Cambridge IGCSE

**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

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**CAMBRIDGE INTERNATIONAL MATHEMATICS** **0607/23**

Paper 2 (Extended) **October/November 2018**

**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.




CAMBRIDGE International Examinations

## 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 $l$. $\quad A = \pi rl$

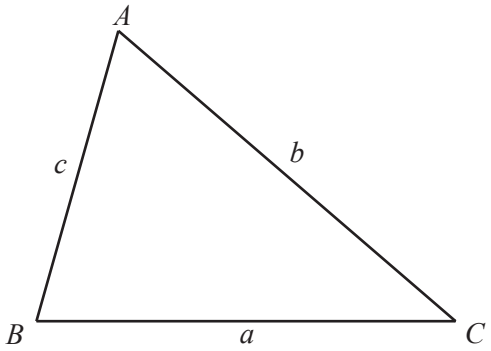
Curved surface area, $A$, of sphere of radius $r$. $\quad A = 4\pi r^2$

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** $y = mx + c$

**(a)** Find $y$ when $m = \frac{1}{2}$, $x = -2$ and $c = 4$.

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

**(b)** Rearrange the formula to write $m$ in terms of $x$, $y$ and $c$.

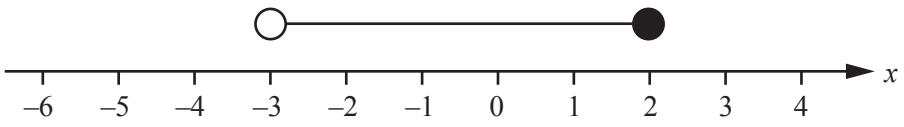
$m =$ ..... [2]

**2** Solve.

$$6 - 2t = -12$$

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

**3**




Write down the inequality shown above.

..... [1]

**4** Danny stands to watch a train go past.
The train has a length of 120 m and takes 3 seconds to pass.

Find the speed of the train

**(a)** in m/s,

..... m/s [1]

**(b)** in km/h.

..... km/h [2]

**5** Work out $\frac{5}{6} \div \frac{15}{16}$.

Give your answer in its lowest terms.

..... [2]

**6** **(a)** Simplify $\sqrt{98}$.

..... [1]

**(b)** Rationalise the denominator.

$$\frac{1}{3-\sqrt{5}}$$

..... [2]

**7** Solve the simultaneous equations.

$$3t - u = -5$$
$$3t + 2u = 1$$

$t =$ .....

$u =$ ..... [2]

**8** Simplify.

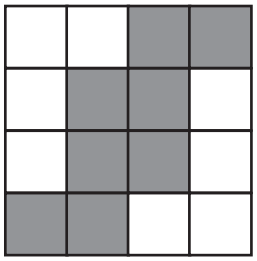
**(a)** $12v^{12} \times 3v^{3}$

..... [2]

**(b)** $\left(100x^{100}\right)^{\frac{3}{2}}$

..... [2]

**9**



For the diagram, write down

**(a)** the number of lines of symmetry,

..... [1]

**(b)** the order of rotational symmetry.

..... [1]

**10** The volume of a sphere is $36\pi$ cubic centimetres.

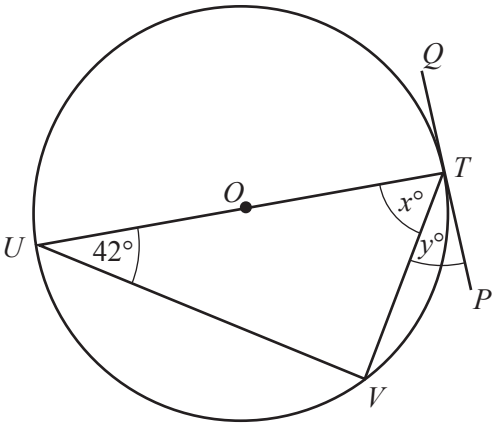
Find the radius of the sphere.

..... cm [2]

**11 (a)**

*T*, *U* and *V* lie on a circle, centre *O*.
*PQ* is a tangent to the circle at *T*.
*TU* is a diameter.

Find the value of *x* and the value of *y*.




NOT TO SCALE

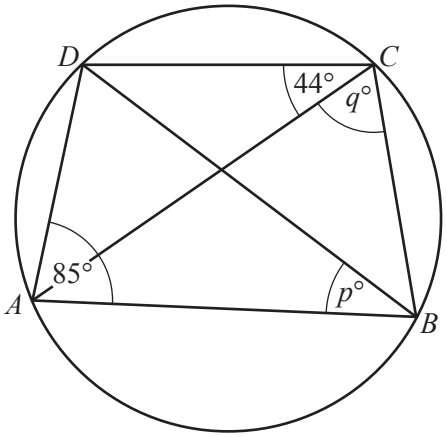
*x* = .....

*y* = ..... [2]

**(b)**

*ABCD* is a cyclic quadrilateral.

Find the value of *p* and the value of *q*.




NOT TO SCALE

*p* = .....

*q* = ..... [2]

**12** $\sin\theta = -\frac{1}{\sqrt{2}}$ and $0° \leqslant \theta \leqslant 360°$ .

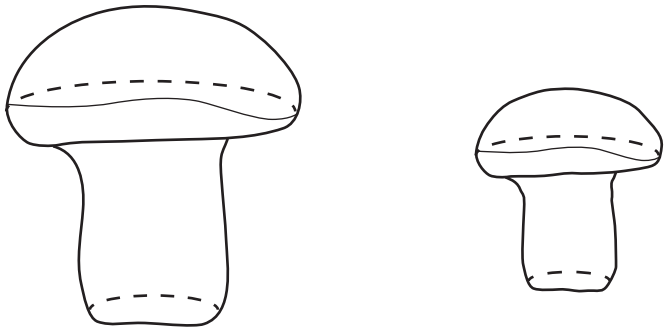
Find the two values of $\theta$.

$\theta$ = ..... or $\theta$ = ..... [2]

**13** Find the equation of the straight line perpendicular to the line $y = 2x + 1$ that passes through the point (2, 5).
Give your answer in the form $y = mx + c$.

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

**14**



NOT TO SCALE

The two solids are mathematically similar.
The larger solid has a volume of 64 $cm^3$.
The smaller solid has a volume of 8 $cm^3$ and a height of 5 cm.

Work out the height of the larger solid.

..... cm [3]

**Question 15 is printed on the next page.**

**15** Write as a single fraction in its simplest form.

$$\frac{7}{x-1} - \frac{5}{2x+3}$$

..... [3]