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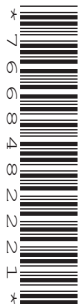
CANDIDATE
NAME

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CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/22

Paper 2 (Extended)

February/March 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.

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 . $A = \pi rl$

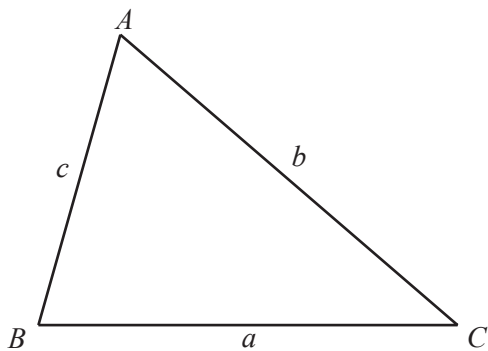
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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



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

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

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

- 5 A bag contains 7 black balls, 2 red balls and 4 yellow balls.
One ball is chosen at random from the bag.

Find the probability that the ball chosen is yellow.

..... [1]

- 6 Solve.

$$5x - 10 = 3x - 6$$

$x =$ [2]

- 7 Solve.

$$4x - 3 \geq 9$$

..... [2]

- 8 $p = 2 \times 10^3$ $q = 8 \times 10^{-5}$

Work out the following, giving each answer in standard form.

- (a) pq

..... [2]

- (b) $\frac{p}{q}$

..... [2]

- 9 The size of one exterior angle of a regular polygon is 24° .

Find the number of sides of this polygon.

..... [2]

- 10 The point A has coordinates $(2, 9)$ and the point B has coordinates $(5, 3)$.

Find the length of AB .

Give your answer in surd form.

..... [3]

- 11 Solve the simultaneous equations.

$$5x - 2y = 12$$

$$3x + 4y = 2$$

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

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

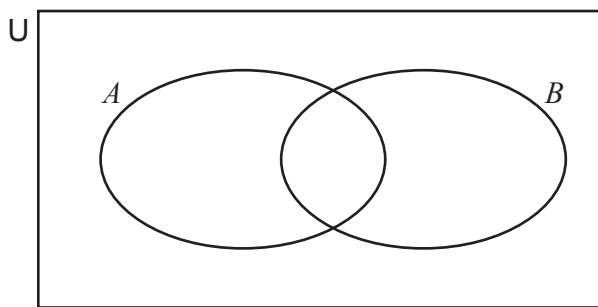
12 Expand the brackets and simplify.

$$(4x - 3y)(4x + 3y)$$

..... [2]

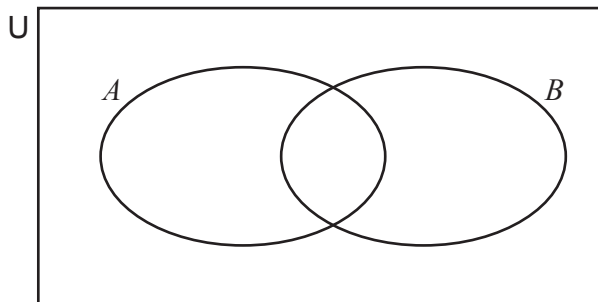
13 Shade the given sets in each of these Venn diagrams.

(a) $A' \cup B'$



[1]

(b) $(A \cap B)'$



[1]

14 Make x the subject of $A = \frac{3(x+y)}{x}$.

$$x = \dots\dots\dots [3]$$

15 Factorise.
 $5x^2 - xy - 4y^2$

$$\dots\dots\dots [2]$$

16 The volume of a hemisphere with radius r cm is $\frac{16}{3}\pi \text{ cm}^3$.

Find the value of r .

$$r = \dots\dots\dots \text{ cm} [3]$$

Question 17 is printed on the next page.

- 17 An unbiased die is numbered 2, 3, 3, 4, 5, 6.
Wendy rolls the die three times.

Find the probability that Wendy rolls a prime number at least twice.

..... [4]

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