Cambridge Assessment International Education

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6437693837

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.

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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. $\quad A = \pi rl$

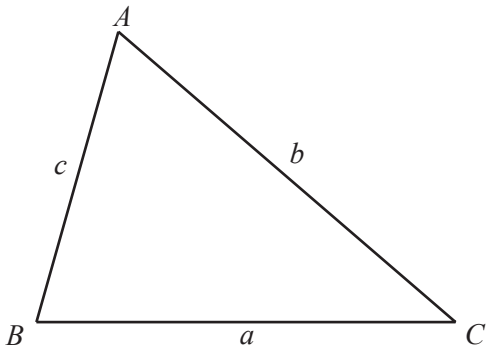
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 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]

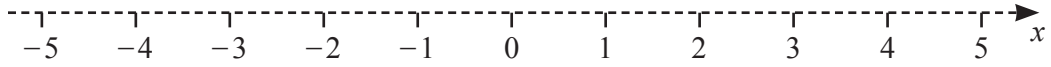
(b) $(0.3)^2$

..... [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	$0 < m \leqslant 2$	$2 < m \leqslant 4$	$4 < m \leqslant 6$	$6 < m \leqslant 8$	$8 < m \leqslant 10$
Frequency	35	30	40	12	3

Find

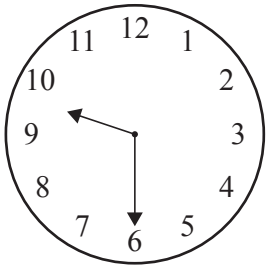
(a) the modal class

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

(b) the class which contains the median.

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

5



NOT TO SCALE

The clock shows the time 09 30.

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

..... [2]

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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.

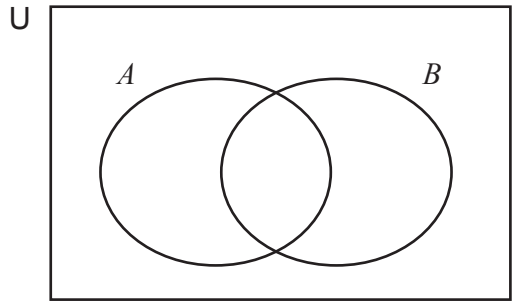
..... [2]

(b) Salma spins the spinner 4000 times.

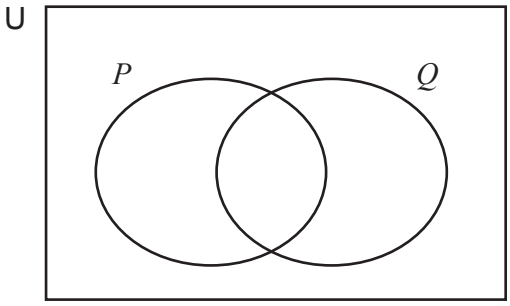
Work out an estimate for the number of times she scores 3.

..... [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]

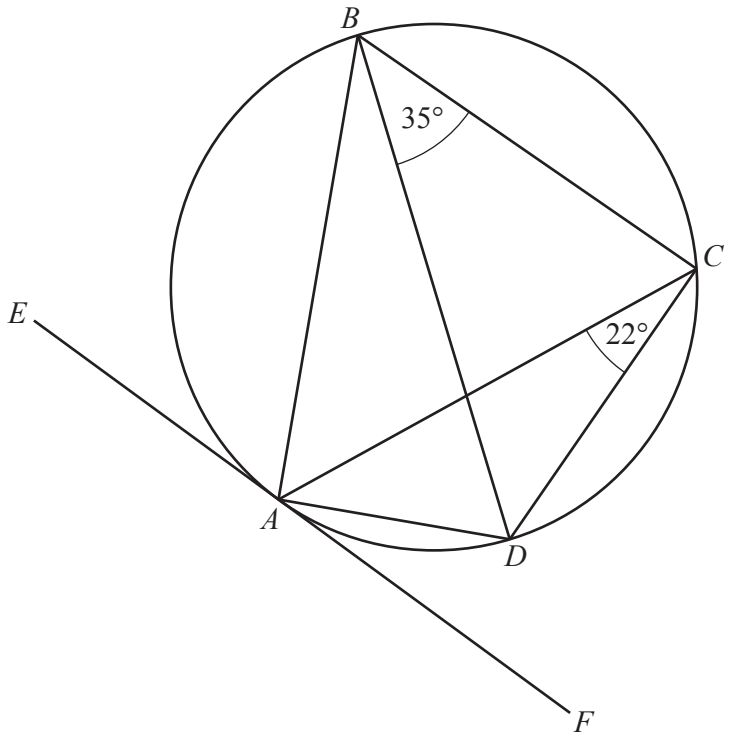
11 Solve the simultaneous equations.

$$\frac{1}{2}x - \frac{1}{3}y = 7$$
$$3x + y = 6$$

$x =$ .....

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

12



NOT TO SCALE

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

Find

(a) angle ABD

Angle $ABD =$ ..... [1]

(b) angle ADC

Angle $ADC =$ ..... [1]

(c) angle CAF.

Angle $CAF =$ ..... [1]

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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]

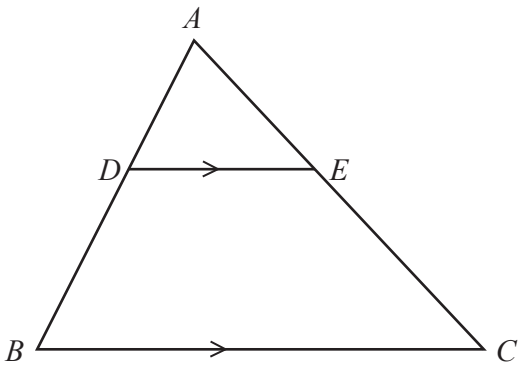
15 **(a)** Write down the value of $\log_{10}(0.01)$.

..... [1]

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

..... [3]

16



NOT TO SCALE

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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