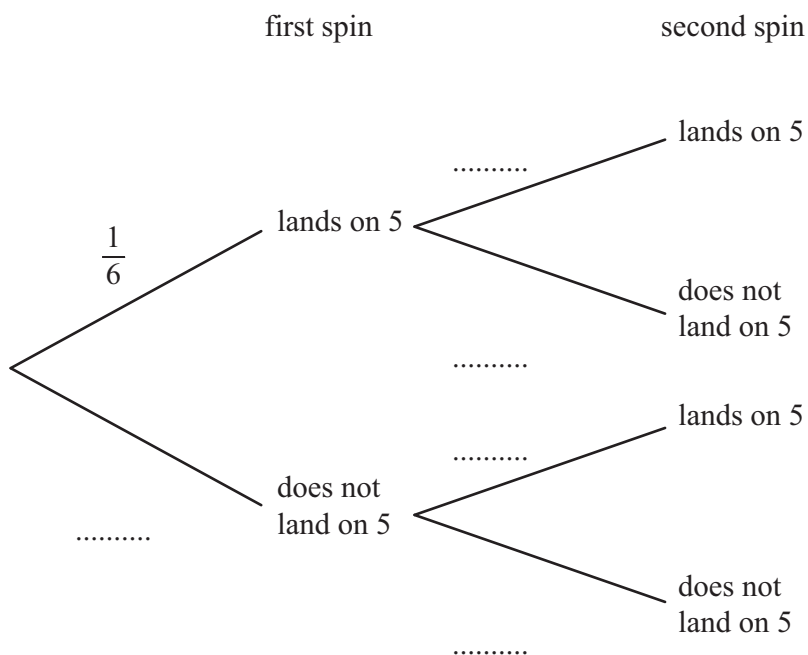


20 The diagram shows a fair spinner.



Azra spins the spinner twice.

(a) Complete the tree diagram.



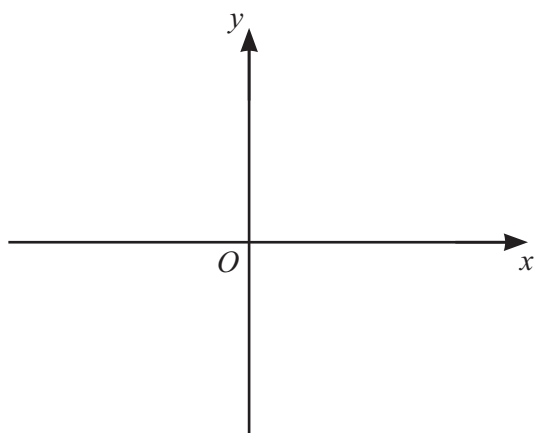
[2]

(b) Find the probability the spinner lands on 5 both times.

..... [2]



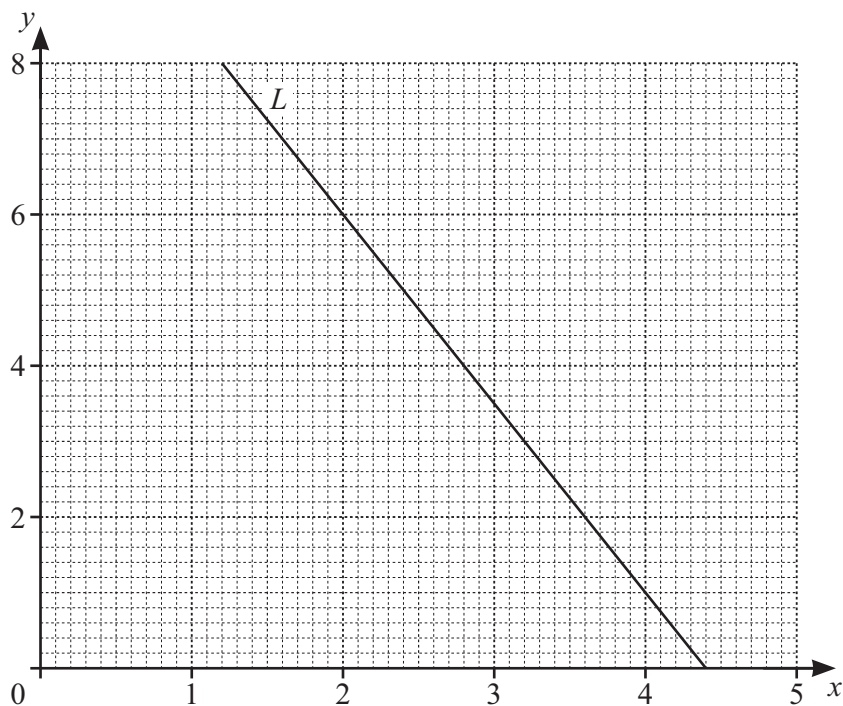
21 (a)



On the diagram, sketch the graph of $y = 3x - 2$.

[1]

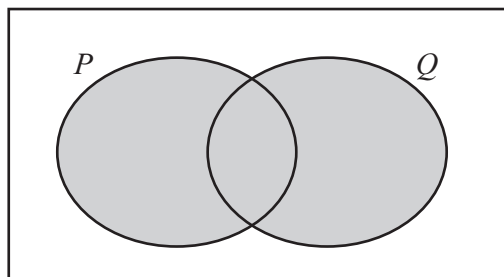
(b)



Find the gradient of line L .

..... [2]

22 (a)



Use set notation to describe the shaded region in the Venn diagram.

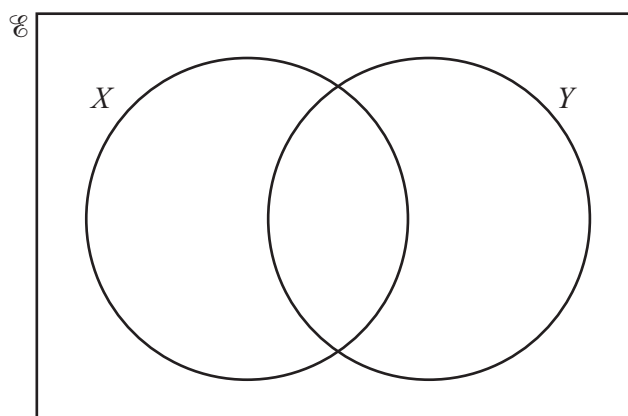
..... [1]

(b) $\mathcal{C} = \{ A, B, E, H, M, O, Q, R, S, U \}$

$X = \{ R, H, O, M, B, U, S \}$

$Y = \{ S, Q, U, A, R, E \}$

(i) Use this information to complete the Venn diagram.



[2]

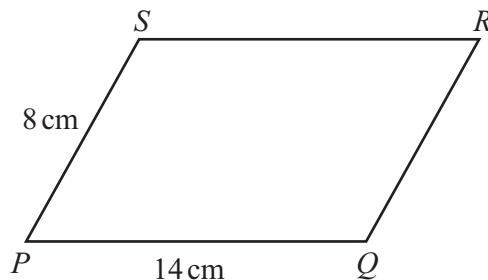
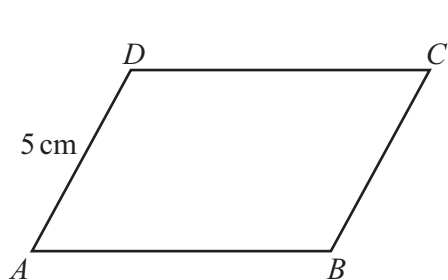
(ii) List the elements of X' .

..... [1]

(iii) Find $n(X \cap Y)$.

..... [1]





NOT TO SCALE

$ABCD$ is mathematically similar to $PQRS$.

Calculate AB .

$AB = \dots\dots\dots\text{ cm}$ [2]

24 (a) Write $0.000\,571$ in standard form.

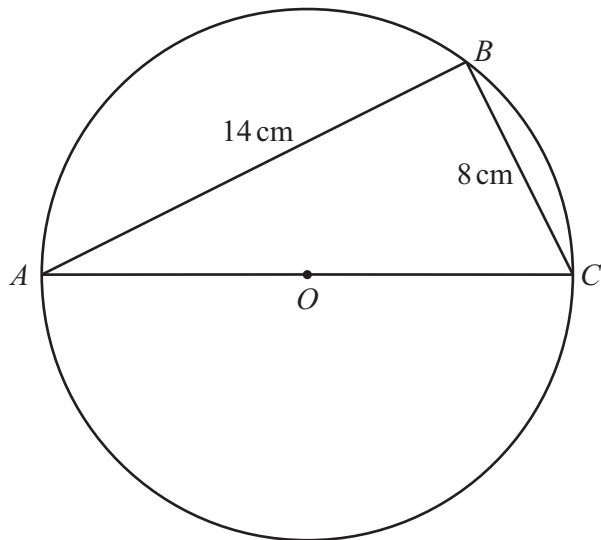
$\dots\dots\dots$ [1]

(b) Calculate $(3.3 \times 10^6) + (12.4 \times 10^5)$.

Give your answer in standard form.

$\dots\dots\dots$ [2]





NOT TO SCALE

The diagram shows a circle, centre O and diameter AC .
 B is a point on the circumference of the circle.

- (a) Give the geometrical reason why angle $ABC = 90^\circ$.

..... [1]

- (b) Calculate AC .

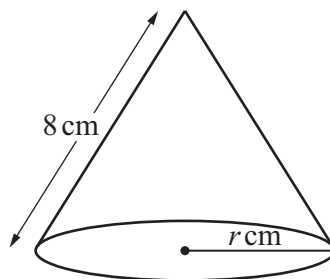
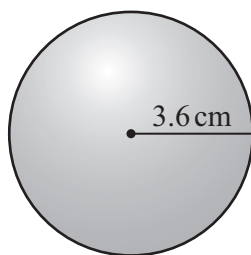
$AC =$ cm [2]

- (c) Calculate angle BAC .

angle $BAC =$ [2]



- 26 The diagram shows a sphere and a cone.



NOT TO SCALE

The radius of the sphere is 3.6 cm.

The radius of the cone is r cm and the slant height is 8 cm.

The surface area of the sphere is equal to the curved surface area of the cone.

Find the value of r .

$r = \dots\dots\dots$ [4]





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