Cambridge IGCSE™

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

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 [ ].

[Turn over

Formula List

Area, A, of triangle, base b, height h. $\qquad A = \frac{1}{2}bh$

Area, A, of circle, radius r. $\qquad A = \pi r^2$

Circumference, C, of circle, radius r. $\qquad C = 2\pi r$

Curved surface area, A, of cylinder of radius r, height h. $\qquad A = 2\pi rh$

Curved surface area, A, of cone of radius r, sloping edge l. $\qquad A = \pi rl$

Curved surface area, A, of sphere of radius r. $\qquad A = 4\pi r^2$

Volume, V, of prism, cross-sectional area A, length l. $\qquad V = Al$
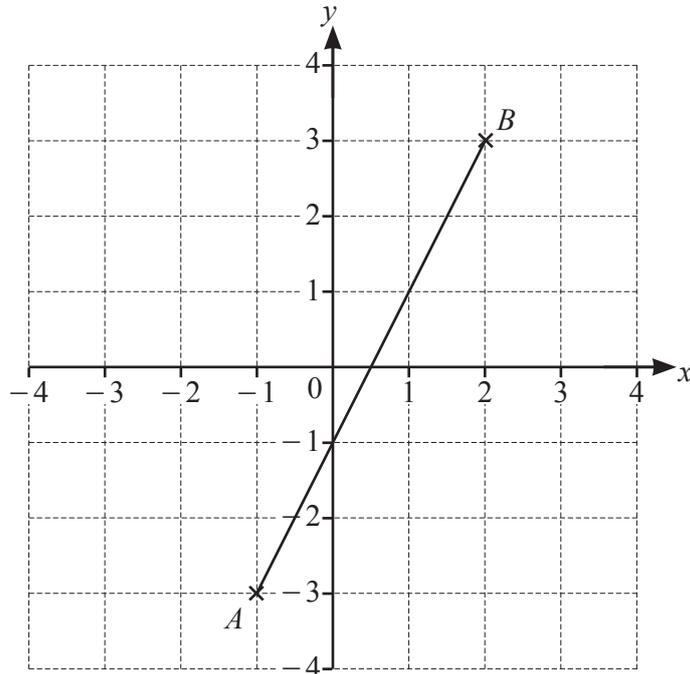
Volume, V, of pyramid, base area A, height h. $\qquad V = \frac{1}{3}Ah$

Volume, V, of cylinder of radius r, height h. $\qquad V = \pi r^2 h$

Volume, V, of cone of radius r, height h. $\qquad V = \frac{1}{3}\pi r^2 h$

Volume, V, of sphere of radius r. $\qquad V = \frac{4}{3}\pi r^3$

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]

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 $\dfrac{3}{10} = \dfrac{n}{30}$.

$n =$ .... [1]

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

$$\dfrac{2}{5} \qquad \dfrac{1}{3} \qquad \dfrac{11}{30} \qquad \dfrac{3}{10}$$

.... [2]
smallest

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

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

.... [1]

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

.... [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]

(f) Complete the bar chart to show the information in the table.
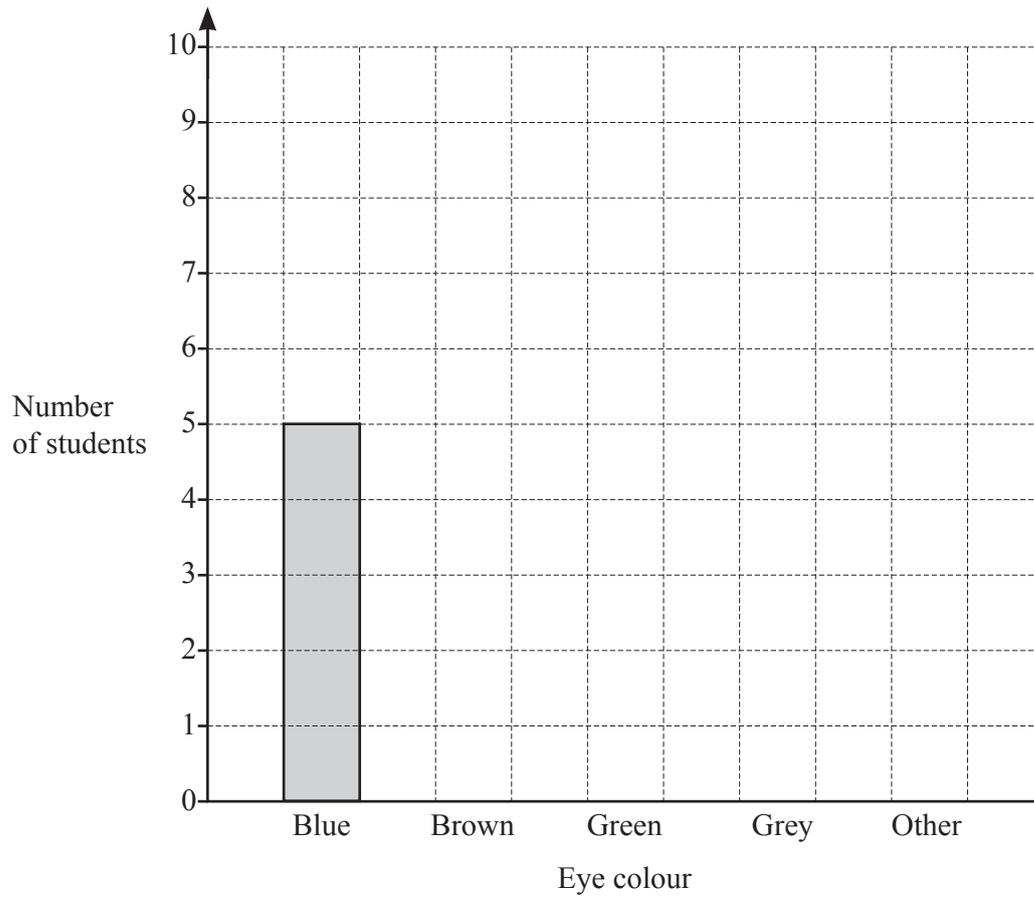
[2]

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
$$\text{male : female} = 5 : 4 .$$

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

male ....

female .... [2]

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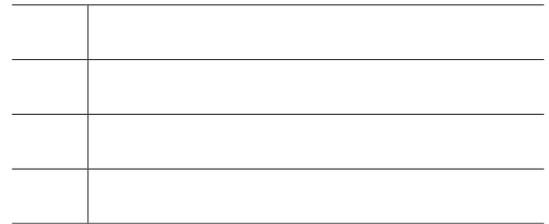
Key : .... | .... means .... [3]

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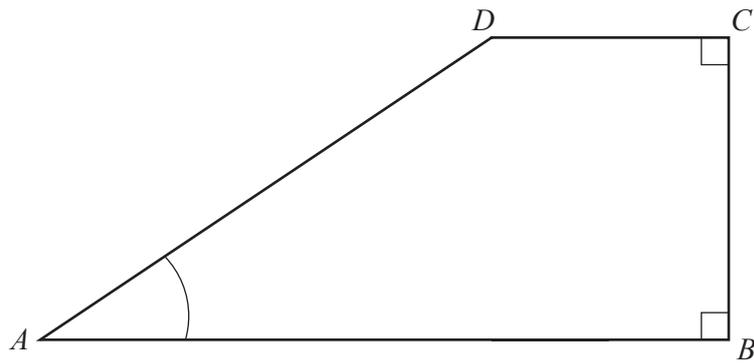
    (i) Write down the mathematical name for this quadrilateral.

.... [1]

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

.... [1]

    (iii) Measure angle *BAD*.

Angle *BAD* = ... [1]

(b)
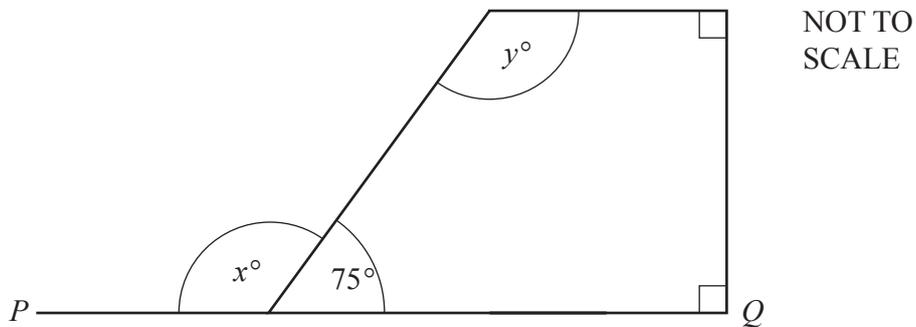
NOT TO SCALE

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]

(c) Here is a different quadrilateral.

2.1 m

NOT TO SCALE

4.5 m

5.3 m
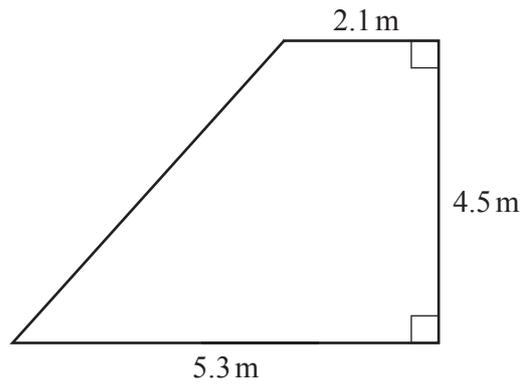
(i) Find the area of this quadrilateral.

.... 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.

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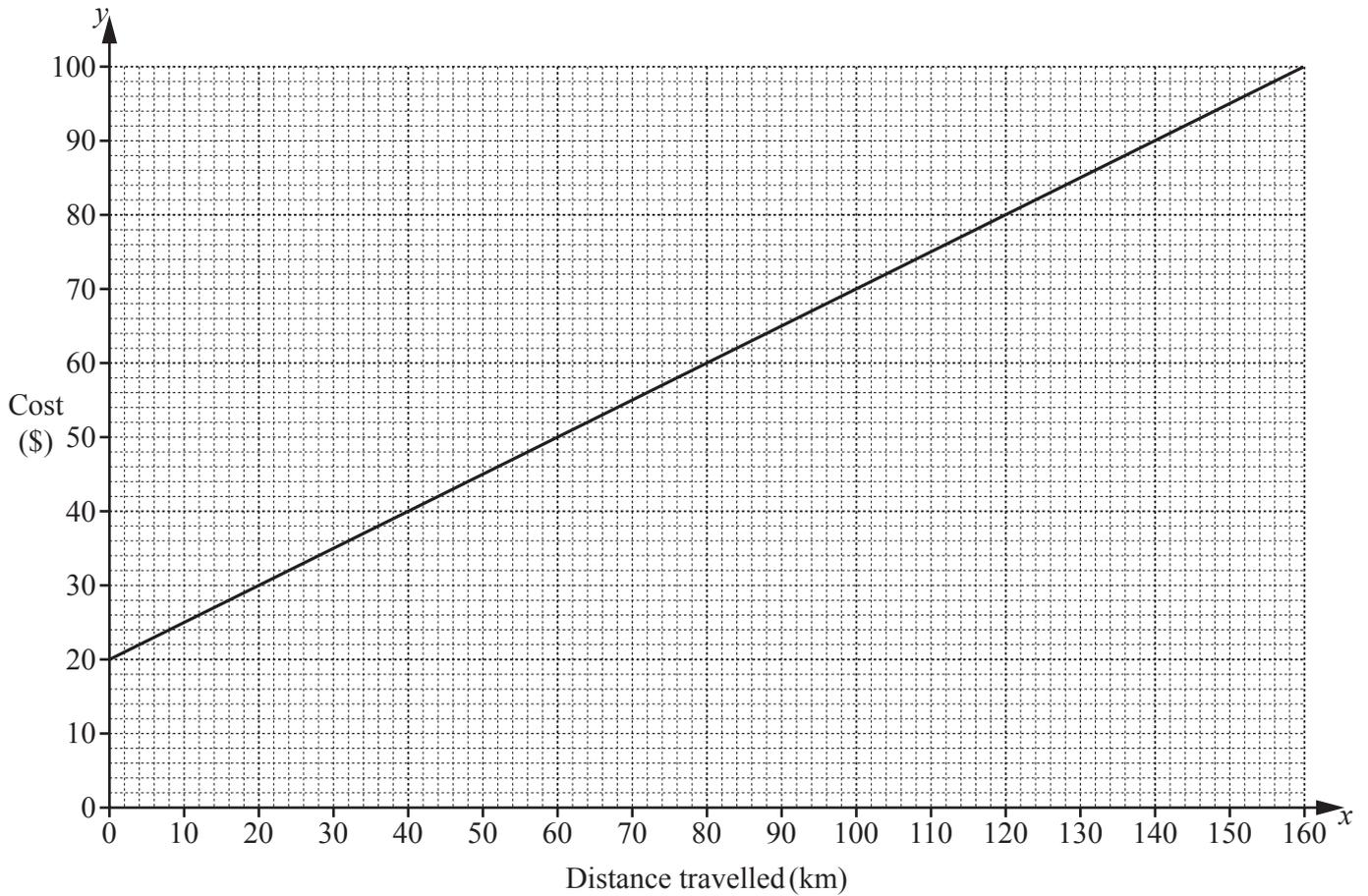
(a) Paul hires a car and travels a distance of 120 km.

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]

(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
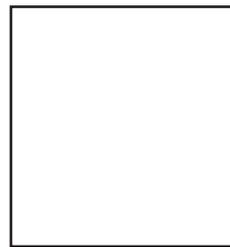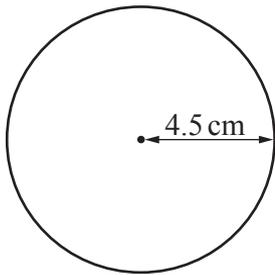
NOT TO
SCALE

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]

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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

North

X

NOT TO
SCALE

590 km

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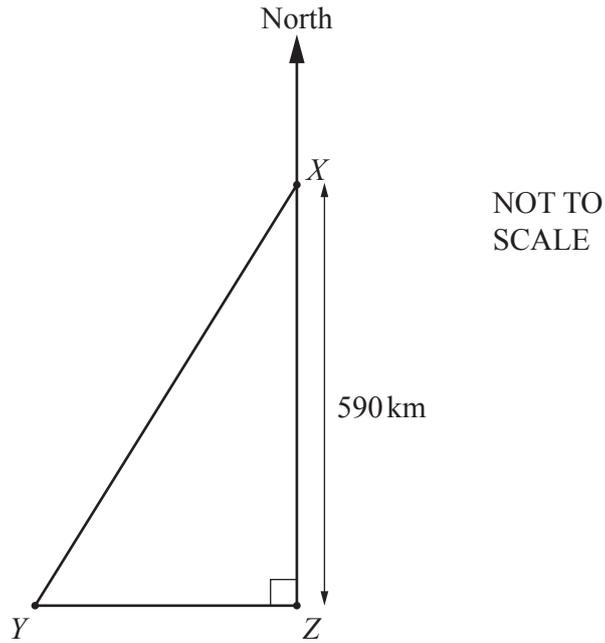
X, *Y* and *Z* are three towns.
Z is 590 km due South of *X*.
Y is due West of *Z*.
The bearing of *Y* from *X* is 220°.

(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.