Cambridge Assessment International Education

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7852959116

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

Paper 2 (Extended) **May/June 2022**

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.

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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. $\quad A = \pi rl$

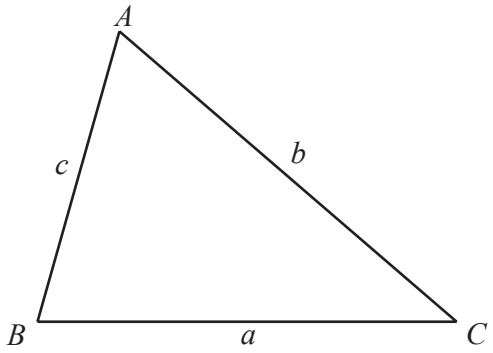
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 Work out.

(a) 0.3×0.2

..... [1]

(b) $12 \div 0.4$

..... [1]

2 This is a list of 8 numbers.

11 7 8 13 7 14 15 5

(a) Find the median.

..... [2]

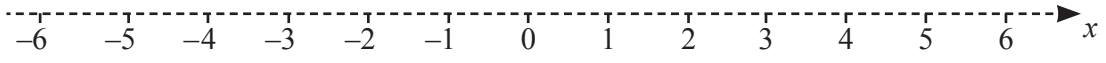
(b) An extra number is added to the list.
The mean of the nine numbers is 1 more than the mean of the eight numbers.

Find the ninth number.

..... [3]

3 Show this inequality on the number line.

$$-3 < x \leqslant 4$$



[2]

4 **(a)** Express 175 as the product of its prime factors.

..... [2]

(b) Kurt has two timers.
One is set to ring every 175 minutes.
The other is set to ring every 70 minutes.

Both timers ring together at 09 15.

Find the time when the timers next ring together.

..... [3]

5 Expand.

$3(2x - 1)$

..... [1]

6 Find the exterior angle of a regular polygon with 15 sides.

..... [2]

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7 Eggs are graded into four sizes: extra large, large, medium and small.
A farmer records the sizes of a sample of 100 eggs that she collects.
The results are shown in the table.

Size	Extra large	Large	Medium	Small
Number of eggs	28	36	24	12

(a) Find the relative frequency for large eggs.

..... [1]

(b) In one month, the farmer collects 2500 eggs.

Calculate an estimate for the number of these eggs that are small.

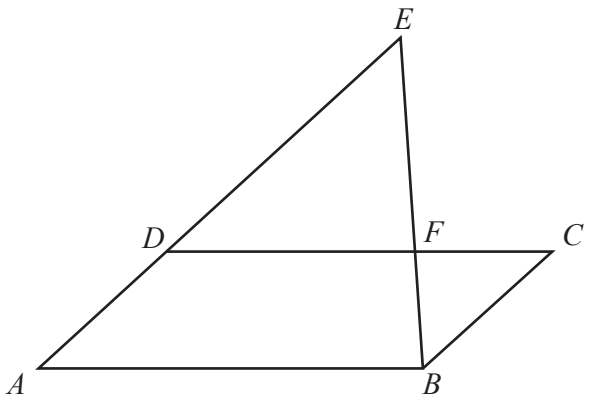
..... [2]

8 Factorise fully.

$$2cx^2 - 2dx - cx + d$$

..... [2]

9



NOT TO SCALE

ABCD is a parallelogram.
EDA and *EFB* are straight lines.

(a) Show that triangles *EDF* and *BCF* are similar.

[2]

(b) $BC = 4\,\text{cm}$, $DE = 5\,\text{cm}$ and $FB = 3\,\text{cm}$.

Find *EF*.

EF = ... cm [2]

10 A is the point $(-5, 7)$ and C is the point $(1, -2)$.

(a) B is the mid-point of AC.

Find the coordinates of B.

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

(b) The line CD is perpendicular to the line AC.

Find the equation of line CD.

..... [4]

11 y is inversely proportional to $(x+2)^2$.
When $x = 3$, $y = 2$.

(a) Find y in terms of x.

$y =$ ..... [2]

(b) Find the positive value of x when $y = 0.5$.

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

Question 12 is printed on the next page.

12 $\mathbf{a} = \begin{pmatrix} 4 \\ -10 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -4 \\ 2 \end{pmatrix}$

Find the magnitude of the vector $\mathbf{a} - \mathbf{b}$.
Give your answer in its simplest surd form.

..... [4]

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