



# Cambridge IGCSE™

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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/22**

Paper 2 (Extended)

**May/June 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 **12** pages. Any blank pages are indicated.

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

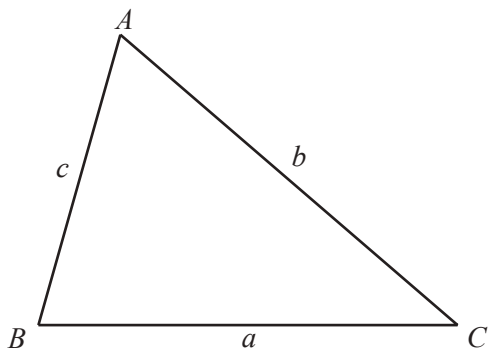
Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

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 Write down

(a) a square number between 101 and 150

..... [1]

(b) a fraction between  $\frac{2}{3}$  and  $\frac{3}{4}$

..... [1]

(c) an irrational number between 6 and 7.

..... [1]

2 Work out.

(a)  $-7 \div -2$

..... [1]

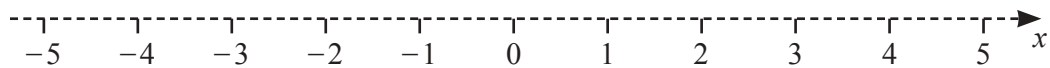
(b)  $(0.3)^2$

..... [1]

3 (a) Solve  $x + 9 > 6$ .

..... [1]

(b) Show your answer to **part (a)** on this number line.



[1]

- 4 Aklima records the masses,  $m$  kg, of 120 parcels.  
The results are shown in the table.

Mass, $m$ kg	$0 < m \leq 2$	$2 < m \leq 4$	$4 < m \leq 6$	$6 < m \leq 8$	$8 < m \leq 10$
Frequency	35	30	40	12	3

Find

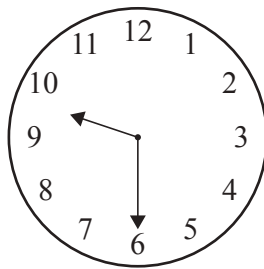
- (a) the modal class

.....  $< m \leq$  ..... [1]

- (b) the class which contains the median.

.....  $< m \leq$  ..... [1]

5



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The clock shows the time 09 30.

Work out the obtuse angle between the hands of the clock.

..... [2]

6 Find the value of  $64^{\frac{1}{3}}$ .

..... [1]

7 Lee cycles for 60 km at an average speed of 30 km/h.  
He then returns along the same route at an average speed of 20 km/h.

Find Lee's average speed for the whole journey.

..... km/h [3]

- 8 Salma spins a biased spinner with sectors labelled 1, 2, 3, 4 and 5. The table shows the relative frequencies of each of her scores.

Score	1	2	3	4	5
Relative frequency	0.1	0.05	0.3	0.35	$p$

- (a) Find the value of  $p$ .

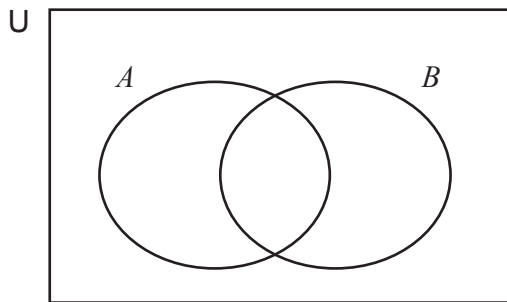
..... [2]

- (b) Salma spins the spinner 4000 times.

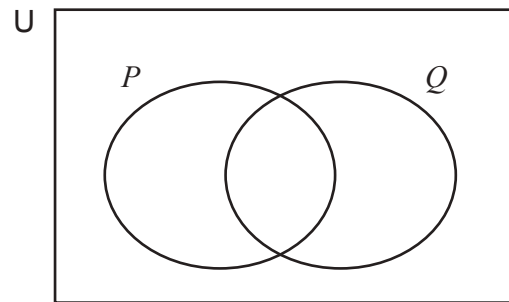
Work out an estimate for the number of times she scores 3.

..... [1]

- 9 On the Venn diagrams, shade the given subsets.



$A \cup B$



$(P' \cap Q) \cup (P \cap Q')$

[2]

- 10 There is correlation between quantity  $p$  and quantity  $q$ .  
The regression equation is  $p = 80 - 5.2q$ .

What type of correlation is there between  $p$  and  $q$ ?

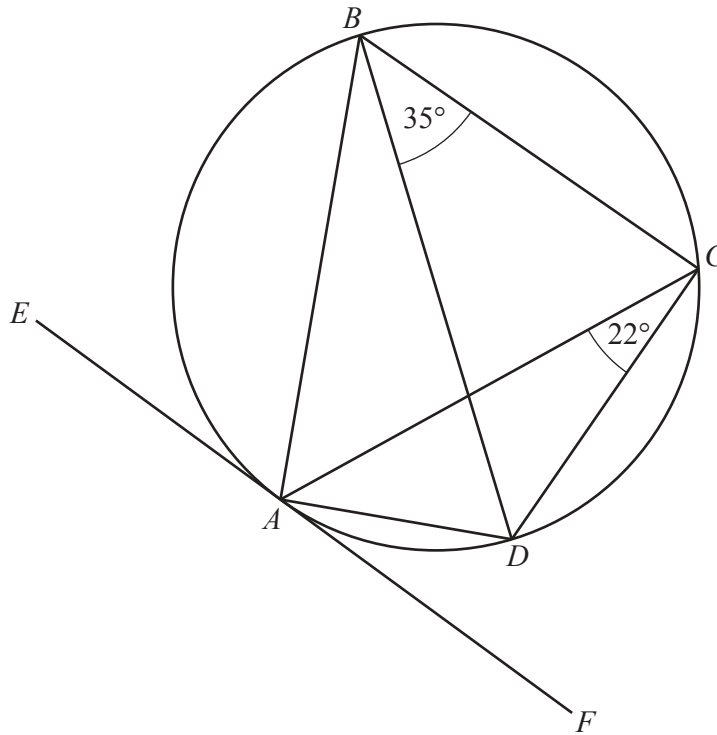
..... [1]

- 11 Solve the simultaneous equations.

$$\begin{aligned}\frac{1}{2}x - \frac{1}{3}y &= 7 \\ 3x + y &= 6\end{aligned}$$

$x =$  .....

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



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$A, B, C$  and  $D$  are points on the circle.  
 $EF$  is a tangent to the circle at  $A$ .  
 Angle  $DBC = 35^\circ$  and angle  $ACD = 22^\circ$ .

Find

(a) angle  $ABD$

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

(b) angle  $ADC$

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

(c) angle  $CAF$ .

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



13 Rationalise the denominator and simplify.

$$\frac{2}{3 - \sqrt{5}}$$

..... [3]

14  $y$  varies inversely as the square of  $(x - 3)$ .  
When  $x = 6$ ,  $y = 20$ .

Find the value of  $y$  when  $x = 9$ .

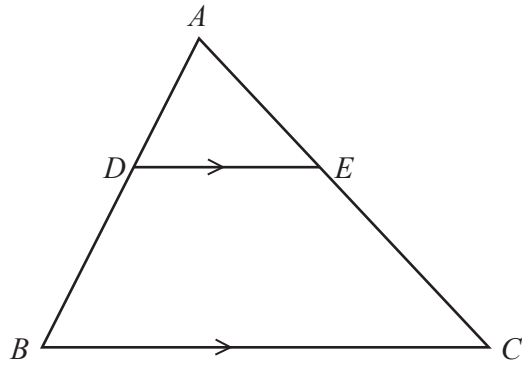
..... [3]

15 (a) Write down the value of  $\log_{10}(0.01)$ .

..... [1]

(b) Find the value of  $2 \log 4 + \log 5 - 3 \log 2$ .

..... [3]



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$ABC$  is a triangle.  
 $DE$  is parallel to  $BC$ .

(a) Show that triangle  $ADE$  is similar to triangle  $ABC$ .

.....  
.....  
.....  
.....  
..... [2]

(b)  $AD : DB = 2 : 3$ .

Find the ratio Area of triangle  $ADE$  : Area of triangle  $ABC$ .

..... : ..... [1]



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