



# Cambridge IGCSE™

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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/23**

Paper 2 (Extended)

**May/June 2020**

**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. Blank pages are indicated.

## Formula List

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

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  $l$ .  $A = \pi rl$

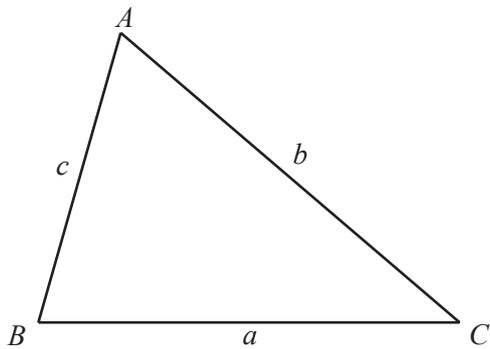
Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

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



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

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

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

Answer **all** the questions.

- 1 (a) Write 0.047 996 correct to 4 decimal places.

..... [1]

- (b) Write 60 449 correct to 3 significant figures.

..... [1]

- 2 Work out  $4\frac{1}{4} - 1\frac{5}{6}$ .

Give your answer as a mixed number in its simplest form.

..... [3]

- 3 Simplify.

$$\frac{a^2 \times a^5}{a^3}$$

..... [2]

- 4 (a) Write down the mathematical name of the quadrilateral that has rotational symmetry of order 2 but no lines of symmetry.

..... [1]

- (b) Write down the mathematical name of the quadrilateral that has exactly one line of symmetry.

..... [1]

5 Solve.

$$9 - 2x \leq 5(x + 6)$$

..... [3]

6 A biased four-sided spinner is spun 150 times.

The number of times that the spinner lands on each number is shown in the table.

Number on spinner	1	2	3	4
Frequency	34	63	27	26

(a) Write down the relative frequency of the spinner landing on 2.

..... [1]

(b) Explain why it is reasonable to use your answer to **part (a)** as the probability of this spinner landing on 2.

..... [1]

(c) The spinner is spun 3000 times.

Find the expected number of times that the spinner lands on 2.

..... [2]

7 Divide 96 cm in the ratio 5 : 3.

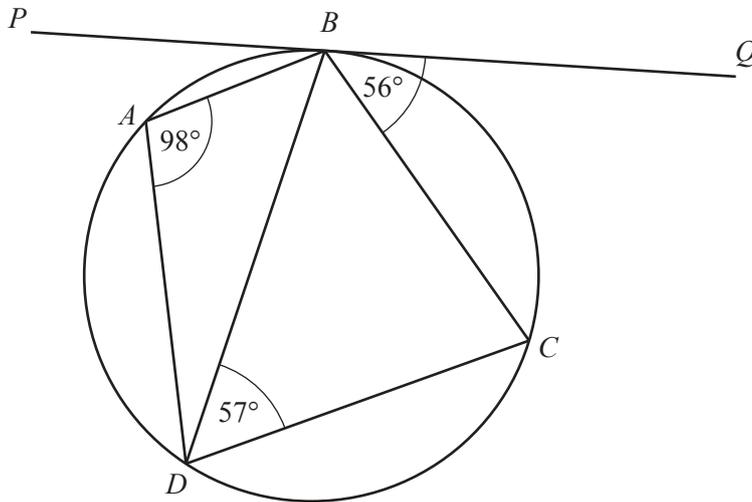
..... cm , ..... cm [2]

8  $A$  is the point  $(-2, 4)$  and  $B$  is the point  $(7, 1)$ .

Find the length of  $AB$  giving your answer in its simplest surd form.

..... [4]

9



NOT TO SCALE

$A, B, C$  and  $D$  are points on the circle.  
 $PBQ$  is a straight line.

(a) Find angle  $DCB$ , giving a reason for your answer.

Angle  $DCB =$  ..... because .....  
 ..... [2]

(b) Is  $PBQ$  a tangent to the circle?  
 Give a reason for your answer.

..... because .....  
 ..... [1]

10 Solve the simultaneous equations.

$$\begin{aligned} 2x + 3y &= 5 \\ y &= 3x + 9 \end{aligned}$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [3]$$

11 The table shows some trigonometric ratios, each correct to 3 decimal places.

	Sine	Cosine	Tangent
$40^\circ$	0.643	0.766	0.839
$70^\circ$	0.940	0.342	2.747

Use this information to find

(a)  $\sin 110^\circ$ ,

..... [1]

(b)  $\tan 320^\circ$ .

..... [1]

12 Factorise completely.

(a)  $4x^2y - 6xy^2$

..... [2]

(b)  $9x^2 - 1$

..... [1]

13 Solve.

(a)  $\log_x 9 = 2$

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

(b)  $2 \log x - \log 4 = \log 9$

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

14  $y$  varies inversely as the square root of  $x$ .

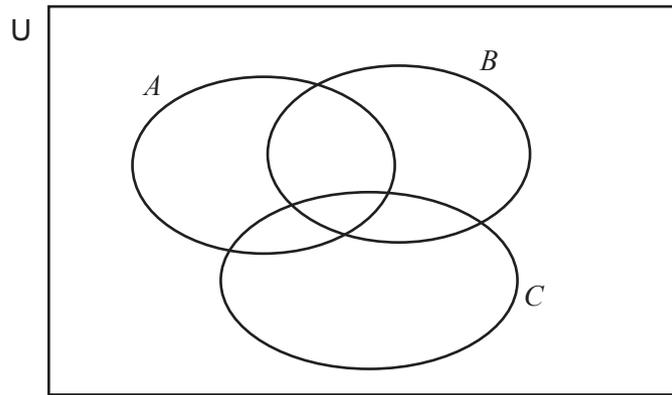
When  $x = 25$ ,  $y = 6$ .

Find  $y$  in terms of  $x$ .

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

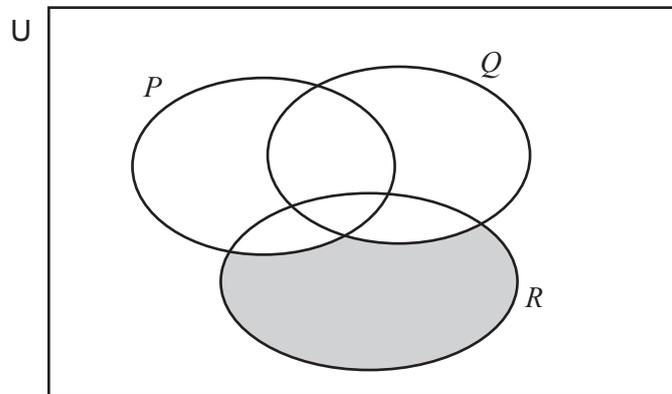
**Question 15 is printed on the next page.**

- 15 (a) On the Venn Diagram, shade the set  $A \cap B \cap C'$ .



[1]

- (b) Use set notation to describe the shaded region.



..... [1]

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