Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

Paper 2 (Extended) **May/June 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.

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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. $\quad A = \pi rl$

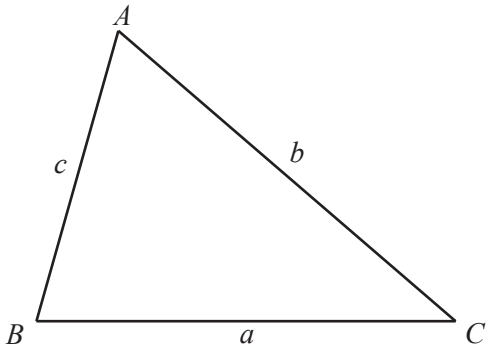
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 $\sqrt{2\frac{1}{4}}$.

..... [2]

2 Change $\frac{7}{25}$ to a percentage.

..... % [1]

3 $|x| = 5$

Write down the two possible values of x.

$x =$ ..... or $x =$ ..... [1]

4 These are the first four terms of a sequence.

15 11 7 3

Find

(a) the next term,

..... [1]

(b) the nth term.

..... [2]

5 Expand.

$$x^3(x^2+3)$$

..... [2]

6 Work out $\dfrac{4\times10^7}{8\times10^{22}}$.

Give your answer in standard form.

..... [2]

7 $v = u + at$

Rearrange the formula to write t in terms of a, u and v.

$t =$ ..... [2]

8 Simplify.

(a) $8y^8 \div 2y^2$

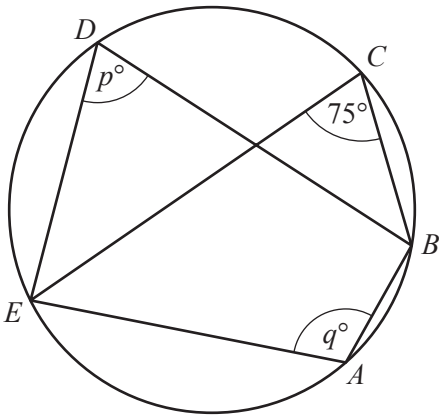
..... [2]

(b) $(2w^2)^5$

..... [2]

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9



NOT TO SCALE

A, B, C, D and E lie on the circle.
Angle $BCE = 75^\circ$.

Find the value of p and the value of q.

$p =$ .....

$q =$ ..... [2]

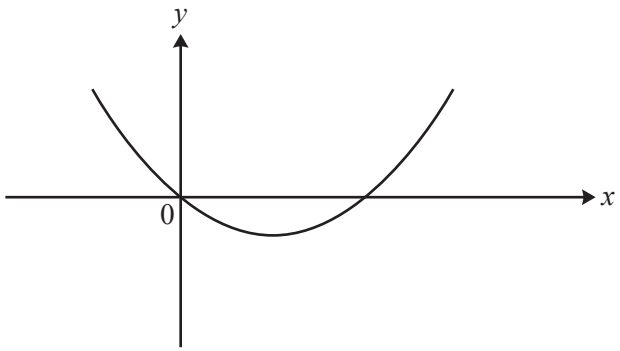
10 $y = x + 1$ and $y = 2 - x$

Find the value of x.

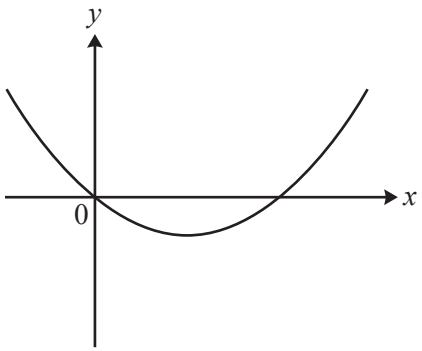
$x =$ ..... [2]

11 Each diagram shows the graph of $y = f(x)$.

On each diagram, sketch the function indicated.



$y = f(x) - 2$



$y = -f(x)$

[2]

12 Find the value of $16^{\frac{3}{4}}$.

..... [1]

13 **(a)** Simplify.

$$(4-\sqrt{3})(4+\sqrt{3})$$

..... [2]

(b) Rationalise the denominator.

$$\frac{5}{\sqrt{7}}$$

..... [1]

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14 Factorise.

(a) $p^2 - p - 30$

..... [2]

(b) $x(u-v) - y(v-u)$

..... [2]

15 $y \propto \frac{1}{x^3}$

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

Find y when $x = 10$.

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

16 $f(x) = 6\cos(6x)$

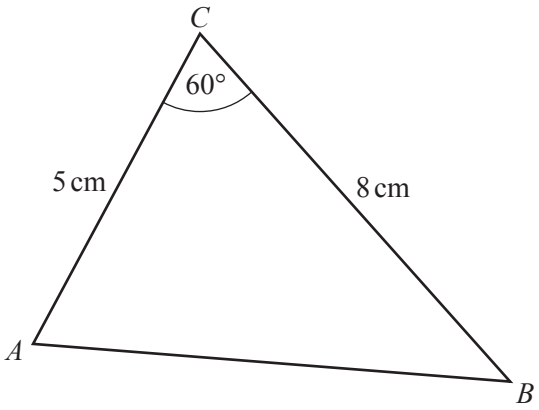
Find the amplitude and the period of $f(x)$.

Amplitude = ...

Period = ... [2]

Questions 17 and 18 are printed on the next page.

17



NOT TO SCALE

Find AB.

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

18 $f(x) = 10^x$

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

$f^{-1}(x) =$ ..... [1]

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