Cambridge Assessment International Education

Cambridge IGCSE™

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220049282 3

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/22**

Paper 2 (Extended) **October/November 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.

[Turn over

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. $\quad A = \pi rl$

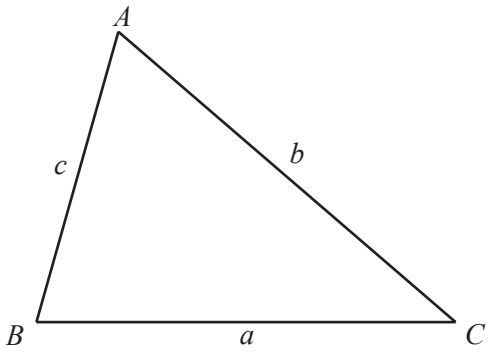
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 Work out $-45 \div -15$.

..... [1]

2 Write 4049 correct to 2 significant figures.

..... [1]

3 Solve $7x - 5 = 37$.

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

4 Find 2% of \$400.

\$ ..... [1]

5 This is a list of test grades.

7 7 5 3 4 3 3 7 1 7 2 7

(a) Find the mode.

..... [1]

(b) Find the range.

..... [1]

6 **(a)** Work out $\frac{3}{4} - \frac{1}{5}$.

..... [2]

(b) Work out $2\frac{3}{4} \times 2\frac{2}{3}$.

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

..... [3]

7 Write down an irrational number between 3 and 4.

..... [1]

8 Work out the highest common factor (HCF) of 60 and 42.

..... [1]

9 Expand $3p^2(4 - 3p)$.

..... [2]

10 **(a)** P is the point $(-5, 3)$ and Q is the point $(2, -1)$.

Find the coordinates of the mid-point of PQ.

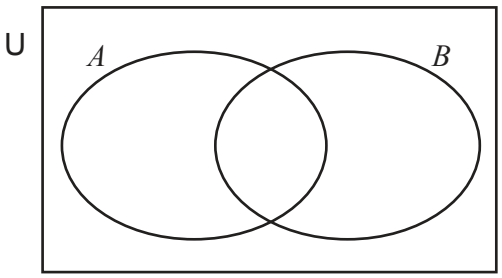
(..... , ...) [2]

(b) Line L is perpendicular to the line $y = 3x - 2$.
The point $(6, 1)$ is on line L.

Find the equation of line L.
Give your answer in the form $y = mx + c$.

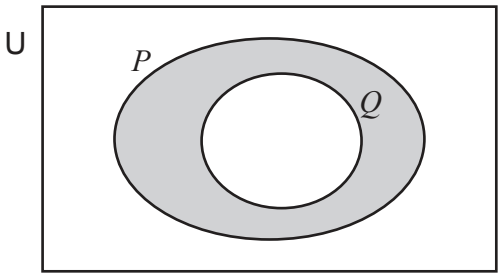
$y =$ ..... [3]

11 **(a)** On the Venn diagram, shade $(A \cup B)'$.



[1]

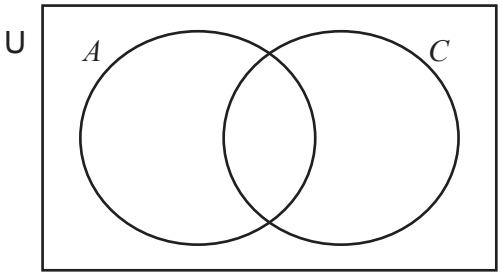
(b) Use set notation to describe the shaded region.



..... [1]

(c) There are 35 students in a class.
The students are asked if they like athletics (A) or cricket (C).
$\text{n}(A) = 15$
$\text{n}(C) = 14$
$\text{n}(A \cap C) = 5$

Complete the Venn diagram below by writing the number of elements in each subset.



[2]

12 Solve $x^2 - 2x - 6 = 0$.

Give your answer in the form $a \pm \sqrt{b}$ where a and b are integers.

..... [3]

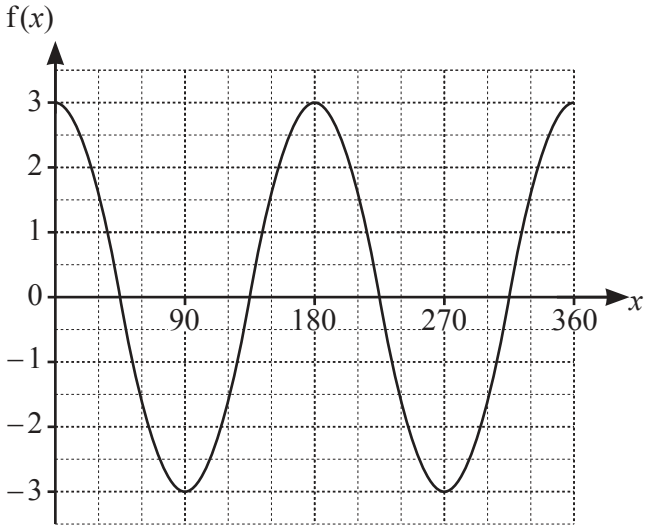
13 Find the magnitude of the vector $\begin{pmatrix} -6 \\ 8 \end{pmatrix}$.

..... [2]

14 Solve $\frac{x+1}{x-1} - \frac{1}{3} = 0$.

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

15



The graph shows $f(x) = a\cos(bx)°$.

(a) Find the value of a and the value of b.

$a =$ .....

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

(b) Write down the period of $f(x)$.

..... [1]

Question 16 is printed on the next page.

16 **(a)** $\log_a 64 = 2$

Write down the value of a.

..... [1]

(b) Simplify $\log 3 + 3\log 2 - \log 12$.

..... [3]