



# Cambridge IGCSE™

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**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.

## 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  $l$ .  $A = \pi rl$

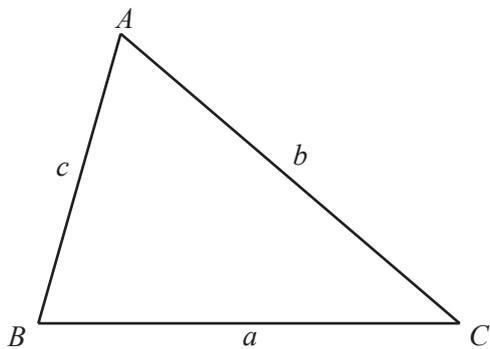
Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

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  $-45 \div -15$ .

..... [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]

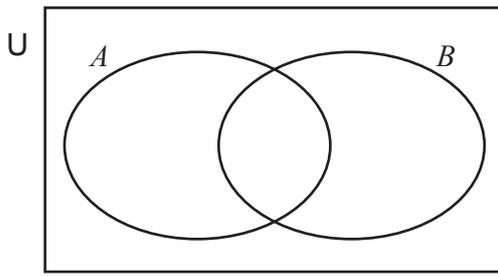
- (b) Line  $L$  is perpendicular to the line  $y = 3x - 2$ .  
The point  $(6, 1)$  is on line  $L$ .

Find the equation of line  $L$ .

Give your answer in the form  $y = mx + c$ .

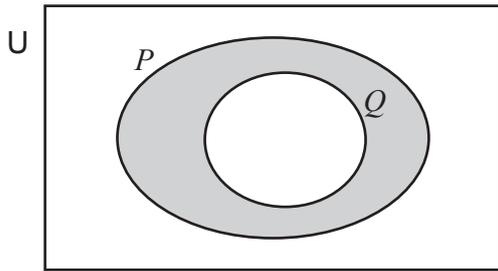
$y = \dots\dots\dots$  [3]

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



[1]

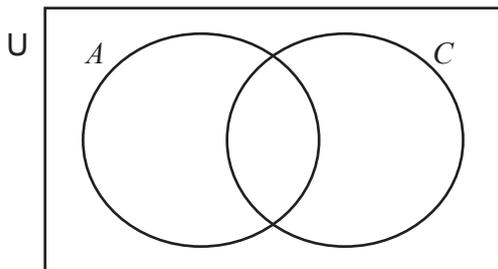
- (b) Use set notation to describe the shaded region.



..... [1]

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

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]

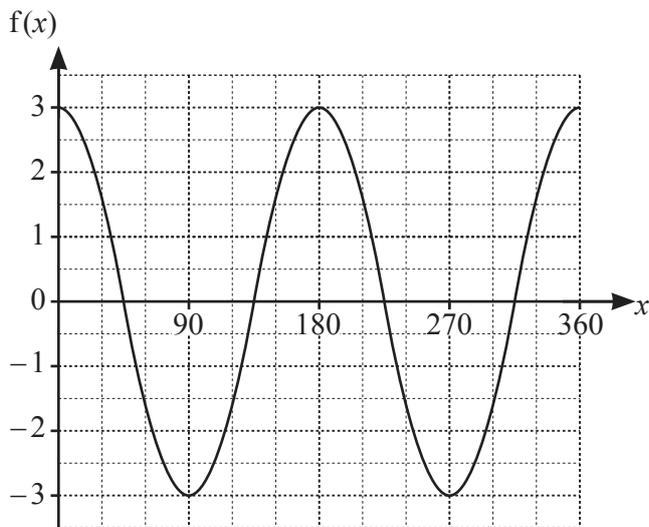
- 13 Find the magnitude of the vector  $\begin{pmatrix} -6 \\ 8 \end{pmatrix}$ .

..... [2]

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

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

15



The graph shows  $f(x) = a \cos(bx)^\circ$ .

- (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]

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