## Cambridge IGCSE ${ }^{\text {TM }}$



0607/22

## CAMBRIDGE INTERNATIONAL MATHEMATICS

Paper 2 (Extended)
October/November 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 [ ].


## Formula List

For the equation

$$
a x^{2}+b x+c=0 \quad x=\frac{-b \pm \sqrt{b^{2}-4 a c}}{2 a}
$$

Curved surface area, $A$, of cylinder of radius $r$, height $h$.
$A=2 \pi r h$

Curved surface area, $A$, of cone of radius $r$, sloping edge $l$.
$A=\pi r l$

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

Volume, $V$, of pyramid, base area $A$, height $h$.
$V=\frac{1}{3} A h$

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


$$
\begin{aligned}
& \frac{a}{\sin A}=\frac{b}{\sin B}=\frac{c}{\sin C} \\
& a^{2}=b^{2}+c^{2}-2 b c \cos A \\
& \text { Area }=\frac{1}{2} b c \sin A
\end{aligned}
$$

Answer all the questions.
1 These are the scores of 10 students in a test.

| 7 | 15 | 9 | 4 | 16 | 6 | 8 | 11 | 12 | 10 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Find
(a) the median,
(b) the mean.

2 A regular polygon has 24 sides.
Find the size of each interior angle of the polygon.
$P=2 a+b^{2}-3 c$
Find $P$ when $a=5, b=-4$ and $c=-3$.
$P=$

4 You are given that $\sqrt{7}=2.65$ and $\sqrt{70}=8.37$, each correct to 2 decimal places.
Use this information to find the value of
(a) $\sqrt{700}$,
(b) $\sqrt{280}$.

5 A biased 5-sided spinner is spun 200 times.
The results are shown in the table.

| Number | 1 | 2 | 3 | 4 | 5 |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Frequency | 24 | 48 | 63 | 38 | 27 |

(a) Find the relative frequency of the spinner landing on 2 .
$\qquad$
(b) The spinner is spun 1000 times.

Find the expected number of times that the spinner lands on 2.

6 Solve $2 x+6>5 x-10$.

7 Describe fully the inverse of each transformation.
(a) Translation by $\binom{-2}{5}$.
$\qquad$
(b) Enlargement with centre $(2,3)$ and scale factor 2 .
$\qquad$
$\qquad$

8 Find the value of $125^{-\frac{1}{3}}$.
$9 y$ is inversely proportional to $x^{3}$.
When $x=5, y=2$.
Find $y$ when $x=10$.


Find the value of $x$.

$$
x=
$$

11 Simplify.

$$
\frac{a x^{2}+5 a x+b x+5 b}{x^{2}-25}
$$

12

$$
\mathrm{f}(x)=11 x+2 \quad \mathrm{~g}(x)=\sin x^{\circ}
$$

(a) Find $\mathrm{f}^{-1}(x)$.

$$
\begin{equation*}
\mathrm{f}^{-1}(x)= \tag{2}
\end{equation*}
$$

(b) Find $\mathrm{g}(\mathrm{f}(8))$.

$A, B, C$ and $D$ are points on the circle.
$P Q$ is a tangent to the circle at $D$.
Angle $B D Q=55^{\circ}$.
Complete these statements giving a reason for each answer.
(a) Angle $B A D=$ $\qquad$ because $\qquad$
$\qquad$
(b) Angle $B C D=$ because $\qquad$
$\qquad$
$14 \quad 4 \log y+3 \log x=2$
Find $y$ in terms of $x$.

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