Cambridge Assessment International Education

Cambridge IGCSE™

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1878641349

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **February/March 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.

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

Answer **all** the questions.

1 **(a)** 121 122 123 124 125 126 127

From this list, write down a number that is

(i) even

..... [1]

(ii) a square

..... [1]

(iii) a cube

..... [1]

(iv) a multiple of 7

..... [1]

(v) prime.

..... [1]

(b) **(i)** Find the value of $\sqrt[3]{3.628}$.

Give your answer correct to 3 decimal places.

..... [2]

(ii) Find the value of $\frac{36.2 \times 21.4}{0.23}$.

Give your answer correct to the nearest hundred.

..... [2]

2 The table shows the number of babies born to each of 25 hamsters.

Number of babies	2	3	4	5	6	7	8
Frequency	3	3	4	2	5	6	2

(a) Write down how many hamsters had 6 babies.

..... [1]

(b) Find

(i) the range

..... [1]

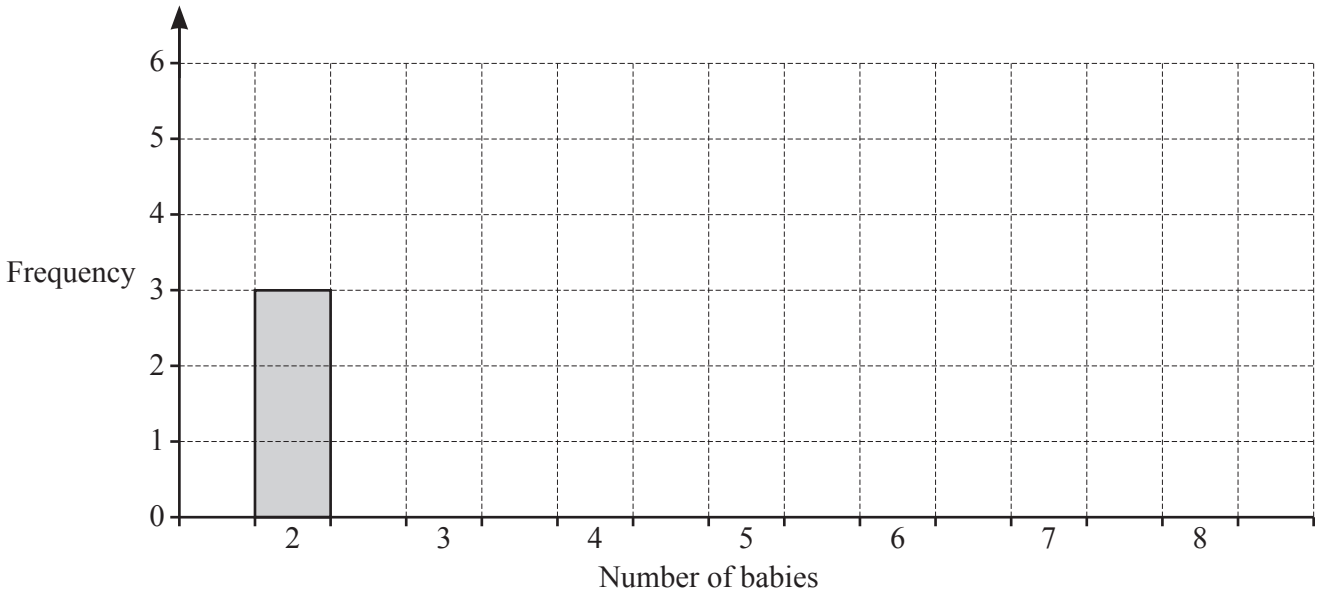
(ii) the median

..... [1]

(iii) the mean.

..... [2]

(c) Use the information to complete the bar chart.



[2]

3 In 2019 the Louvre museum had 9 609 900 visitors.

(a) Write 9 609 900 in words.

.....

..... [1]

(b) The Louvre museum is open 309 days of the year.

Work out the average number of visitors per day.

..... [1]

(c) 40% of all visitors are admitted free.

(i) Write down the percentage of visitors who have to pay.

.....% [1]

(ii) The admission price is 15 euros (€).

Work out how much money, on average, was paid to the Louvre museum each day for admissions.

€ ..... [3]

4 **(a)** Prija changes 600 pounds (£) to US dollars ($) at a bank.

(i) The bank charges 2% of the £600 to change the money.

Show that the bank charges £12.

[1]

(ii) The bank takes the £12 charge and then changes the rest of the money.
The exchange rate is £1 = $1.335 .

Work out how much money, in $, Prija receives.

$ ..... [2]

(b) From the money Prija receives, she spends $150 on food, $225 on entertainment and $130 on gifts.

Work out how much, in $, Prija has left.

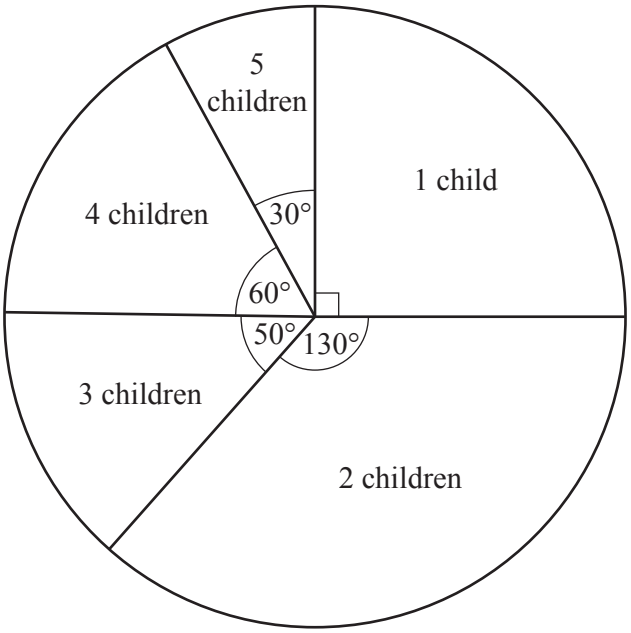
$ ..... [2]

(c) Prija changes the remaining dollars back to pounds at a rate of £1 = $1.347 .
The bank does not charge to make the change.

Work out how much money, in £, she receives.

£ ..... [1]

5 Sabhina asks 180 parents how many children they have.
The results are shown in the pie chart.



(a) Write down the mode.

..... children [1]

(b) Work out how many parents have

(i) 1 child

..... [1]

(ii) 4 children.

..... [2]

(c) One of these parents is picked at random.

Find the probability that they have 5 children.
Give your answer as a fraction in its simplest form.

..... [2]

6 **(a)** This is the start of a sequence.
The first term and the fifth term are missing.

..... 55 63 71 ..... 87 95

(i) Find the first term and the fifth term of this sequence.

First term = ...

Fifth term = ... [2]

(ii) Find the nth term of this sequence.

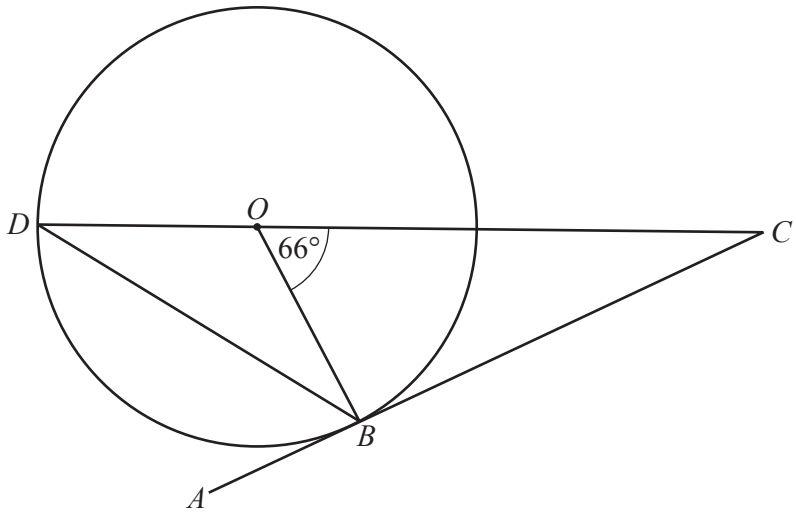
..... [2]

(b) Another sequence has nth term $2n^2 + 3n$.

Work out the first 3 terms of this sequence.

..... , ... , ... [2]

7



NOT TO SCALE

The diagram shows a circle, centre O.
AC is a tangent to the circle at B and angle $BOC = 66°$.
DOC is a straight line.

(a) Find

(i) angle OBC

Angle OBC = ... [1]

(ii) angle OCB

Angle OCB = ... [1]

(iii) angle ODB

Angle ODB = ... [2]

(iv) angle DBA.

Angle DBA = ... [1]

(b) The circle has radius 3.2 cm.

(i) Work out the area of the circle.

..... cm^2 [2]

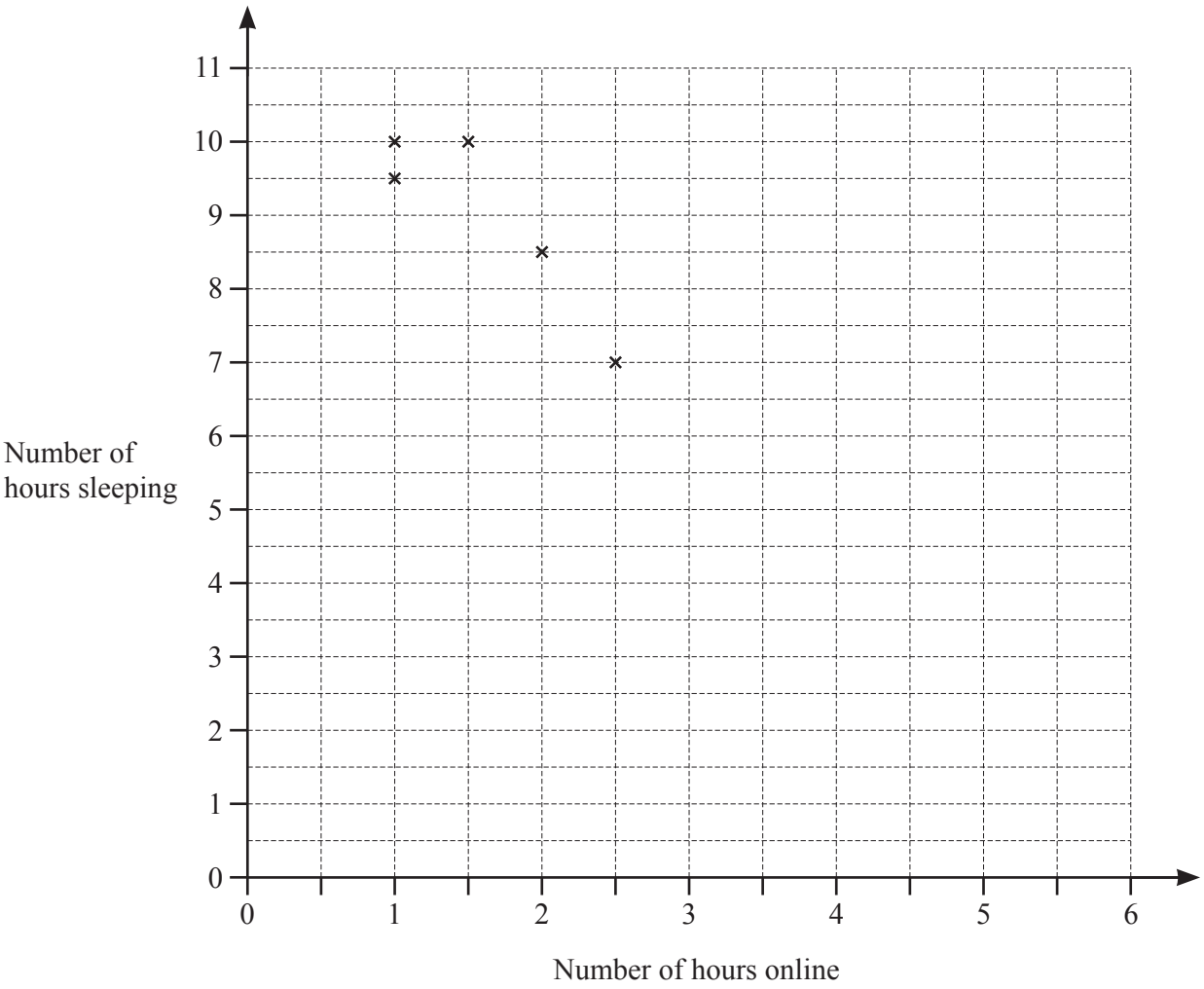
(ii) Work out the length of OC.

OC = ... cm [3]

8 On one day ten students record the number of hours they are online and the number of hours they sleep that night.

Number of hours online	1	1	1.5	2	2.5	2.5	3	3	3.5	5
Number of hours sleeping	10	9.5	10	8.5	7	9	6	7.5	7	5.5

(a) Complete the scatter diagram.
The first 5 points have been plotted for you.



[2]

(b) What type of correlation is shown in the scatter diagram?

..... [1]

(c) Find

(i) the mean number of hours online

..... h [1]

(ii) the mean number of hours sleeping.

..... h [1]

(d) On the diagram, draw a line of best fit.

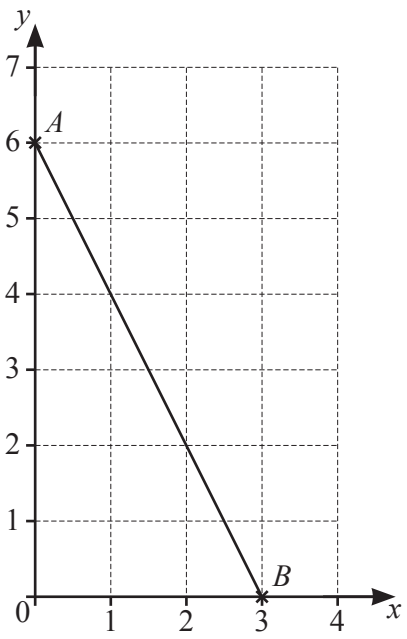
[2]

(e) Another student is online for 4 hours in the day.

Use your line of best fit to estimate the number of hours sleeping for this student.

..... h [1]

9



The diagram shows the line AB drawn on a 1 cm^2 grid.

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

A (..... , ...)

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

(b) Calculate the length of AB.

$AB =$ ..... cm [2]

(c) Find the coordinates of the mid-point of AB.

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

(d) Work out the gradient of AB.

..... [1]

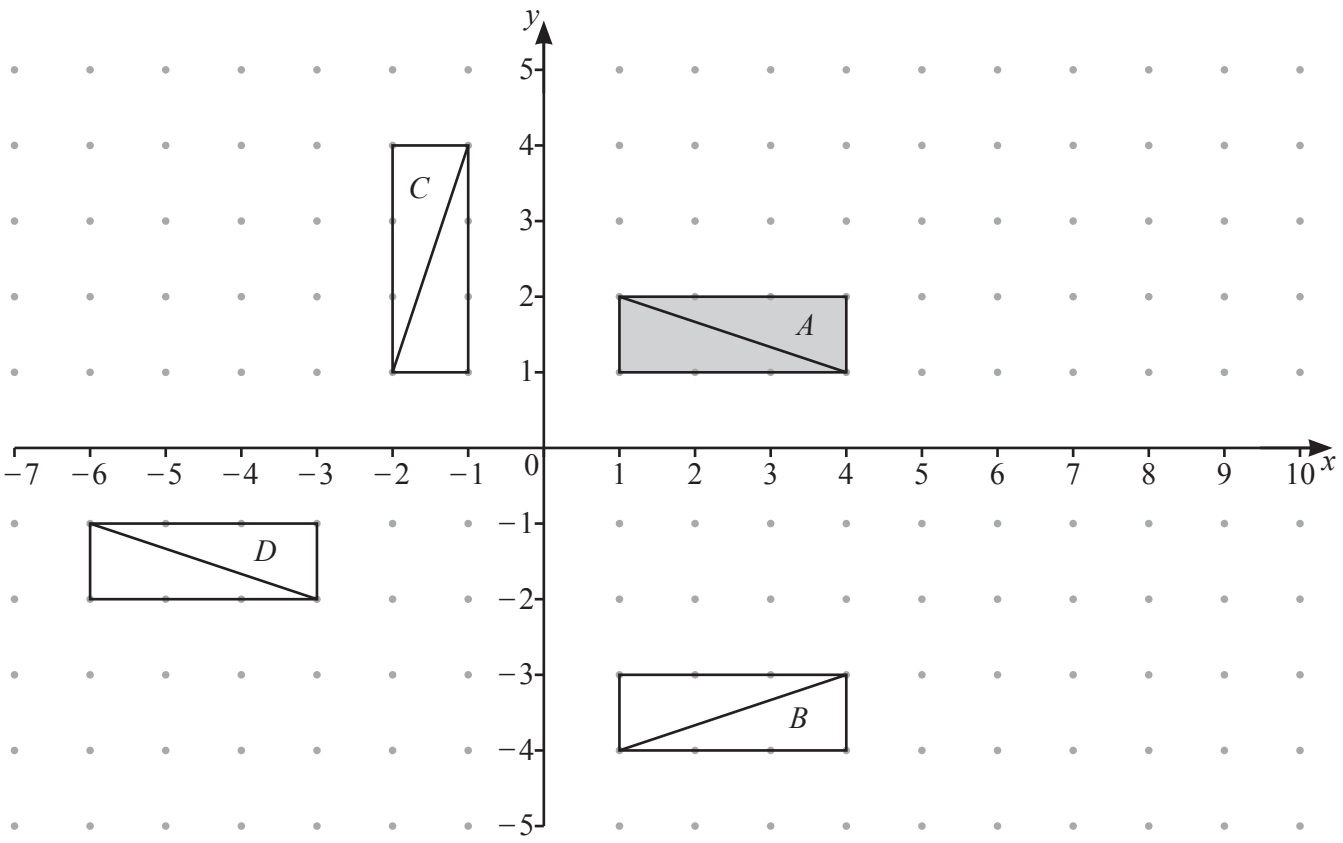
(e) Find the equation of the line AB.

..... [2]

(f) Does the point (1.37, 3.36) lie on the line AB?
Show how you decide.

[2]

10



(a) Shape B is a reflection of shape A in the line $y = m$.

Write down the value of m.

$m =$ ..... [1]

(b) Shape C is an anticlockwise rotation of shape A through $t°$ about the origin.

Write down the value of t.

$t =$ ..... [1]

(c) Shape D is a translation of shape A by the vector $\begin{pmatrix} x \\ y \end{pmatrix}$.

Write down the value of x and the value of y.

$x =$ .....

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

(d) Enlarge shape A with centre (0, 0) and scale factor 2.

[2]

11 **(a)** Solve.

$$x - 6 > -3$$

..... [1]

(b) Solve the simultaneous equations.

$$2x + 3y = 17$$
$$2x - y = 5$$

$x =$ .....

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

(c) Simplify.

$$2r - 5s - 3r + s$$

..... [2]

(d) Expand.

$$2x(3x^2 - 4y)$$

..... [2]

(e) Find each value of x.

(i) $\frac{3^9}{3^x} = 3$

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

(ii) $2^x \times 2^3 = 2^6$

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

(f) Write as a single fraction in its simplest form.

(i) $\frac{7x}{3} - \frac{x}{6}$

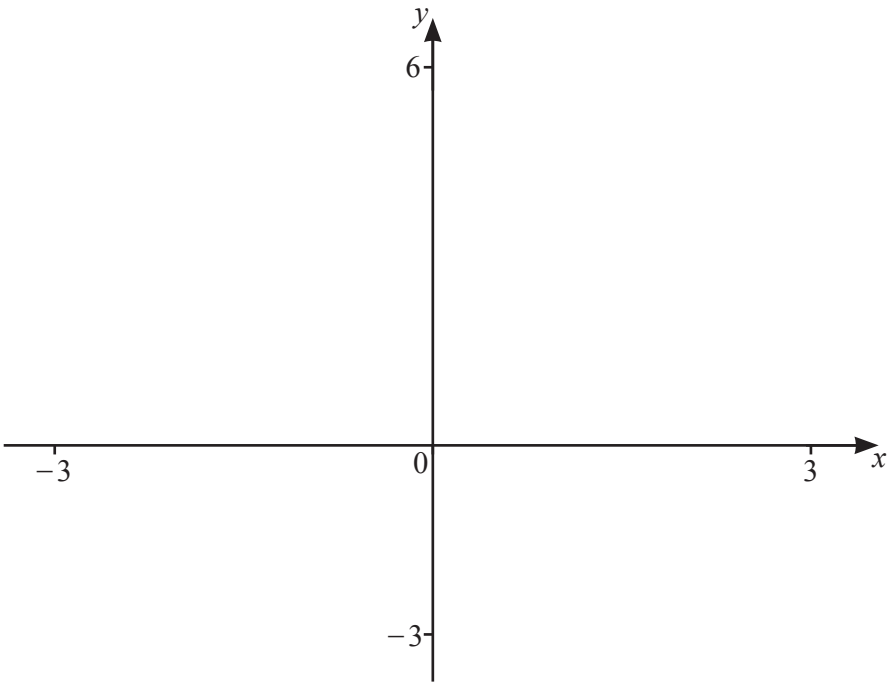
..... [2]

(ii) $\frac{5d}{9} \div \frac{d}{3}$

..... [3]

Question 12 is printed on the next page.

12



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

(b) Write down the equations of the two asymptotes.

.....

..... [2]

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

(d) Find the x-coordinates of the points of intersection of $y = \frac{3x+2}{x}$ and $y = x+3$.

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