Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/22**

Paper 2 (Extended) **May/June 2024**

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.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly and you will be given marks for correct methods even if your answer is incorrect.
- All answers should be given in their simplest form.

INFORMATION

- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **12** pages. Any blank pages are indicated.

Formula List

For the equation $ax^2 + bx + c = 0$ $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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. $A = \pi rl$

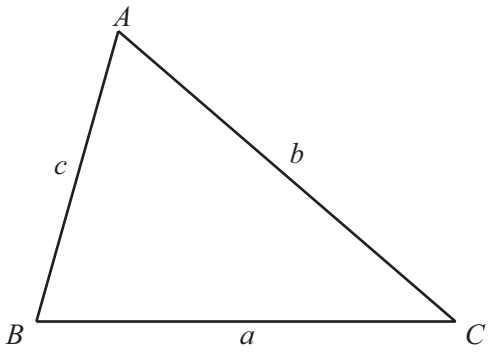
Curved surface area, A, of sphere of radius r. $A = 4\pi r^2$

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



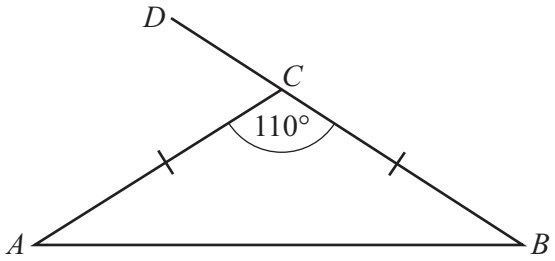
$\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$

$a^2 = b^2 + c^2 - 2bc\cos A$

Area $= \frac{1}{2}bc\sin A$

Answer **all** the questions.

1



NOT TO SCALE

In triangle ABC, $AC = BC$ and BCD is a straight line.

(a) Find angle ACD.

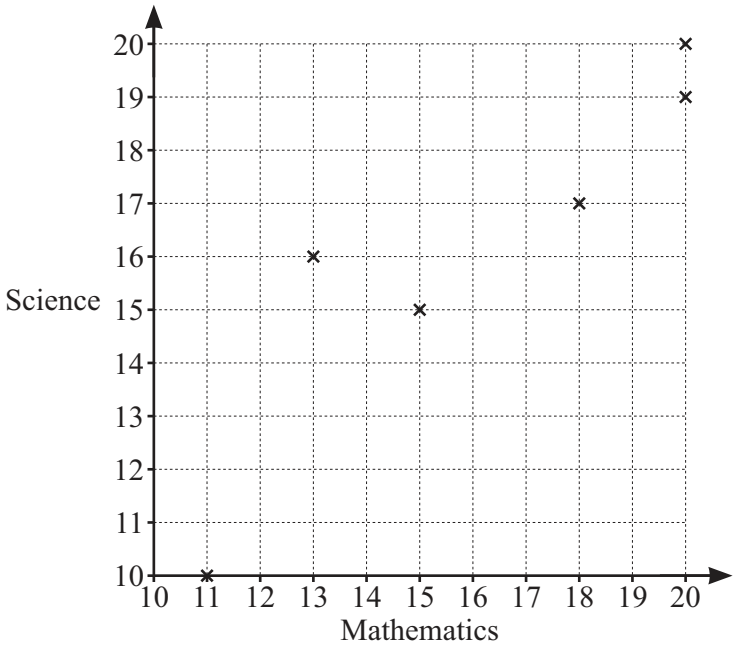
Angle ACD = ... [1]

(b) Find angle ABC.

Angle ABC = ... [1]

2 10 students each record their test scores in mathematics and in science.
The table shows the results.

Mathematics	20	18	13	20	11	15	18	14	19	19
Science	20	17	16	19	10	15	20	11	20	16



(a) Complete the scatter diagram.
The first six points have been plotted for you. [2]

(b) Write down the type of correlation shown in your scatter diagram.

..... [1]

3 Work out 0.4×0.001.

..... [1]

4 80 81 82 83 84 85 86 87 88 89

From the list of numbers, write down a prime number.

..... [1]

5 Petra repairs cars.
The cost of a repair is a fixed charge of $\$C$ plus a charge of $\$h$ per hour.

Find an expression, in terms of C, h and n, for the total cost, $\$T$, of a repair that takes Petra n hours.

$T =$ ..... [2]

6 Solve the inequality.

$$7 \leqslant 11x$$

..... [1]

7 **(a)** Simplify $\sqrt{98}$.

..... [1]

(b) Rationalise the denominator.

$$\frac{3}{\sqrt{5}-2}$$

..... [2]

8 Solve.

$$|x+11| = 7$$

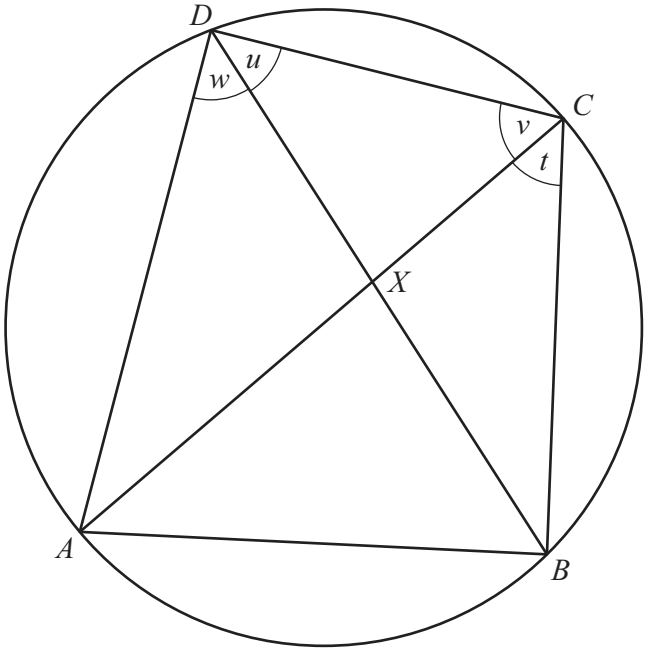
..... [2]

9 Factorise completely.

$$2x-6y-ax+3ay$$

..... [2]

10



NOT TO SCALE

ABCD is a cyclic quadrilateral and the diagonals *AC* and *BD* intersect at *X*.

(a) Complete the statement using two of *t*, *u*, *v* and *w*.

Angle ..... is equal to angle ..... [1]

(b) Angle $DAB = 75°$.

Find angle *DCB*.

Angle *DCB* = ... [1]

(c) $AB = 8$ cm, $AX = 6$ cm, $BX = 4$ cm and $DC = 5$ cm.

Work out *CX*.

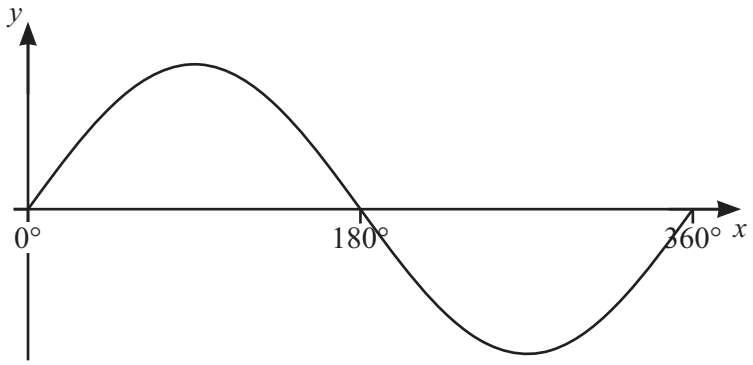
CX = ... cm [2]

11 $10 < ab < 100$

Simplify $(a \times 10^7) \times (b \times 10^8)$.
Give your answer in standard form.

..... [2]

12



The diagram shows the graph of $y = \sin x$ for $0° \leqslant x \leqslant 360°$.

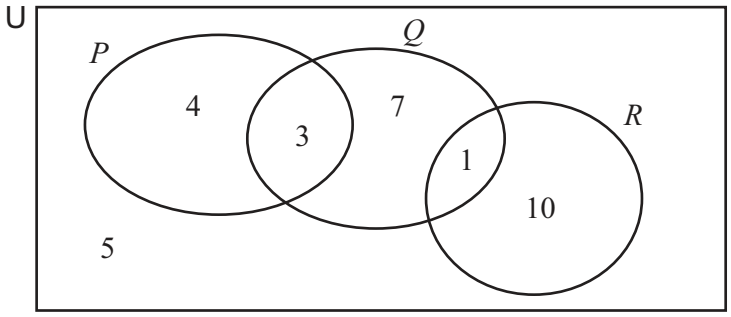
(a) On the diagram, sketch the graph of $y = \cos x$ for $0° \leqslant x \leqslant 360°$. [1]

(b) $\cos x = \sin(x + k)$.

Find a possible value of k.

$k =$ ..... [1]

13



The Venn diagram shows the number of elements in each subset.

(a) Use set notation to complete the statement.

$P \cap Q \cap R =$ ..... [1]

(b) Find $\mathrm{n}\big((Q \cup R) \cap P'\big)$.

..... [1]

(c) Shade the subset $(P \cap Q') \cup R$. [1]

14 Simplify $\left(25x^{16}\right)^{\frac{3}{2}}$.

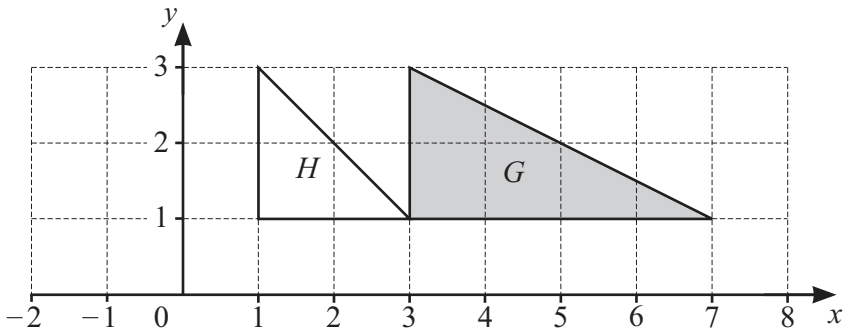
..... [2]

15 A triangle has sides of length 3 cm, 5 cm and 7 cm.

Work out the largest angle in the triangle.

..... [3]

16

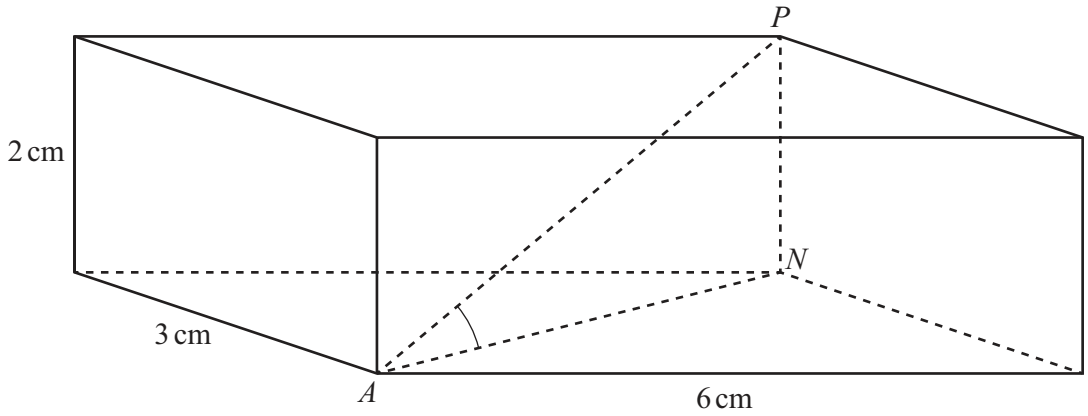


Describe fully the **single** transformation that maps shape *G* onto shape *H*.

.....

..... [3]

17



NOT TO SCALE

The diagram shows a cuboid measuring 6 cm by 3 cm by 2 cm.

Find the sine of the angle *PAN*, the angle between the diagonal *PA* and the base of the cuboid.

Sine of angle *PAN* = ... [4]

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