Cambridge Assessment International Education

Cambridge IGCSE™

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211706545O

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **October/November 2023**

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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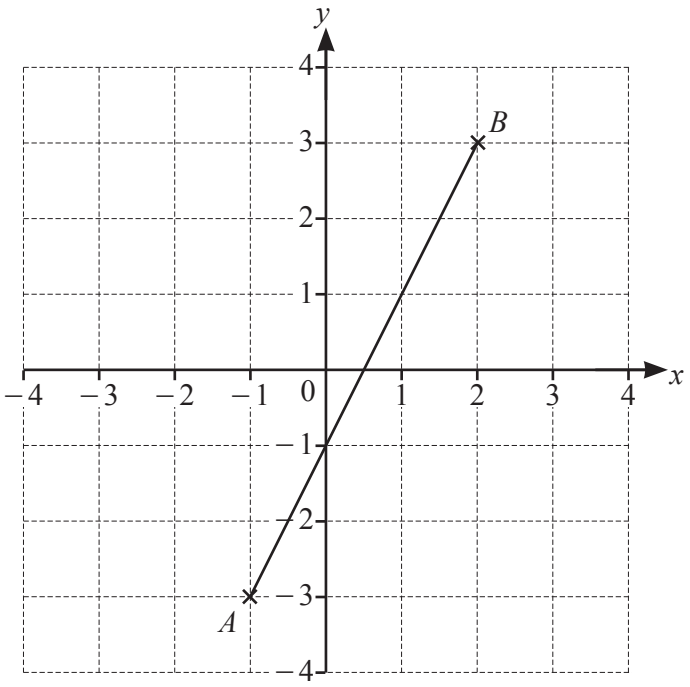
Formula List

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 The line AB is drawn on a 1 cm square grid.



(a) Write down the coordinates of point A and point B.

$A = ($ ..... , ...$)$

$B = ($ ..... , ...$)$ [2]

(b) Write down the coordinates of the mid-point of AB.

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

(c) On the grid, plot point C at $(2, -2)$. [1]

(d) On the grid, draw a straight line through C, parallel to AB. [1]

(e) On the grid, draw a straight line through B, perpendicular to AB. [1]

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[Turn over

2 **(a)** **(i)** Write 17 852 in words.

.....

..... [1]

(ii) Write 17 852 correct to the nearest 100.

..... [1]

(iii) Write 17 852 correct to 2 significant figures.

..... [1]

(b) **(i)** Write down a multiple of 10.

..... [1]

(ii) Write down a factor of 20.

..... [1]

(iii) Write down a prime number between 10 and 20.

..... [1]

(c) Find the value of

(i) 6^2

..... [1]

(ii) 4^5.

..... [1]

(d) **(i)** Find the value of n when $\frac{3}{10} = \frac{n}{30}$.

$n =$ ..... [1]

(ii) Write these fractions in order of size, starting with the smallest.

$\frac{2}{5}$ $\frac{1}{3}$ $\frac{11}{30}$ $\frac{3}{10}$

.... [2]

smallest

(e) Work out the following, giving your answers as fractions.

(i) $\frac{2}{5} - \frac{1}{3}$

..... [1]

(ii) $1\frac{1}{2} \times \frac{11}{30}$

..... [1]

3 **(a)** Simplify.

$3x + 5y + 7 - 2x + 4y - 9$

..... [3]

(b) Factorise completely.

$6x + 15x^2$

..... [2]

(c) Solve.

$4(x + 7) = 20$

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

(d) **(i)** Solve the inequality $3x - 2 < 4$.

..... [2]

(ii) Write down the largest possible integer value of x for $3x - 2 < 4$.

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

4 Inaya surveys the eye colour of everyone in her class.
The table shows her results.

Eye colour	Blue	Brown	Green	Grey	Other
Number of students	5	8	10	7	2

(a) Find how many students are in the survey.

..... [1]

(b) What is the most common eye colour?

..... [1]

(c) One of the students is chosen at random.

Find the probability that this student has grey eyes.

..... [1]

(d) One of the students is chosen at random.

Find the probability that this student has blue eyes or brown eyes.

..... [1]

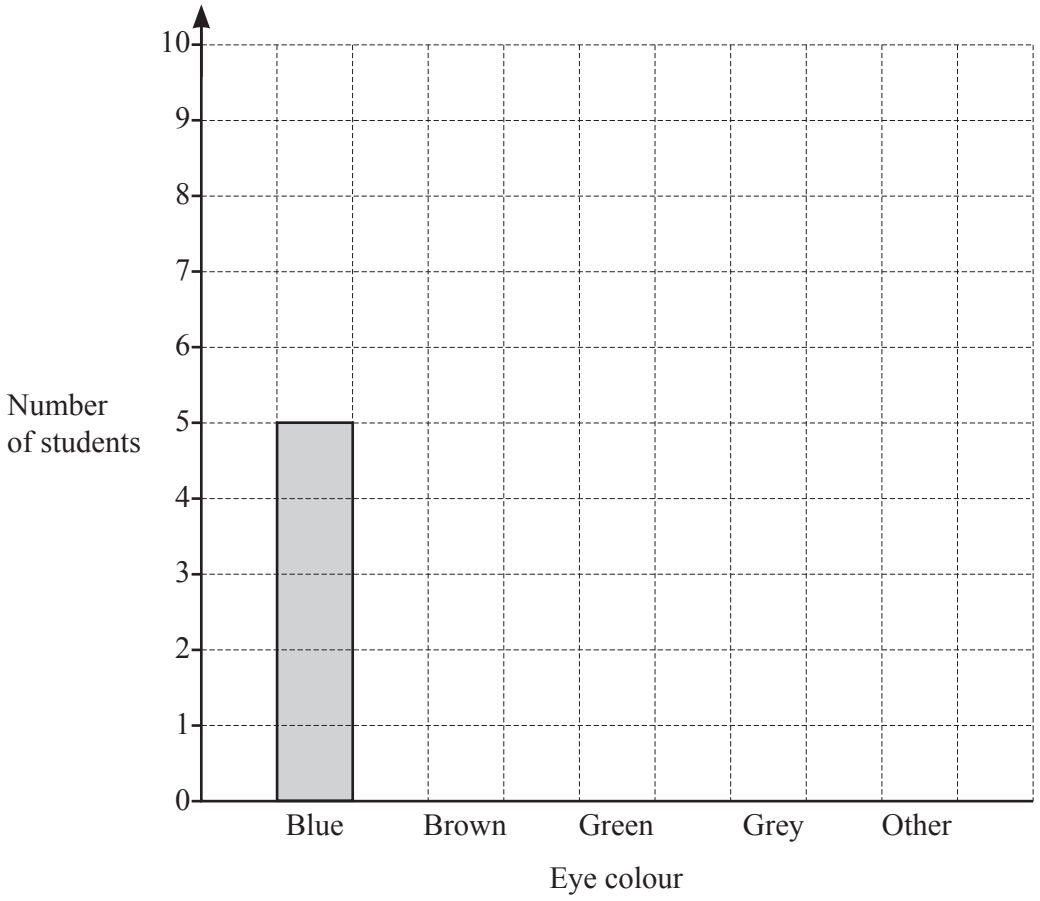
(e) There are 256 students in the school.

Work out an estimate of how many of these students have green eyes.

..... [2]

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(f) Complete the bar chart to show the information in the table.



[2]

5 This is a sign at a golf club.

AAA GOLF CLUB
One round of golf: $24 each player
Golf balls: $2.25 each

(a) 4 friends go to the golf club to play one round of golf.
They each buy 3 golf balls.

Work out the total that they pay.

$ ..... [3]

(b) Ali and Ben are senior golf players.
The golf club offers each senior player a 12% discount.
Ali pays for them both to play one round of golf.

Work out how much he pays.

$ ..... [3]

(c) There are 288 members of AAA Golf Club.
The members are in the ratio

male : female = 5 : 4 .

Work out how many males and how many females are members of AAA Golf Club.

male .....

female ..... [2]

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(d) These are the scores Lennie has in 10 rounds of golf.

91 76 102 73 82 89 88 71 92 86

(i) Find the mean.

..... [1]

(ii) Find the median.

..... [1]

(iii) Draw a stem-and-leaf diagram for the ten scores.

Key : ..... | ..... means ..... [3]

(iv) Find the range of the ten scores.

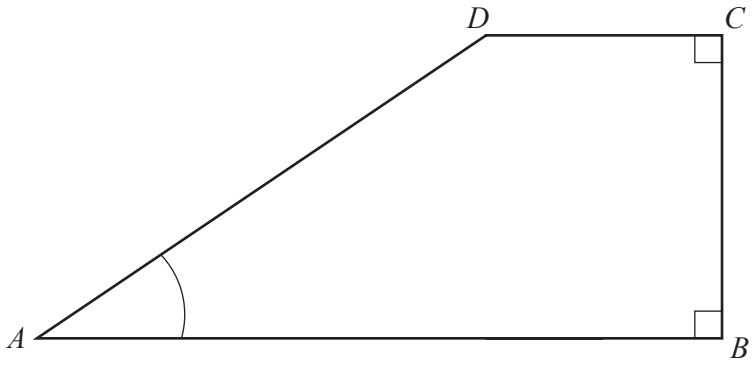
..... [1]

(v) Lennie plays one more round of golf.
After this, the range of his scores is 35.

Work out the possible scores for that last round of golf.

..... [2]

6 **(a)** The diagram shows a quadrilateral $ABCD$.



(i) Write down the mathematical name for this quadrilateral.

..... [1]

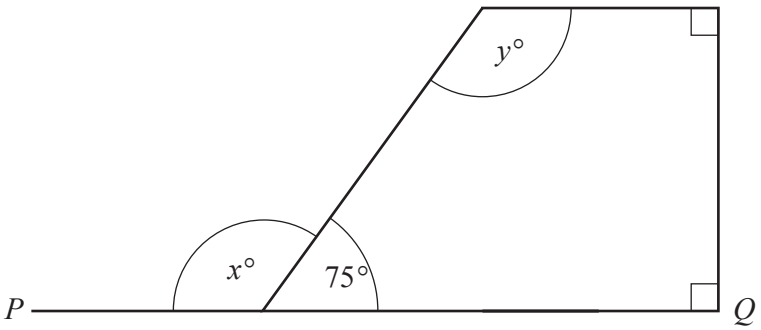
(ii) Give a geometric reason for choosing your answer to **part (i)**.

..... [1]

(iii) Measure angle BAD.

Angle BAD = ... [1]

(b)



NOT TO SCALE

Here is another quadrilateral.
PQ is a straight line.

(i) Find the value of x.

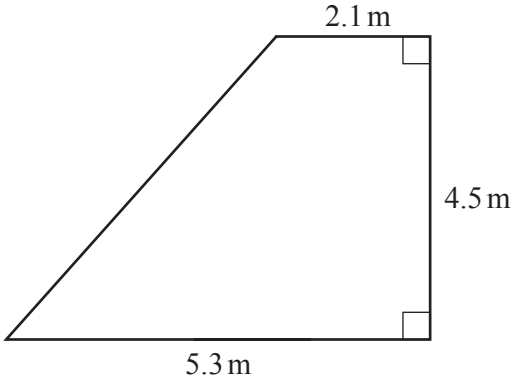
x = ... [1]

(ii) Find the value of y.

y = ... [1]

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(c) Here is a different quadrilateral.



NOT TO SCALE

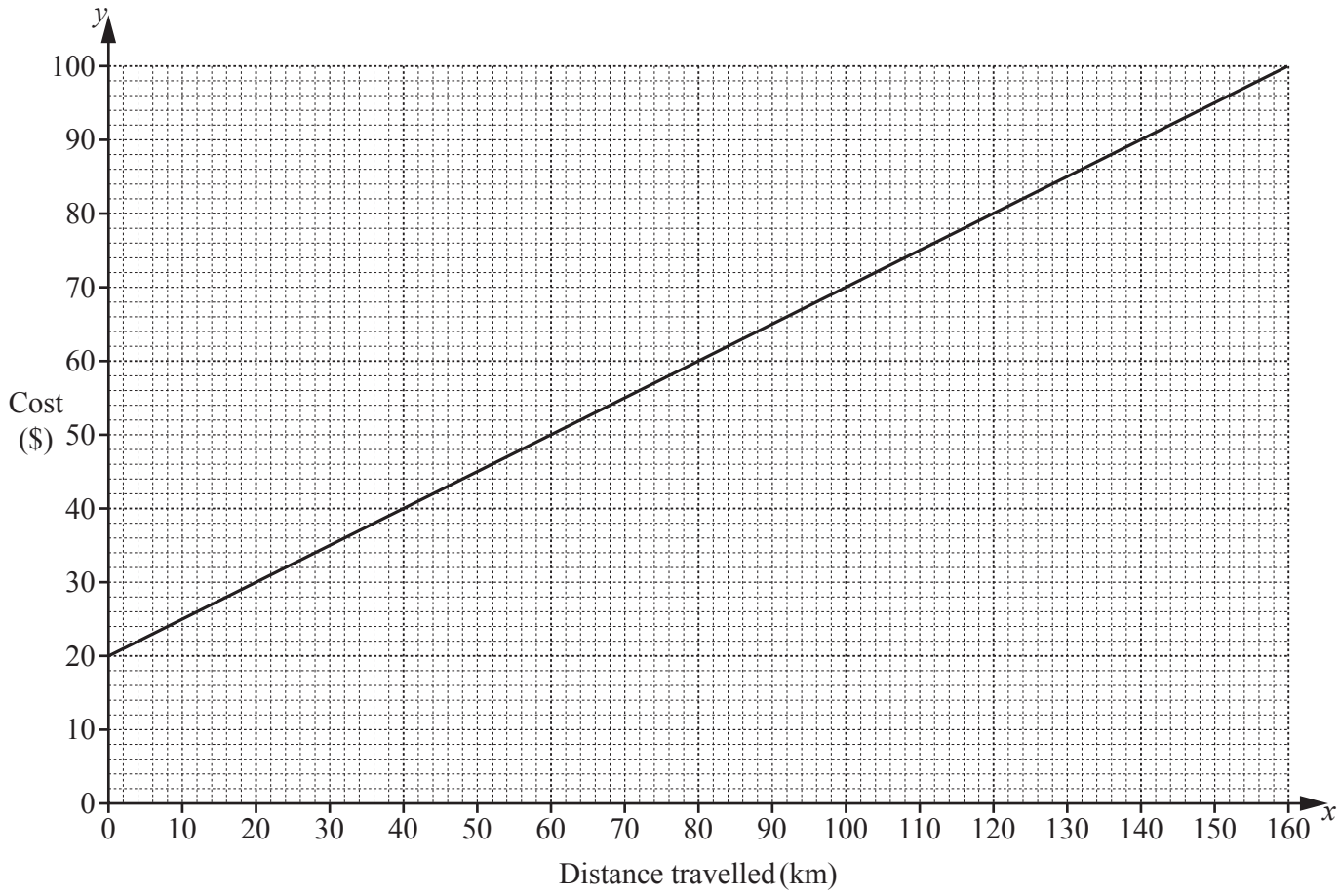
(i) Find the area of this quadrilateral.

..... m^2 [3]

(ii) Find the perimeter of this quadrilateral.

..... m [4]

7 The graph shows the cost of hiring a car.
The cost, \$$y$, depends on the distance, x km, travelled in the car.



(a) Paul hires a car and travels a distance of 120 km.

Find how much this costs him.

\$ ..... [1]

(b) Bushra hires a car.
It costs her \$50.

Find the distance she travels.

..... km [1]

(c) Find the equation of the line drawn on the grid.
Give your answer in the form $y = mx + c$.

..... [3]

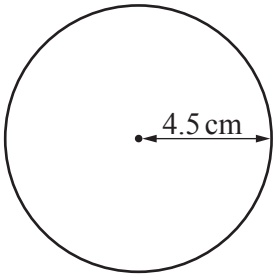
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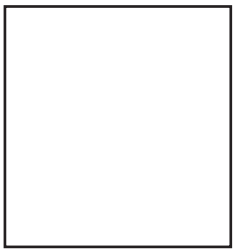
(d) Carmen hires a car and travels a distance of 350 km.

Using your answer to **part (c)**, work out how much this costs her.

$ ..... [2]

8





NOT TO SCALE

The area of the circle is equal to the area of the square.
The length of one side of the square is x cm.

Find the value of x.

$x =$ ..... [4]

9 **(a)** Simplify.

(i) $x^6 \times x^3$

..... [1]

(ii) $\dfrac{10x^7}{5x^2}$

..... [2]

(b) Expand and simplify.

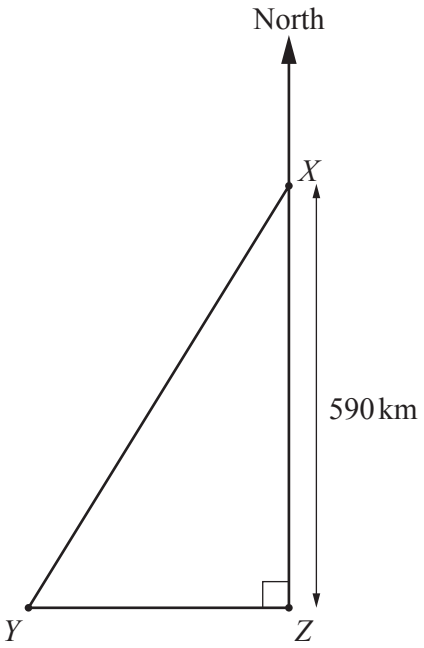
$(x+9)(x-4)$

..... [2]

(c) Rearrange $P = \dfrac{K+B}{2}$ to make K the subject.

$K =$ ..... [2]

10



NOT TO SCALE

X, *Y* and *Z* are three towns.
Z is 590 km due South of *X*.
Y is due West of *Z*.
The bearing of *Y* from *X* is 220°.

(a) Use trigonometry to calculate the distance *XY*.

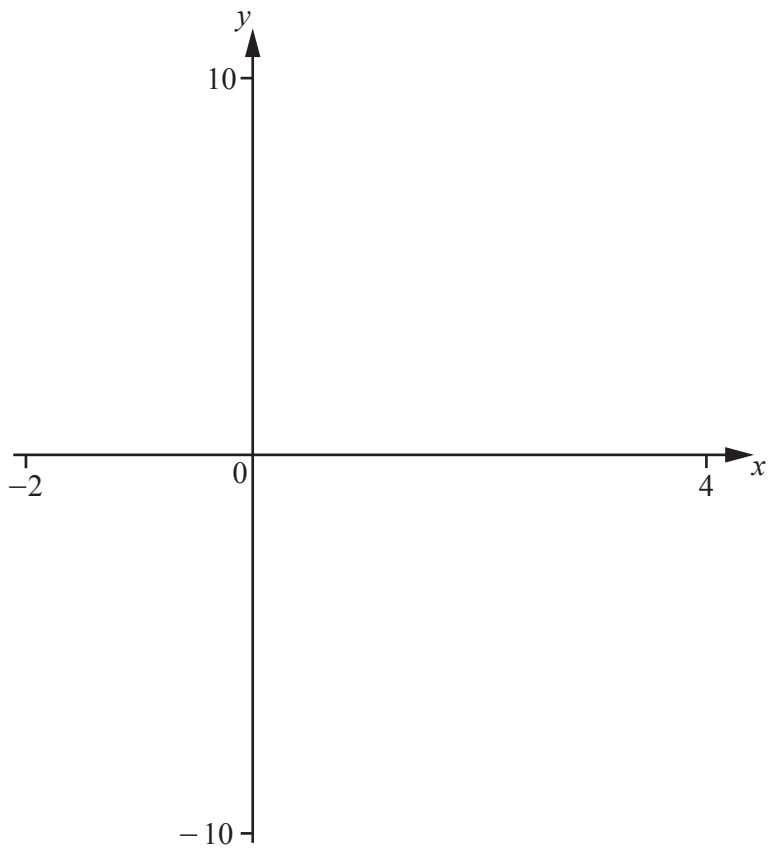
..... km [4]

(b) Work out the bearing of *X* from *Y*.

..... [1]

Question 11 is printed on the next page.

11



(a) **(i)** On the diagram, sketch the graph of $y = x^2 - x - 4$ for $-2 \leqslant x \leqslant 4$. [2]

(ii) Find the coordinates of the local minimum.

(..... , ...) [2]

(b) On the diagram, sketch the graph of $y = -x^2 + 3x + 2$ for $-2 \leqslant x \leqslant 4$. [2]

(c) Find the x-coordinate of each point of intersection of $y = x^2 - x - 4$ and $y = -x^2 + 3x + 2$.

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

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