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Cambridge Assessment International Education

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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **May/June 2024**

1 hour 45 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 graphic display calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly and you will be given marks for correct methods, including sketches, even if your answer is incorrect.
- 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 your calculator value.

INFORMATION

- The total mark for this paper is 96.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages.

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Formula List

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle, radius r.	$A = \pi r^2$
Circumference, C, of circle, 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.	$A = \pi rl$
Curved 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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Answer **all** the questions.

1 **(a)** Write the number 20 202 in words.

..... [1]

(b) Write the number 348.964

(i) correct to two decimal places

..... [1]

(ii) correct to four significant figures

..... [1]

(iii) correct to the nearest ten.

..... [1]

(c) Write $\frac{1}{6}$, 0.16 , 17% in order of size, starting with the smallest.

..... , ... , ... [1]
smallest

(d) Work out.

(i) $\frac{3}{5} - \frac{1}{4}$

..... [1]

(ii) $4\frac{1}{2} \times \frac{2}{3}$

..... [1]

(e) Divide \$216 in the ratio 5 : 7 .

\$..... , \$..... [2]

(f) Write the ratio 3600 : 2400 : 600 in its simplest form.

..... : ..... : ..... [2]

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2 **(a)** Levi is paid $549 for working 36 hours.

Work out how much he is paid for each hour.

$ ..... [1]

(b) Levi saves $160 each month.

Work out how much he saves in one year.

$ ..... [1]

(c) Levi invests $1300 at a rate of 1.2% per year compound interest.

Calculate the value of Levi's investment at the end of 3 years.

$ ..... [2]

(d) In a sale, a bicycle costing $1340 is reduced by 30%.
Levi buys the bicycle in the sale.

Work out how much Levi pays.

$ ..... [2]

(e) Levi takes part in a 40 km bicycle race.
Levi starts the race at 09 00 and finishes at 10 15.
All riders who cycle at a speed of 34 km/h or faster receive a medal.

Does Levi receive a medal?
Show how you decide.

..... because ..... [3]

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3 12 students complete a reaction test.
These are their times, in seconds.

21	25	18	31	11	42
33	35	20	32	15	41

(a) Complete the stem-and-leaf diagram for the times.

1	
2	
3	
4	

Key ..... | ..... = ... seconds [3]

(b) Write down the fastest reaction time. ..... s [1]

(c) Find

(i) the range

..... s [1]

(ii) the median

..... s [1]

(iii) the interquartile range

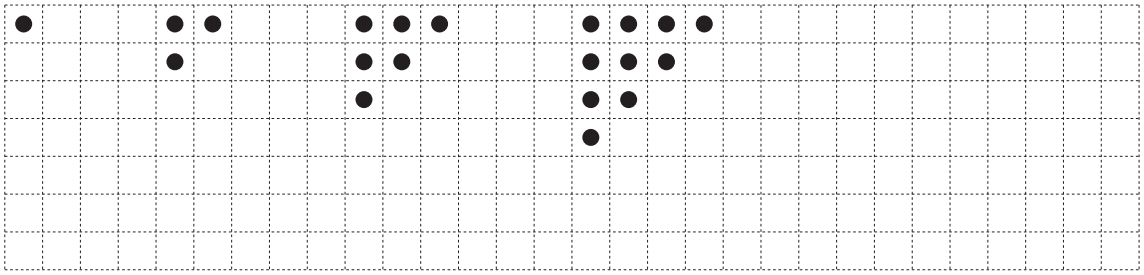
..... s [2]

(iv) the mean.

..... s [1]

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4 **(a)** These are the first four patterns of a sequence made using dots.



Pattern 1 Pattern 2 Pattern 3 Pattern 4 Pattern 5

(i) In the space above draw Pattern 5. [1]

(ii) Complete the table.

Pattern number	1	2	3	4	5	6
Number of dots	1	3	6			

[2]

(iii) Write down the sum to calculate the number of dots in Pattern 7.

..... [1]

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

5 9 13 17 21

(i) Write down the next term of the sequence.

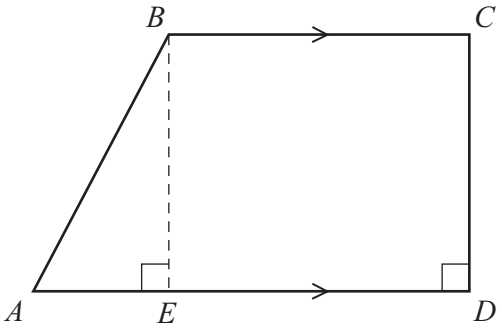
..... [1]

(ii) Find an expression for the nth term of the sequence.

..... [2]

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5



NOT TO SCALE

The diagram shows quadrilateral *ABCD* with *AD* parallel to *BC*.

(a) Write down the mathematical name for quadrilateral *ABCD*.

..... [1]

(b) $DC = 2.6\,\text{m}$, $BC = 3.2\,\text{m}$ and $AE = 1.4\,\text{m}$.

(i) Calculate the area of quadrilateral *ABCD*.

..... m^2 [2]

(ii) Calculate the perimeter of quadrilateral *ABCD*.

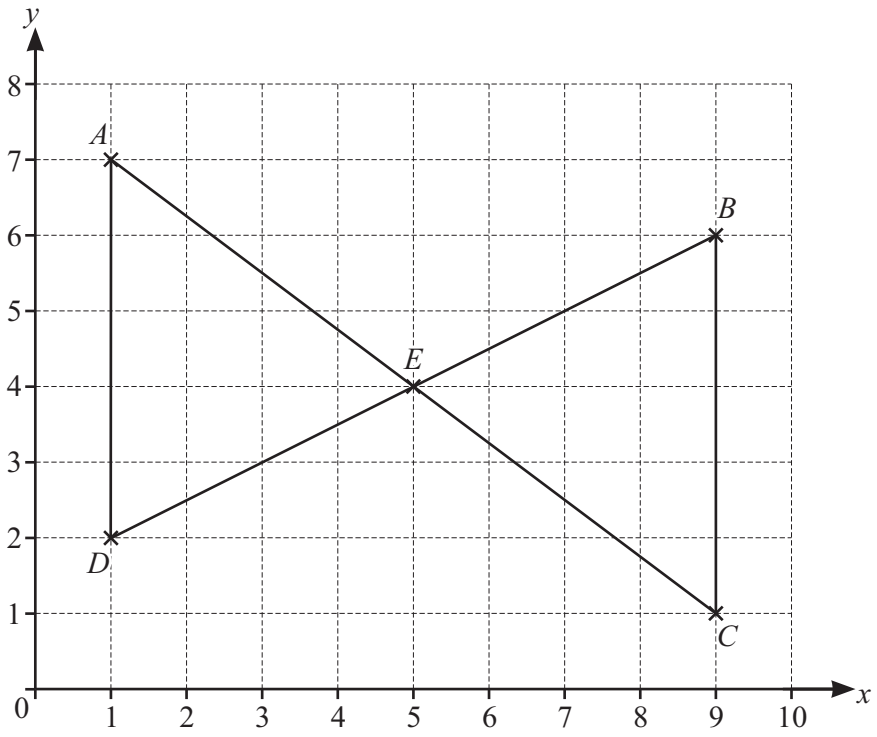
..... m [3]

(iii) Use trigonometry to calculate angle *EBA*.

Angle *EBA* = ... [2]

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6 (a)



The diagram shows five points, A, B, C, D and E.

(i) Write down the coordinates of point C.

(..... , ...) [1]

(ii) Write down the coordinates of the mid-point of EB.

(..... , ...) [1]

(iii) Find the gradient of AE.

..... [1]

(iv) Write down the equation of AD.

..... [1]

(b) Describe fully the **single** transformation that maps triangle AED onto triangle CEB.

.....

..... [3]

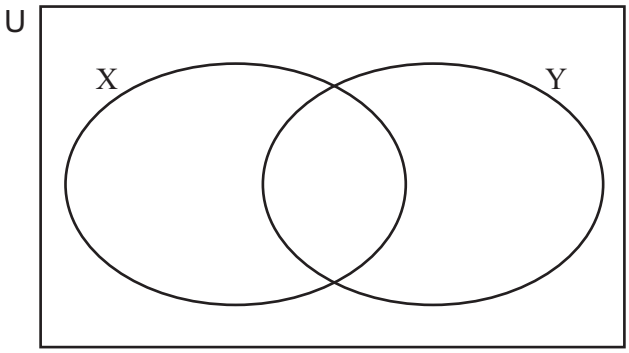
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7 **(a)** U = { A, C, E, G, L, N, R, T }
X = { A, E, G, L, N }
Y = { A, E, L, R, T }

(i) Write down the elements in $X \cap Y$.

..... [1]

(ii) Complete the Venn diagram.

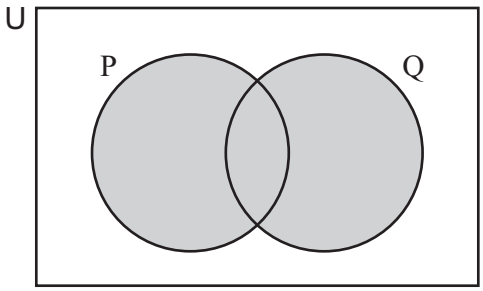


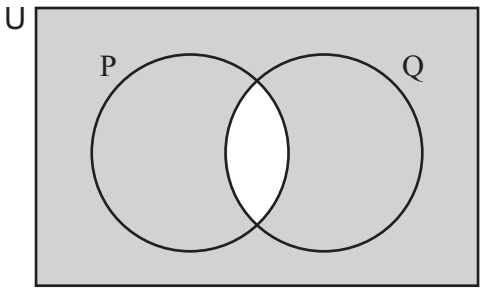
[2]

(iii) Write down the elements in Y'.

..... [1]

(b) Use set notation to describe the shaded region in each Venn diagram.

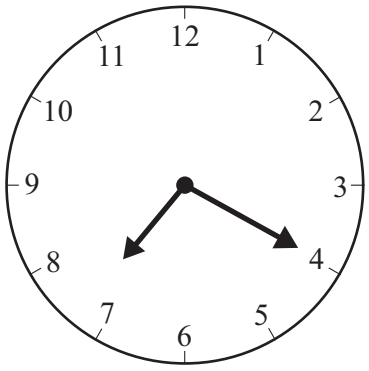




.... [2]

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8



The clock shows the time when Eduardo leaves the house in the morning to walk to school.
He takes 20 minutes to walk to school.

(a) Work out the time that Eduardo arrives at school.

..... [1]

(b) The distance from Eduardo's house to school is 1.5 kilometres.

Write 1.5 kilometres in metres.

..... m [1]

(c) On his way home from school, Eduardo buys the following items.

1 drink that costs \$1.45
2 apples that cost \$0.75 each
1 magazine that costs \$3.50

(i) Work out the total cost.

\$ ..... [2]

(ii) Work out the change he receives from \$10.

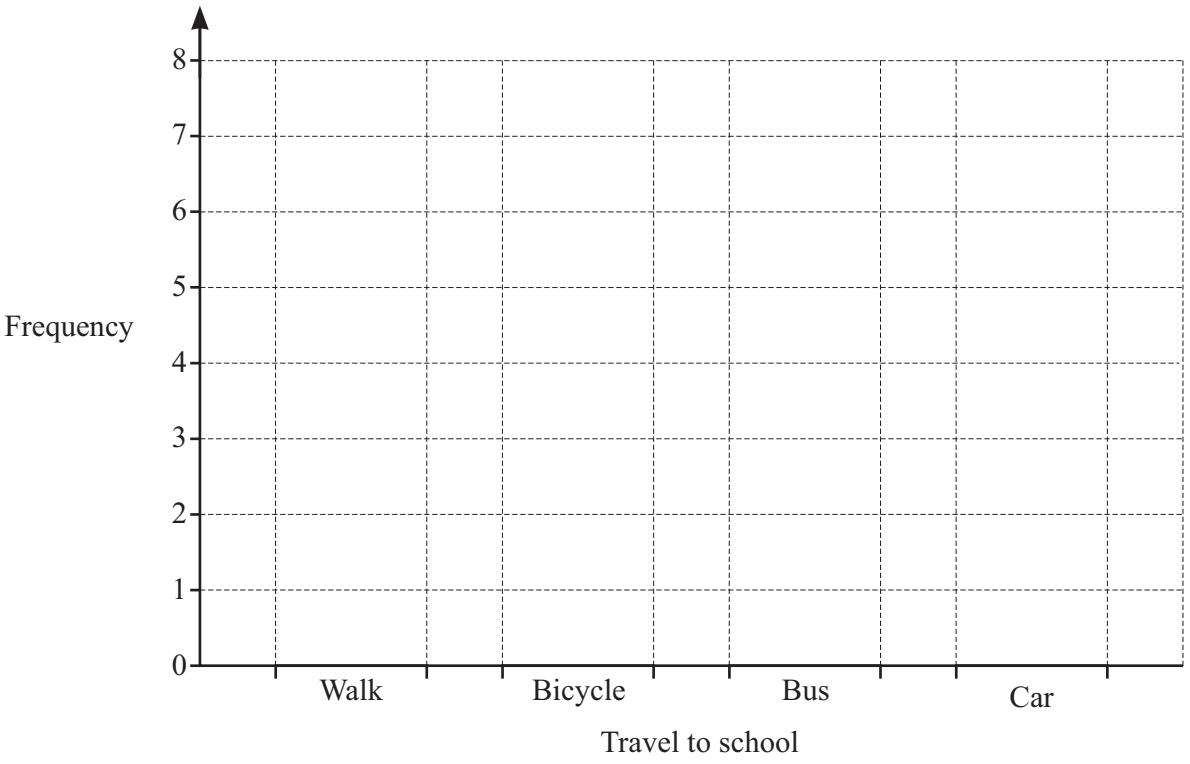
\$ ..... [1]

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(d) The table shows how the 20 students in Eduardo's class travel to school.

Travel to school	Walk	Bicycle	Bus	Car
Frequency	4	6	7	3

(i) Draw a bar chart to show the information in the table.



[2]

(ii) One of the 20 students is chosen at random.

Find the probability that this student travelled to school by car.

..... [1]

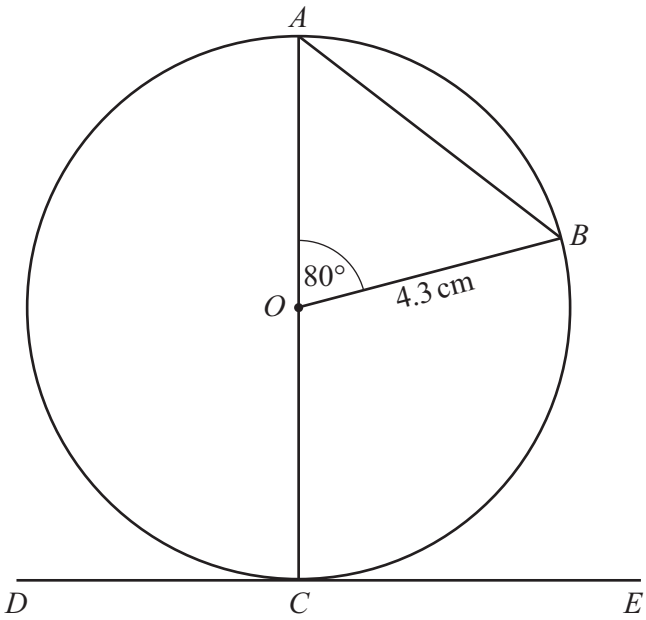
(iii) There are 180 students in Eduardo's year group.

Calculate an estimate of the number of students who walk to school.

..... [1]

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9



NOT TO SCALE

The diagram shows a circle with centre O and radius 4.3 cm.
A, B and C are points on the circumference.
DCE and AOC are straight lines.
Angle $AOB = 80°$.

(a) Write down the mathematical name for

(i) AB

AB is a ..... [1]

(ii) DE.

DE is a ..... [1]

(b) Find

(i) angle OCE

Angle $OCE =$ ..... [1]

(ii) angle OAB.

Angle $OAB =$ ..... [2]

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(c) Work out the area of the minor sector AOB.
Give the units of your answer.

.... [3]

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10 **(a)** Solve.

(i) $5x > 20$

..... [1]

(ii) $3x + 4 = -5$

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

(iii) $7x - 8 = 4x + 1$

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

(b) Simplify fully.

$2x + 3y - 4 - x + 5y - 6$

..... [2]

(c) Write as a fraction in its simplest form.

$$\frac{2x}{9} \div \frac{4x}{3y}$$

..... [3]

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(d) Find the value of x.

$$y^x \times y^4 = y^{12}$$

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

(e) $s = 6t - p$

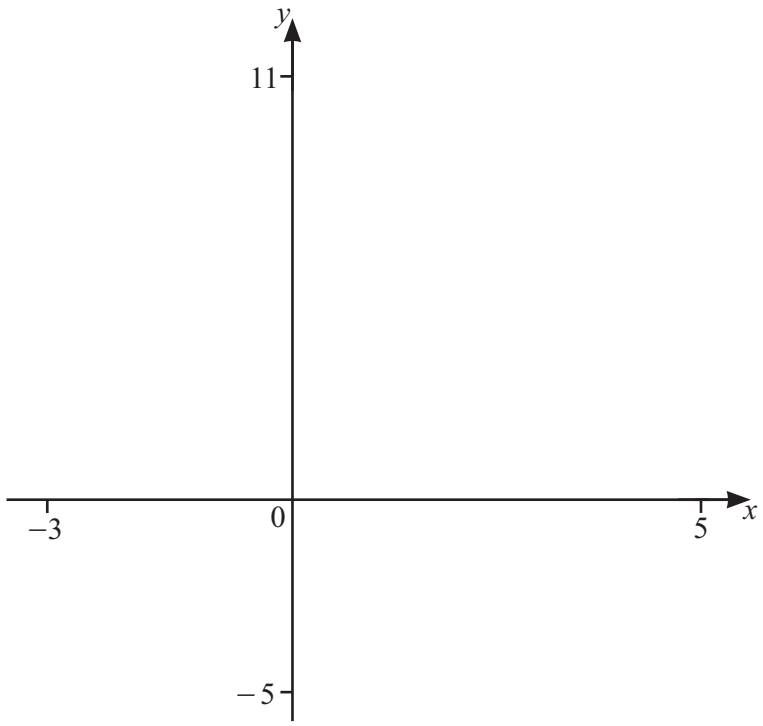
Rearrange the formula to make t the subject.

$t =$ ..... [2]

Question 11 is printed on the next page.

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11



(a) On the diagram, sketch the graph of $y = \frac{2}{x-2}$ for values of x between -3 and 5. [2]

(b) Write down the coordinates of the point where the graph crosses the y-axis.

(..... , ...) [1]

(c) Write down the equation of each asymptote.

..... and ..... [2]

(d) On the same diagram, sketch the graph of $y = 2x + 1$ for values of x between -3 and 5. [2]

(e) Find the x-coordinate of each point of intersection of $y = \frac{2}{x-2}$ and $y = 2x + 1$.

..... and ..... [2]

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