Cambridge Assessment International Education

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3083931588

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

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 **8** pages.

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Formula List

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

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

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

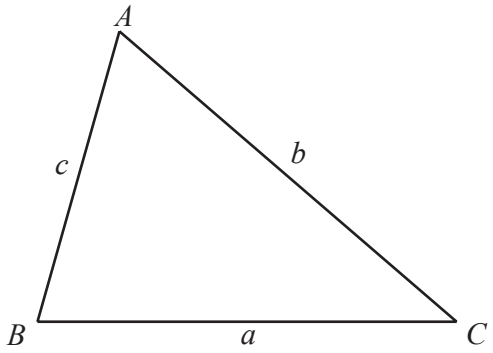
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

Volume, V, of pyramid, base area A, height h. $\quad V = \frac{1}{3}Ah$

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

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

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



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

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

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

Answer **all** the questions.

1 Work out $1.1 - 0.2^2$.

..... [2]

2 Work out $\frac{3}{4} - \frac{1}{6}$.

..... [2]

3 A quadrilateral has rotational symmetry of order 2 and no lines of symmetry.

Write down the mathematical name of this quadrilateral.

..... [1]

4 Simplify fully.

(a) $3a - 6b - 2a + b$

..... [2]

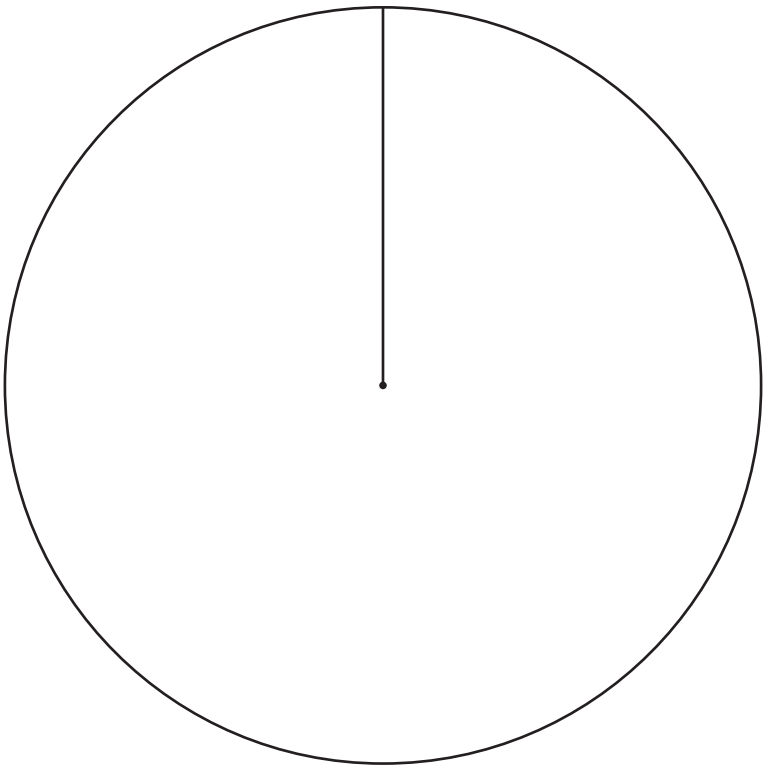
(b) $7(x - 3) - 2(2x - 1)$

..... [2]

5 One week a shop sells 120 jars of ketchup.
The table shows the number of jars of each size sold.

Size	Small	Medium	Large
Number sold	20	70	30

Show this information in a pie chart.



[3]

6 $p = 5 \times 10^{-8}$ $q = 6.8 \times 10^{-7}$

Find, giving your answers in standard form,

(a) pq

..... [2]

(b) $p + q$.

..... [2]

7 a, b and c are prime numbers.

$V = a^2b^4c^3$
$W = a^5b^3c$

Find the lowest common multiple (LCM) of V and W in terms of a, b and c.

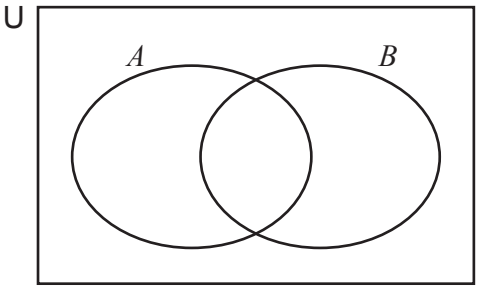
..... [2]

8 Jasmine drives a distance of a km at a speed of 50 km/h.
She then drives a distance of b km at a speed of 60 km/h.
She takes a total time of T hours for this journey.

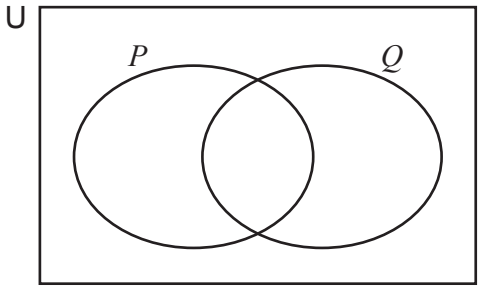
Find a formula for T in terms of a and b.

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

9 In each Venn diagram, shade the given set.



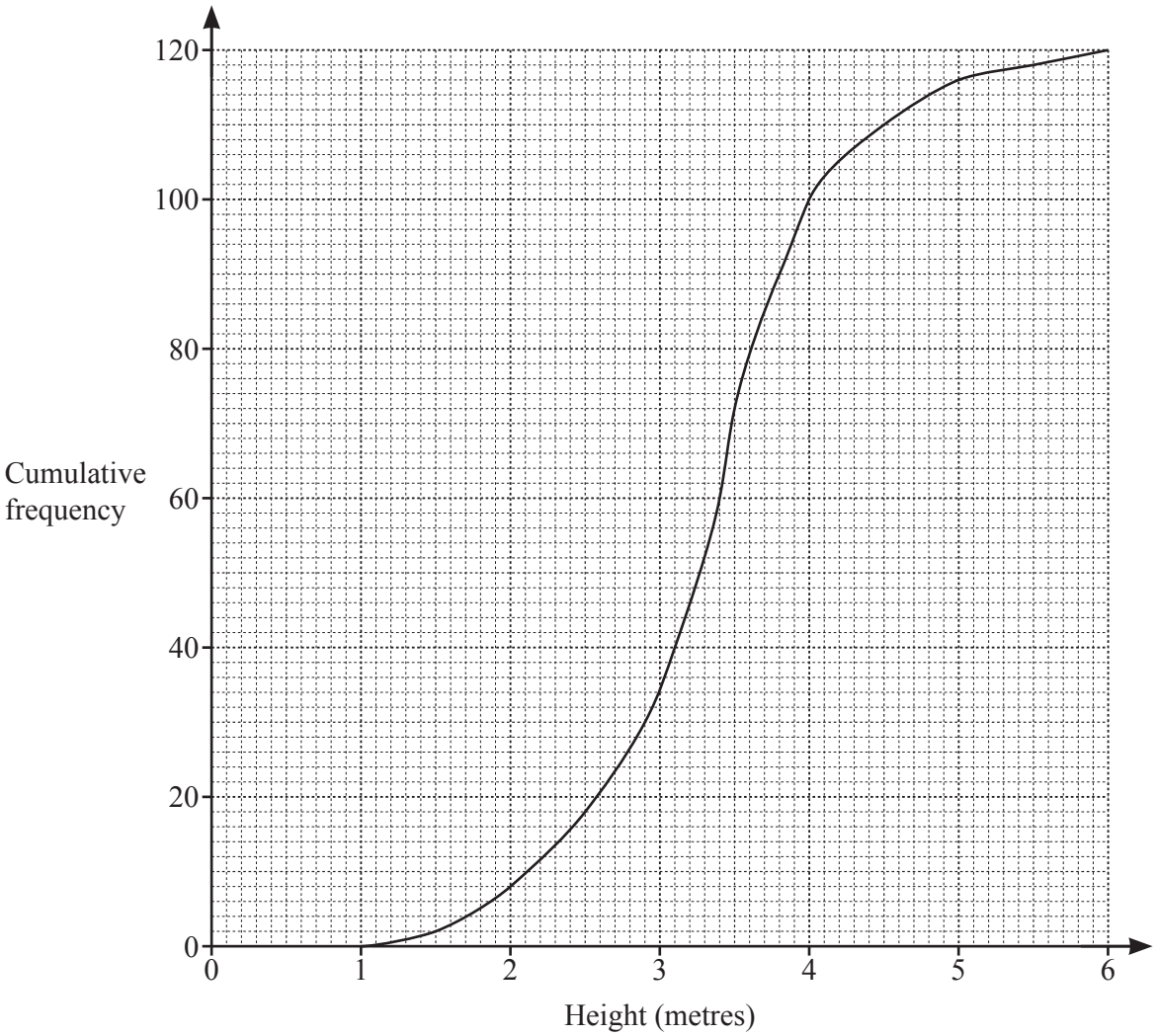
$A \cup B$



$(P \cap Q)'$

[2]

10 The cumulative frequency curve shows the heights of 120 young trees.



Find

(a) the median

..... m [1]

(b) the interquartile range.

..... m [2]

11 Factorise completely.

$$48x^2 - 75y^2$$

..... [3]

12 y is inversely proportional to the square root of x.
v is directly proportional to y^2.
When $x = 9$, $y = 2$ and $v = 12$.

Find v in terms of x.
Give your answer in its simplest form.

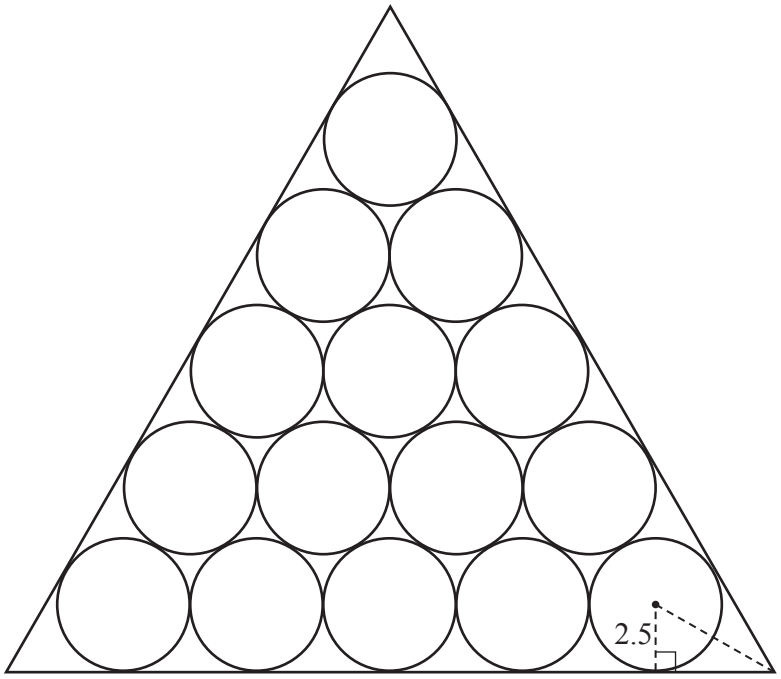
$v =$ ..... [4]

13 Find the value of $4\log 2 + 2\log 5 - \log 4$.

..... [3]

Question 14 is printed on the next page.

14



NOT TO SCALE

The diagram shows 15 circles in an equilateral triangle.
The circles touch each other and the triangle.
The radius of each circle is 2.5 cm.

The length of each side of the triangle is $\left(a+b\sqrt{3}\right)$ cm where a and b are integers.

Find the value of a and the value of b.

$a =$ .....

$b =$ ..... [5]

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