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Cambridge Assessment International Education

Cambridge IGCSE™

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6130394327

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **February/March 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 **20** pages. Any blank pages are indicated.

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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)** **(i)** Write 5048 correct to the nearest 10.

..... [1]

(ii) Write 5048 correct to 2 significant figures.

..... [1]

(b) 21 22 23 24 25 26 27 28 29

From this list of numbers, write down

(i) a multiple of 7,

..... [1]

(ii) a cube number,

..... [1]

(iii) a prime number.

..... [1]

(c) **(i)** Find the value of $\sqrt[3]{3375}$.

..... [1]

(ii) $3 \times 3 \times 3 \times 3 \times 3 = 3^n$

Write down the value of n.

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

(iii) Write $\frac{13}{20}$ as a percentage.

.....% [1]

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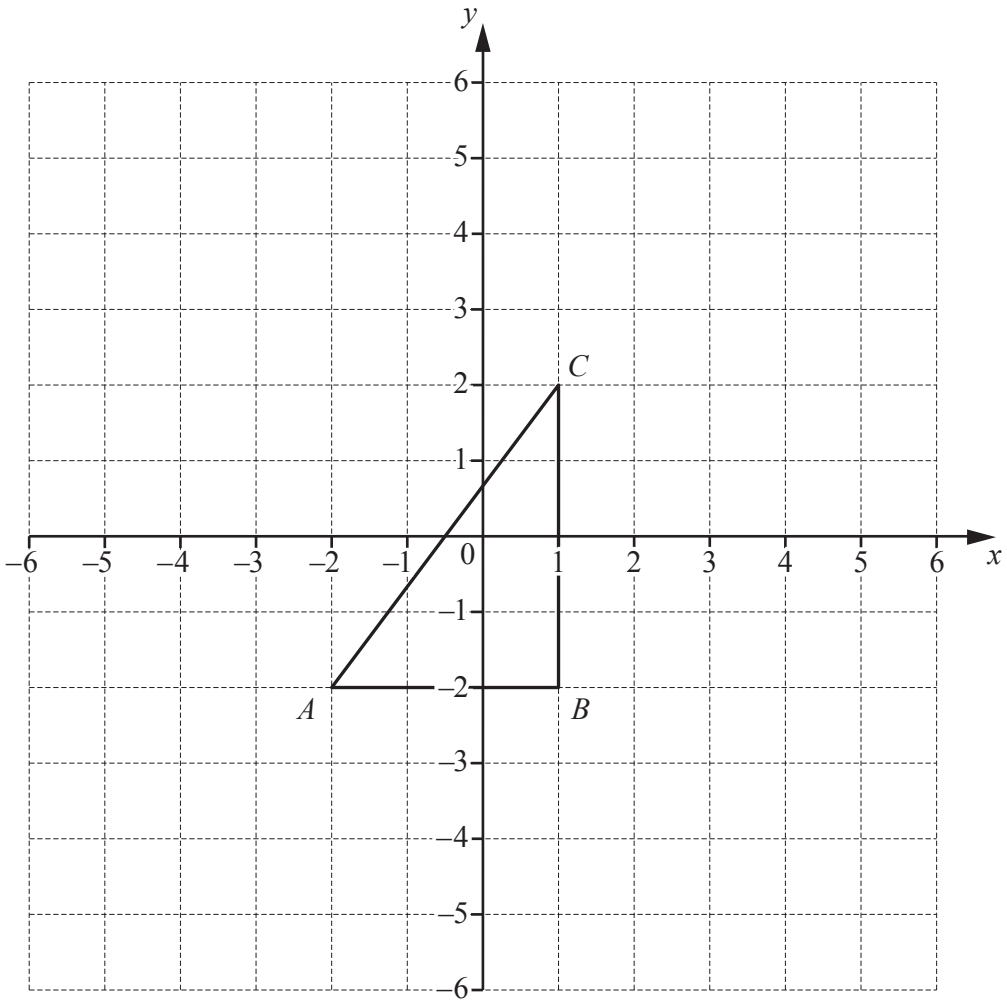

The diagram shows triangle ABC drawn on a 1 cm^2 grid.

(a) Write down the coordinates of

(i) C,

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

(ii) A,

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

(iii) the mid-point of CB.

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

(b) Measure angle CAB.

Angle CAB = ... [1]

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(c) Find, by measuring, the perimeter of triangle ABC.

.....cm [2]

(d) Calculate the area of triangle ABC.
Give the units of your answer.

.... [2]

(e) On the grid, draw the reflection of triangle ABC in the line $x = 2$. [2]

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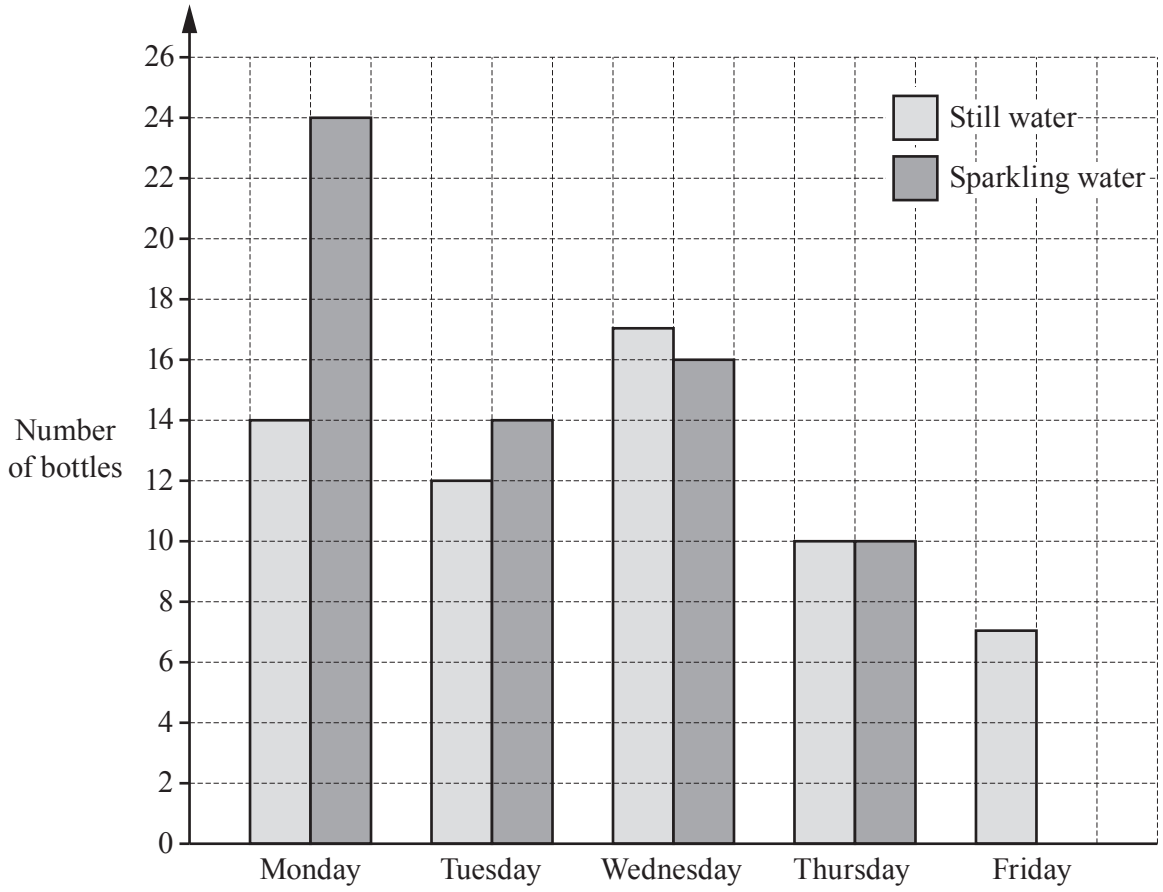
[Turn over

3 **(a)** Bijal is drawing a bar chart to show the number of bottles of still water and the number of bottles of sparkling water sold in a shop on each of five days.



(i) 12 bottles of sparkling water were sold on Friday.

Complete the bar chart. [1]

(ii) Write down the number of bottles of sparkling water sold on Wednesday.

..... [1]

(iii) Write down the number of bottles of still water sold on Friday.

..... [1]

(iv) Write down the day on which equal numbers of bottles of still water and bottles of sparkling water were sold.

..... [1]

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(v) Write down the day on which the greatest number of bottles of still water was sold.

..... [1]

(vi) Work out how many bottles of water were sold during the five days.

..... [2]

(b) A box contains 2 bottles of still water and 5 bottles of sparkling water.
All bottles are the same size and shape.

One of the bottles is chosen at random.
Work out the probability that this bottle contains sparkling water.

..... [1]

(c) Tandi has a full 2 litre bottle of still water.

Work out the greatest number of 330 ml glasses that she can completely fill using the 2 litres of water.

..... [2]

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[Turn over

4 Two companies sell invitation cards.
Here is how each company works out the price of the cards.

Company A	Company B
\$1.35 for each card plus \$24.50	$P = 1.55n$ where P is the price in dollars and n is the number of cards

(a) David wants to buy 140 cards.

Work out which company is cheaper, and by how much.

Company ..... is cheaper by \$ ..... [4]

(b) Nor has \$100 to spend on cards.

Find which company gives the largest number of cards for \$100.
How many more cards does this company give?

Company ..... would give ..... more cards [4]

(c) Rearrange the formula to make n the subject.

$P = 1.55n$

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

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5 **(a)** Simplify fully.

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

..... [2]

(b) Solve.

(i) $\frac{x}{2} = 8$

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

(ii) $2x - 3 = 6$

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

(c) Factorise fully.

$2ab + 8a$

..... [2]

(d) Multiply out the brackets and simplify.

$(x + 5)(x - 1)$

..... [2]

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[Turn over

6 **(a)** There are 110 boys and 80 girls in a school.
20% of the boys and 15% of the girls wear spectacles.

Work out how many boys and girls altogether wear spectacles.

..... [3]

(b) Ten students are asked the cost of their spectacles.
Here are their responses, in dollars.

207	302	261	145	356
274	162	384	269	184

Work out

(i) the mean,

$ ..... [1]

(ii) the range,

$ ..... [1]

(iii) the median.

$ ..... [1]

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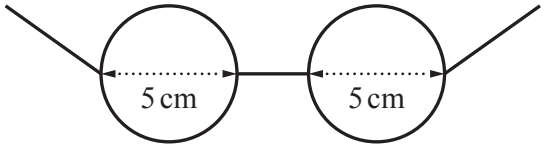
(c) The lenses in one pair of spectacles are circles of diameter 5 cm.



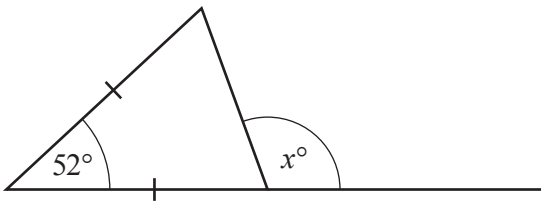
NOT TO SCALE

Both sides of each lens are covered with a special coating.

Work out the total area covered.

..... cm^2 [3]

7 **(a)**



NOT TO SCALE

The diagram shows an isosceles triangle with one side extended.

Work out the value of x.

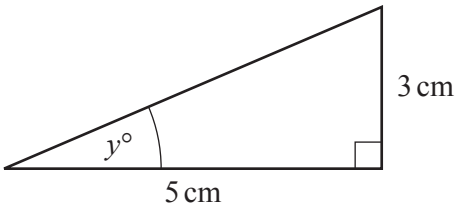
$x =$ ..... [3]

(b) A regular polygon has 9 sides.

Work out the size of one interior angle.

..... [3]

(c)



NOT TO SCALE

Work out the value of y.

$y =$ ..... [2]

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8 Aisha, Ben and Cressida work for a bank.
Aisha earns \$96 000, Ben earns \$120 000 and Cressida earns \$192 000.

(a) Write the ratio 96 000 : 120 000 : 192 000 in its simplest form.

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

(b) Aisha, Ben and Cressida share a bonus of \$425 000 in the ratio of their earnings.

Work out how much each person receives.

Aisha \$ .....

Ben \$ .....

Cressida \$ ..... [3]

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[Turn over

9 **(a)** A group of 30 students all wear contact lenses.
Each of the students is asked at what age they started wearing contact lenses.
The results are shown in the table.

Age (years)	Frequency
12	12
13	7
14	4
15	5
16	2

Work out the mean age.

..... years [2]

(b) In a school, the probability that a student chosen at random wears contact lenses is $\frac{1}{15}$.
There are 345 students in the school.

Work out the expected number of students wearing contact lenses.

..... [1]

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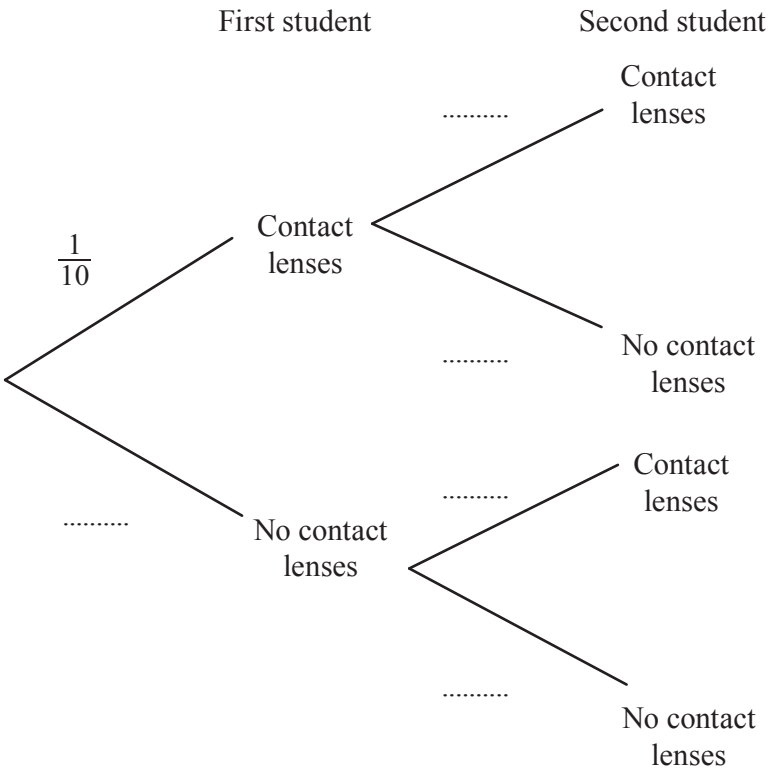
(c) In a university, the probability that a student wears contact lenses is $\frac{1}{10}$.
Two students from the university are chosen at random.

(i) Complete the tree diagram.



[2]

(ii) Work out the probability that only one of the two students wears contact lenses.

..... [3]

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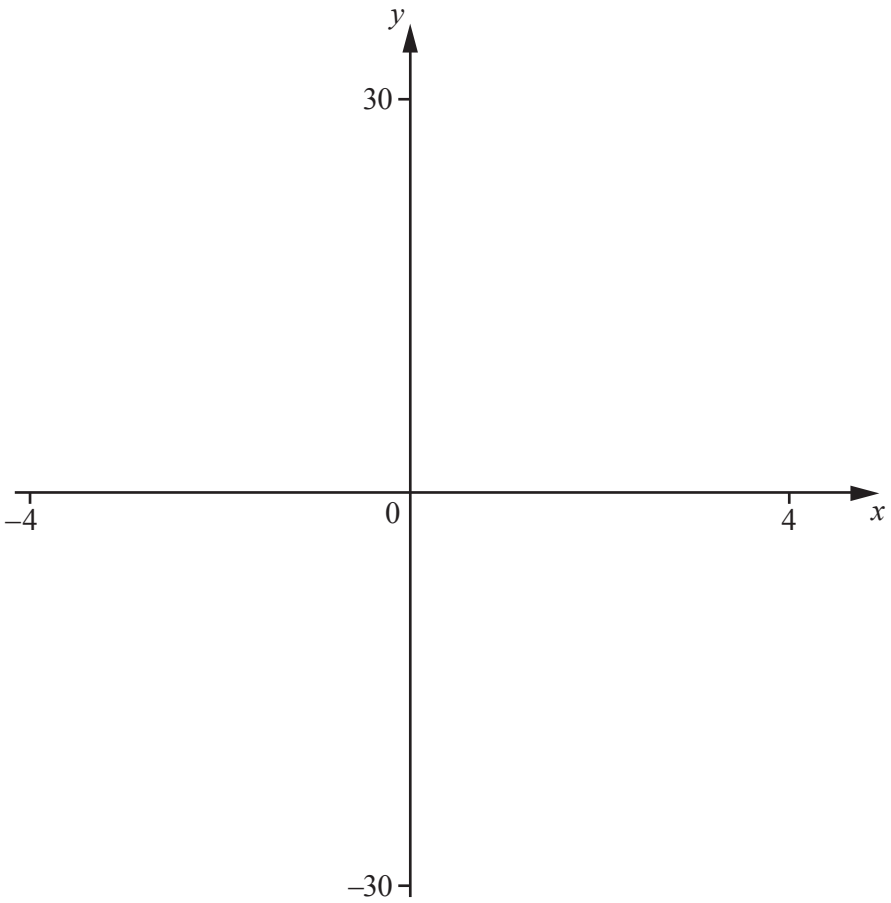
10 **(a)** On the diagram, sketch the graph of $y = x^2 + 3x$ for $-4 \leqslant x \leqslant 4$.



[2]

(b) Write down the coordinates of the local minimum point.

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

(c) On the diagram, sketch the graph of $y = 5 + 3x - x^2$ for $-4 \leqslant x \leqslant 4$. [2]

(d) Solve.

$$x^2 + 3x = 5 + 3x - x^2$$

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

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11 **(a)** Write 180 as a product of its prime factors.

..... [2]

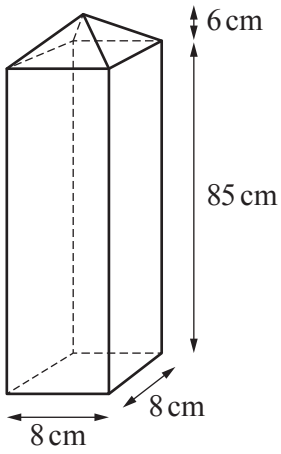
(b) **(i)** Write the value of 180^3 in standard form.

..... [2]

(ii) Write the value of $\frac{1}{180^3}$ in standard form.

..... [1]

12 (a)



NOT TO SCALE

A gate post is a cuboid with a square base pyramid on top.
The height of the cuboid is 85 cm and the height of the pyramid is 6 cm.

Calculate the total volume of the gate post.

..... cm^3 [3]

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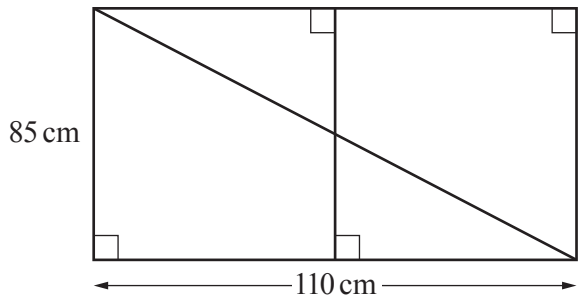
(b)



NOT TO SCALE

The diagram shows a gate made using six lengths of wood.

Work out the total length of wood used to make the gate.

.....cm [4]

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