Cambridge Assessment International Education

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2152689991

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.

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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. $\quad A = \pi rl$

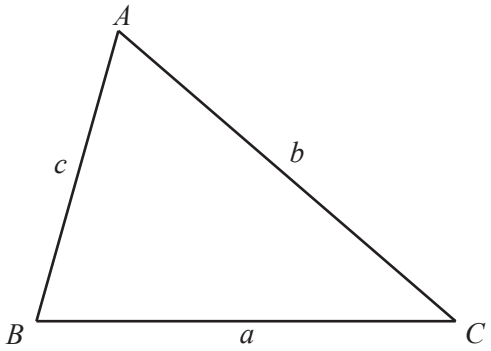
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 **(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]

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5 Solve.

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

..... [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]

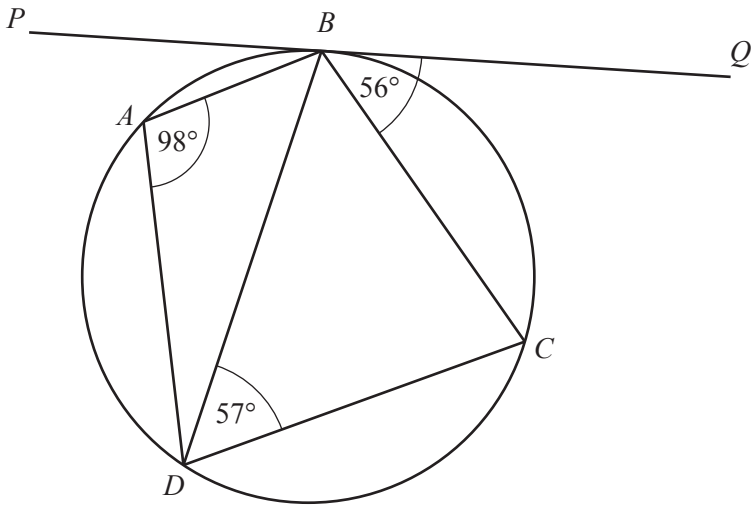
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8 A is the point $(-2, 4)$ and B is the point $(7, 1)$.

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.

$$2x + 3y = 5$$
$$y = 3x + 9$$

$x =$ .....

$y =$ ..... [3]

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

	Sine	Cosine	Tangent
40°	0.643	0.766	0.839
70°	0.940	0.342	2.747

Use this information to find

(a) sin110°,

..... [1]

(b) tan320°.

..... [1]

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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]

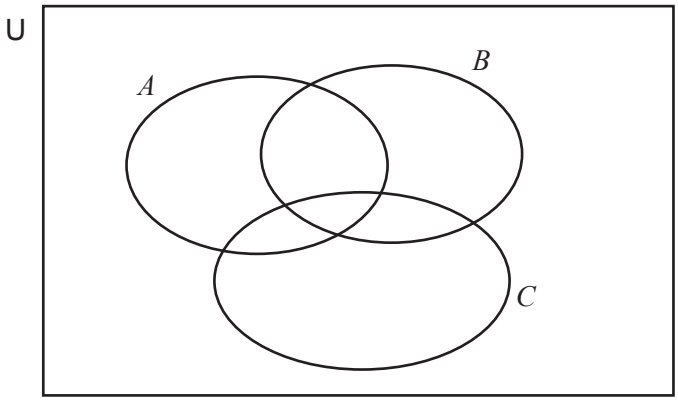
14 y varies inversely as the square root of x.
When $x = 25$, $y = 6$.

Find y in terms of x.

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

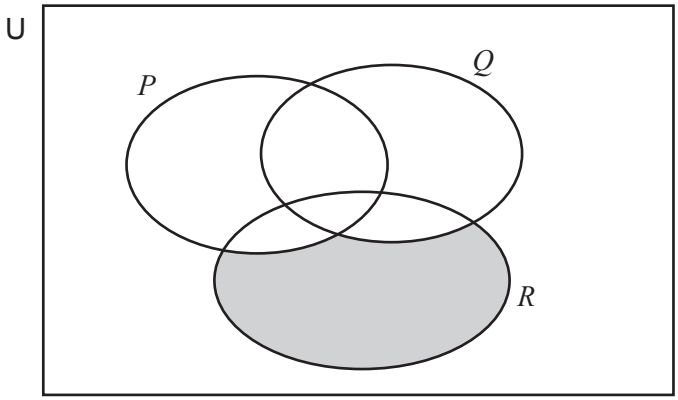
Question 15 is printed on the next page.

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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