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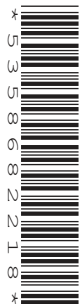
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CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/22

Paper 2 (Extended)

May/June 2022

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 . $A = \pi rl$

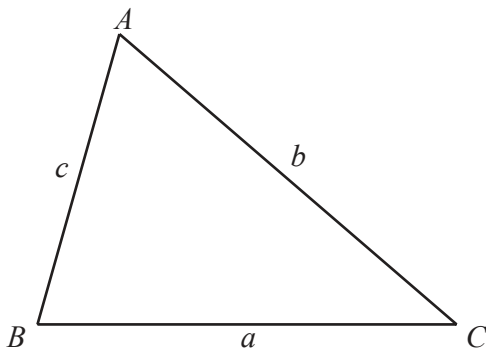
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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



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

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

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

Answer **all** the questions.

1 Work out.

$$(0.03)^2$$

..... [1]

2 (a) Write the fraction $\frac{15}{40}$ in its lowest terms.

..... [1]

(b) Work out.

$$\frac{2}{3} + \frac{2}{9}$$

..... [2]

3 Solve the equation.

$$x - 11 = -4$$

$x =$ [1]

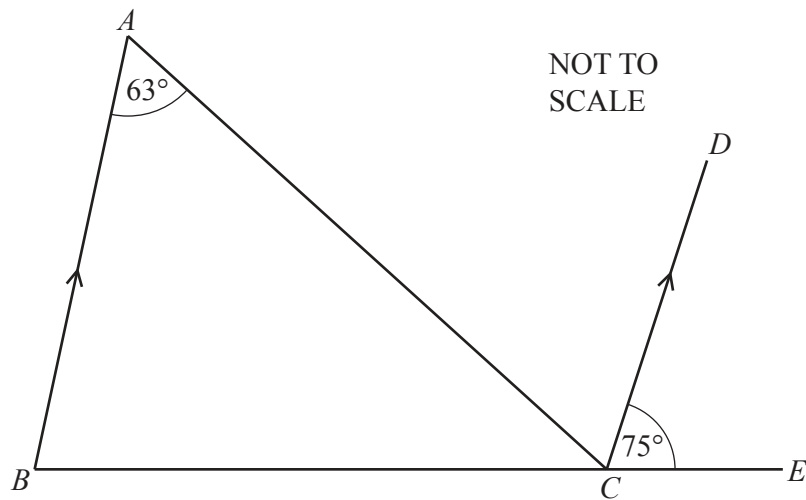
4 Change 600 cm^3 into m^3 .

..... m^3 [1]

5 Work out $64^{\frac{1}{3}}$.

..... [1]

6



AB is parallel to CD .

Find angle ACD .

Angle $ACD = \dots\dots\dots$ [1]

- 7 Kendra jogs 7 km in 45 minutes.
She then runs at 12 km/h for 30 minutes.

Find her average speed in km/h for the whole journey.

$\dots\dots\dots$ km/h [3]

- 8 The mean of eight numbers is 25.
When two extra numbers are included the mean of the ten numbers is 24.

Find the mean of the two extra numbers.

$\dots\dots\dots$ [2]

9 Solve the simultaneous equations.

$$5x + 2y = -12$$

$$3x - y = -5$$

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

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

10 A is the point $(-1, 13)$ and B is the point $(3, 1)$.

Find the equation of the line AB , giving your answer in the form $y = mx + c$.

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

11 Solve.

$$6x^2 - 5x - 6 = 0$$

$$x = \dots\dots\dots \text{ or } x = \dots\dots\dots [3]$$

- 12 The lengths of the sides of a triangle are 3 cm, 4 cm and 5 cm.

Find the sine of the smallest angle.

..... [1]

- 13 John goes to a shop that sells newspapers and magazines only.

(a) Complete the table of probabilities of John buying something at the shop.

	Buys a newspaper	Does not buy a newspaper	Total
Buys a magazine			0.40
Does not buy a magazine	0.25		
Total	0.55		1.00

[2]

(b) Find the probability that John buys a magazine but not a newspaper.

..... [1]

14 $f(x) = |2x + 3|$

Find the values of x when $f(x) = 15$.

..... [2]

- 15 A bag has 5 black counters, 4 white counters and 1 red counter. One counter is chosen at random and is replaced. A second counter is then chosen at random.

Find the probability that the two counters chosen are different colours.

..... [4]

- 16 Solve.

$$\log x = 1 + \log 9 - \log 8 + 2 \log \frac{2}{3}$$

$x =$ [3]

Question 17 is printed on the next page.

17 (a) Expand the brackets and simplify.

$$(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$$

..... [2]

(b) Rationalise the denominator.

$$\frac{1}{\sqrt{7} + \sqrt{6}}$$

..... [1]

(c) Work out the value of

$$\frac{1}{\sqrt{9} + \sqrt{8}} + \frac{1}{\sqrt{8} + \sqrt{7}} + \frac{1}{\sqrt{7} + \sqrt{6}} + \frac{1}{\sqrt{6} + \sqrt{5}} + \frac{1}{\sqrt{5} + \sqrt{4}}$$

..... [2]

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