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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 . $A = \pi rl$

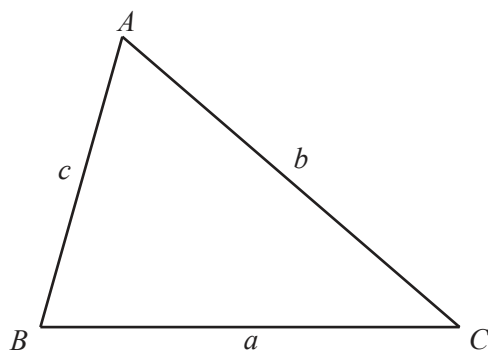
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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



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

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

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

3Answer **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]

4

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]

5

- 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]

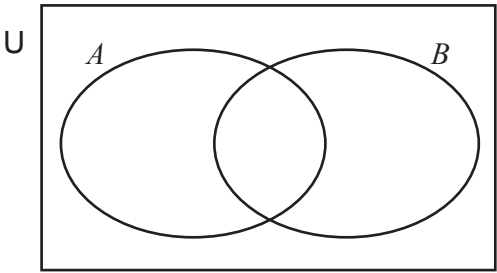
- (b)** Line L is perpendicular to the line $y = 3x - 2$.
The point $(6, 1)$ is on line L .

Find the equation of line L .

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

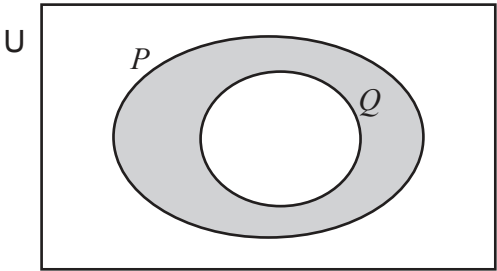
$y =$ [3]

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



[1]

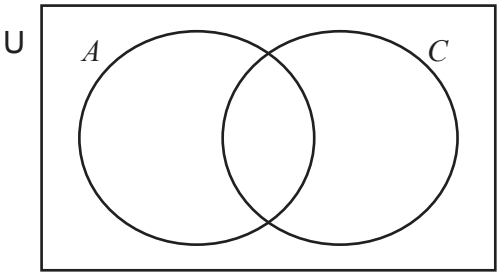
(b) Use set notation to describe the shaded region.



..... [1]

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

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]

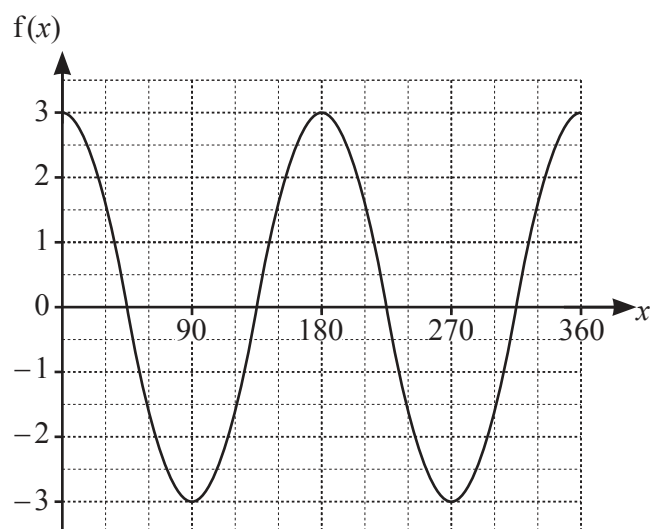
- 13 Find the magnitude of the vector $\begin{pmatrix} -6 \\ 8 \end{pmatrix}$.

..... [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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