Cambridge Assessment International Education

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6179368984

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

Paper 2 (Extended) **May/June 2021**

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. $\quad A = \pi rl$

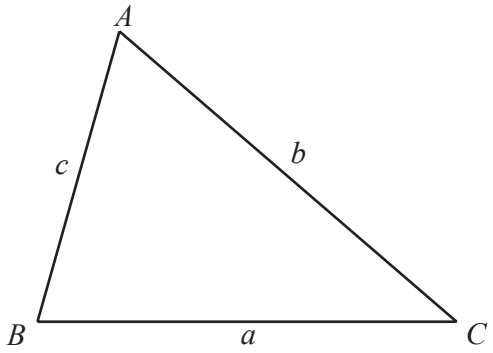
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 Write 84% as a fraction in its lowest terms.

..... [1]

2 Work out $(1-0.8)^2$.

..... [1]

3 Find the value of $x^2 - x$ when $x = -3$.

..... [1]

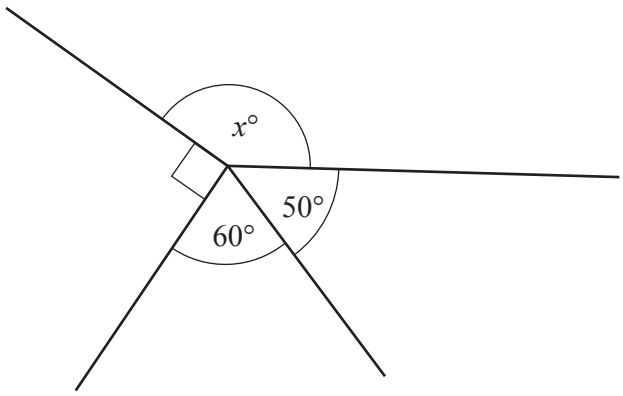
4 A quadrilateral has all sides equal and exactly two lines of symmetry.

Write down the mathematical name of this quadrilateral.

..... [1]

5

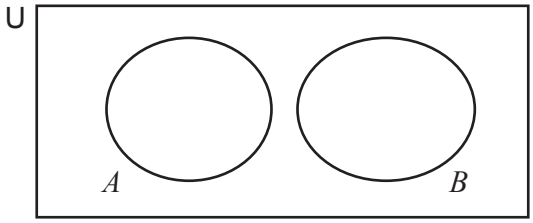
NOT TO SCALE



Find the value of x.

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

6 On the Venn diagram, shade $A \cup B$.



[1]

7 Find the size of one interior angle of a regular polygon with 20 sides.

..... [3]

8 Find the value of $|-4|+4$.

..... [1]

9 A van has length 9 m.
It takes 1 second for the van to completely pass a gate of length 1 m.

Find the speed of the van.
Give your answer in km/h.

..... km/h [2]

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10 The faces of a die are numbered 1, 1, 2, 3, 3 and 4.
When it is rolled it is equally likely to show any face.
The die is rolled twice.

Find the probability that it shows an odd number both times.

..... [2]

11 Here are the first five terms of a sequence.

$\frac{1}{4}$ 1 4 16 64

(a) Find the next term.

..... [1]

(b) Find the nth term.

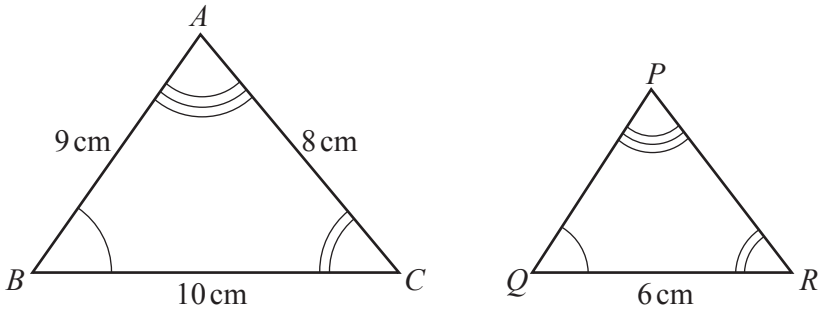
..... [2]

12 Factorise.

$1 + a - c - ac$

..... [2]

13



NOT TO SCALE

The diagram shows two similar triangles, ABC and PQR.

(a) Find the length of PR.

$PR =$ ..... cm [2]

(b) The triangles are the cross-sections of mathematically similar prisms.
The volume of the larger prism is $500\,\text{cm}^3$.

Find the volume of the smaller prism.

..... cm^3 [2]

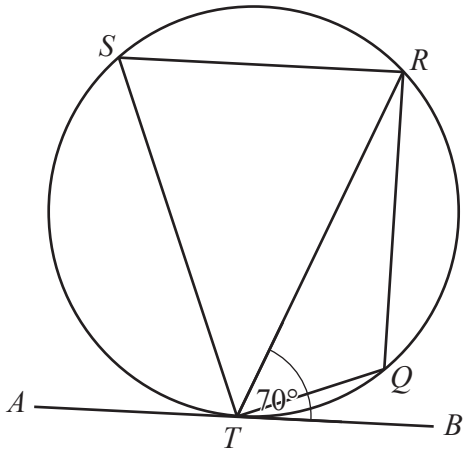
14 $A = P(1+x)^3$

Rearrange the formula to write x in terms of A and P.

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

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15



NOT TO SCALE

Points Q, R, S and T lie on the circle.
AB is a tangent to the circle at T.
Angle $RTB = 70^\circ$.

Find angle RQT.

Angle $RQT =$ ..... [2]

16 p varies inversely as the square root of q.
When $q = 9$, $p = 12$.

Find p when $q = 16$.

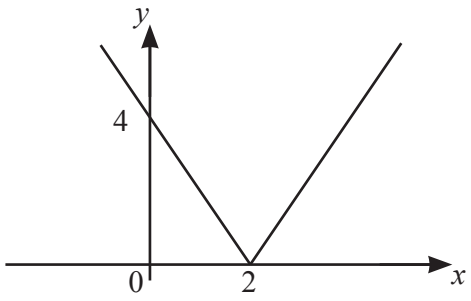
$p =$ ..... [3]

17 Simplify by rationalising the denominator. $\dfrac{3}{2\sqrt{2}-1}$

..... [2]

Questions 18, 19 and 20 are printed on the next page.

18



NOT TO SCALE

The diagram shows the graph of $y = |ax + b|$, where $a > 0$.

Find the value of a and the value of b.

$a =$ .....

$b =$ ..... [2]

19 Write as a single fraction in its simplest form.

$$\frac{3}{x-2} - 2$$

..... [2]

20 $2\log p = 3\log x - \log y$

Find p in terms of x and y.

$p =$ ..... [3]

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