Cambridge Assessment International Education

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4623643430

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **October/November 2023**

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.

[Turn over

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. $\quad A = \pi rl$

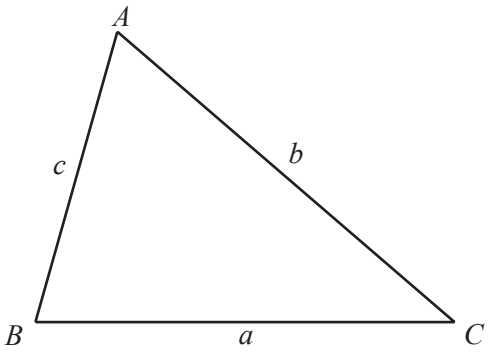
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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



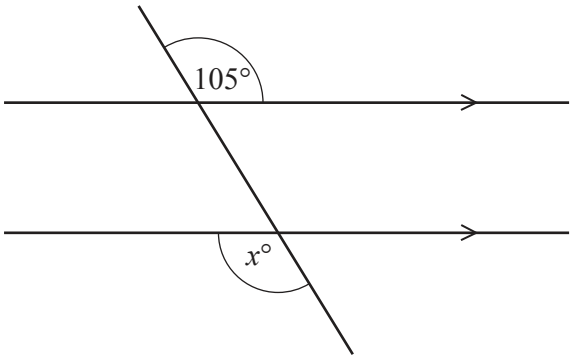
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

Answer **all** the questions.

1



NOT TO SCALE

The diagram shows a straight line crossing two parallel lines.

Find the value of x.

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

2 Priya rolls a die 10 times.
The table shows the results.

Score	1	2	3	4	5	6
Frequency	2	1	0	2	0	5

(a) Find the mode.

..... [1]

(b) Find the interquartile range.

..... [2]

3 A is the point (0, 7) and B is the point (−2, 1).
M is the mid-point of AB.

Find the coordinates of M.

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

4 **(a)** Write 1.8796 correct to 4 significant figures.

..... [1]

(b) Work out $\left(\sqrt{5}\right)^4$.

..... [1]

(c) x is an integer and $|x| \leqslant 1$.

Write down the values of x.

..... [1]

(d) Find the highest common factor (HCF) of 24 and 42.

..... [1]

5 A taxi fare, \$$F$, consists of a fixed charge of \$$x$ plus \$0.65 per kilometre travelled.

Find a formula for F for a journey of y kilometres.

..... [2]

6 Find the next term and the nth term of this sequence.

0 1 4 9 16 ....

next term = ...

nth term = ... [3]

7 $J = h^3 + k^3$

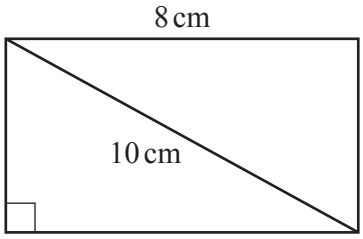
(a) Find the value of J when $h = 3$ and $k = 4$.

$J =$ ..... [2]

(b) Rearrange the formula to write h in terms of J and k.

$h =$ ..... [2]

8



NOT TO SCALE

The length of the diagonal of the rectangle is 10 cm.
The length of the rectangle is 8 cm.

Work out the width of the rectangle.

..... cm [3]

9

A	*A*	*B*	*C*	*C*	*C*	*D*

Ulrich has these cards.
He picks 2 cards at random without replacement.

Find the probability that both cards have the letter *A*.

..... [2]

10 $5^{w} \div 5^{13} = 25$

Find the value of w.

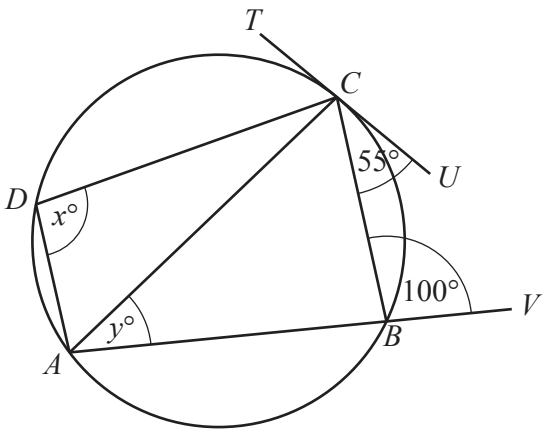
$w =$ ..... [1]

11 The volume of a cone is $18\pi\,\text{cm}^3$.
The height of the cone is the same as the diameter of its base.

Find the radius of the base.

..... cm [3]

12



NOT TO SCALE

ABCD is a cyclic quadrilateral.
ABV is a straight line and *TU* is a tangent to the circle at *C*.

Find the value of x and the value of y.

$x =$ .....

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

13 y varies inversely as the square root of $(x+1)$.
When $x = 8$, $y = 5$.

Find y in terms of x.

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

14 The line L is perpendicular to the line $2y = 5 - x$ and passes through the point (2, 3).

Find the equation of line L.
Give your answer in the form $y = mx + c$.

$y =$ ..... [4]

Questions 15 and 16 are printed on the next page.

15 Rationalise the denominator.

$$\frac{\sqrt{5}}{\sqrt{5}-1}$$

..... [2]

16 $\log 20 + \log x = 2$

Find the value of x.

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