Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

4505123050

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/22**

Paper 2 (Extended) **October/November 2017**

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
Do not use staples, paper clips, glue or correction fluid.
You may use an HB pencil for any diagrams or graphs.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.
CALCULATORS MUST NOT BE USED IN THIS PAPER.
All answers should be given in their simplest form.
You must show all the relevant working to gain full marks and you will be given marks for correct methods even if your answer is incorrect.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 40.

This document consists of **8** printed 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. $\quad A = \pi rl$

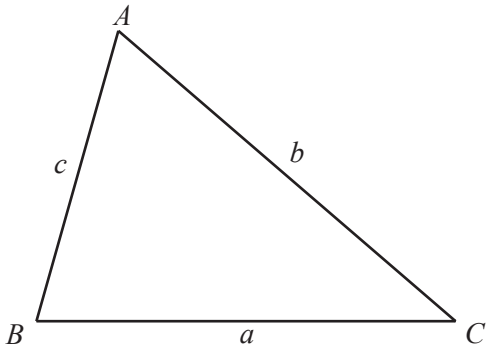
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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



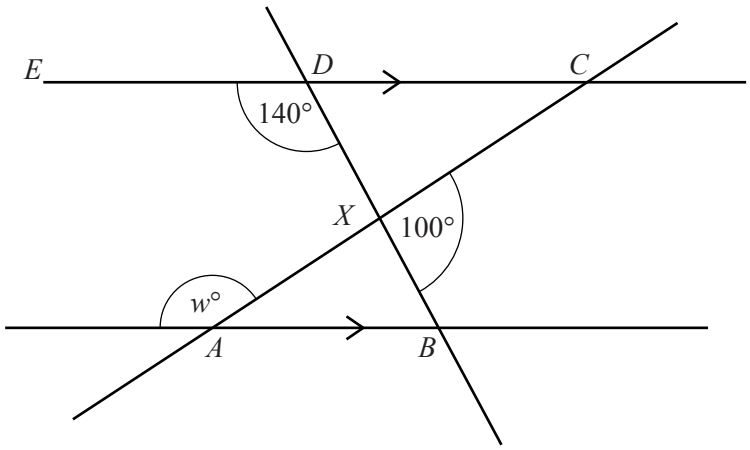
$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

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

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

Answer **all** the questions.

1



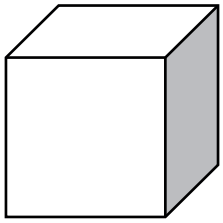
NOT TO SCALE

The diagram shows two parallel lines with two straight lines crossing.

Find the value of w.

$w =$ ..... [2]

2



The volume of a cube is $27\,cm^3$.

Find the total surface area.

..... cm^2 [2]

3 Find the highest common factor (HCF) of 30, 48 and 66.

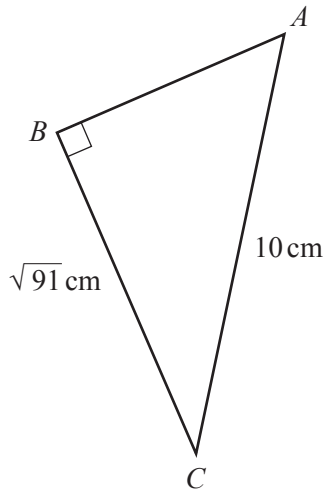
..... [1]

4 $f(x) = 2x - 3$

Find the range of $f(x)$ for the domain $\{0, 1, 2\}$.

{..... } [1]

5



NOT TO SCALE

Work out the length of AB.

$AB =$ ..... cm [3]

6 $y = 2x^2 - 1$

Rearrange the formula to write x in terms of y.

$x =$ ..... [3]

7 **(a)** Change 20 m/s into km/h.

..... km/h [2]

(b) A train travels at 20 m/s for 45 minutes.

Work out the distance travelled.
Give your answer in kilometres.

..... km [2]

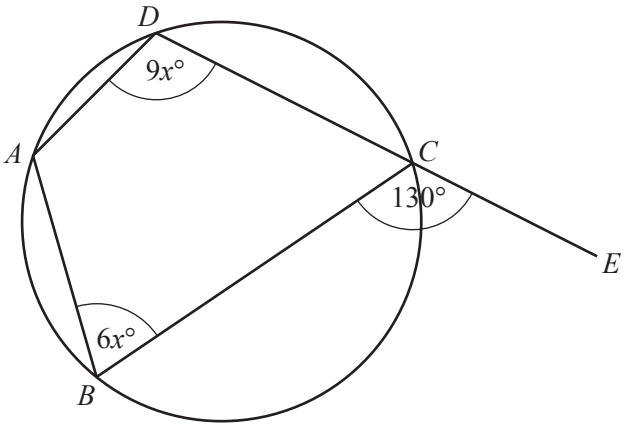
8 Work out $(3.2 \times 10^{20}) + (2.3 \times 10^{21})$, giving your answer in standard form.

..... [2]

9 Find the value of $(0.1)^2$.

..... [1]

10



NOT TO SCALE

ABCD is a cyclic quadrilateral.
DC is extended to *E*.
Angle $BCE = 130°$, angle $ABC = 6x°$ and angle $ADC = 9x°$.

Find the value of

(a) angle *BAD*,

Angle *BAD* = ... [1]

(b) angle *ABC*.

Angle *ABC* = ... [2]

11 Simplify.

(a) $\frac{12x^{12}}{4x^4}$

..... [2]

(b) $(16x^{16})^{\frac{1}{4}}$

..... [2]

12 y is proportional to $\frac{1}{\sqrt{x}}$.

When $x = 4$, $y = 2$.

Find y when $x = 64$.

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

13 **(a)** Simplify $\sqrt{18} + \sqrt{72}$.

..... [2]

(b) Rationalise the denominator.

$$\frac{1}{\sqrt{5}+2}$$

..... [2]

14 Simplify.

$$\frac{x^2 - x}{x^2 - 1}$$

..... [3]

Questions 15 and 16 are printed on the next page.

15 **(a)** $\log k = 2\log 3 - 5\log 2$

Find the value of k.

$k =$ ..... [2]

(b) $\log_2 p = -1$

Find the value of p.

$p =$ ..... [1]

16 θ is an acute angle and $\tan\theta = \sqrt{3}$.

Write down the value of θ.

$\theta =$ ..... [1]