

CANDIDATE
NAME

--

CENTRE
NUMBER

--	--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--	--



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.

Formula List

For the equation $ax^2 + bx + c = 0$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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

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

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

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

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



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

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

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

Answer **all** the questions.

1 $y = mx + c$

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

$y = \dots\dots\dots$ [2]

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

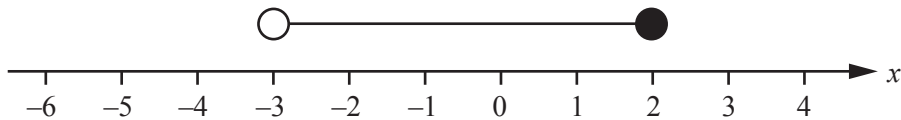
$m = \dots\dots\dots$ [2]

2 Solve.

$$6 - 2t = -12$$

$t = \dots\dots\dots$ [2]

3



Write down the inequality shown above.

$\dots\dots\dots$ [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,

$\dots\dots\dots$ m/s [1]

(b) in km/h.

$\dots\dots\dots$ 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.

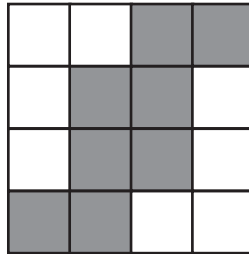
(a) $12v^{12} \times 3v^3$

..... [2]

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

..... [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 36π cubic centimetres.

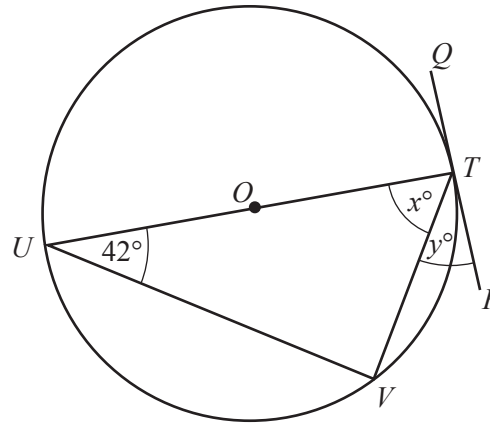
Find the radius of the sphere.

..... 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

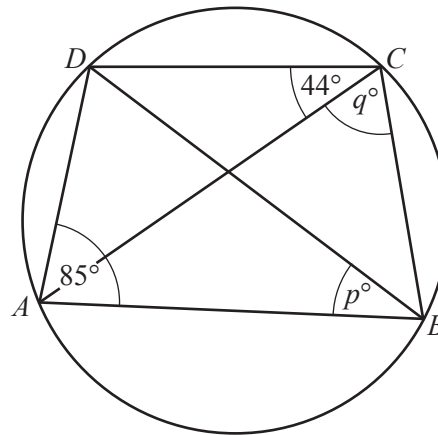
$x = \dots\dots\dots$

$y = \dots\dots\dots$ [2]

(b)

$ABCD$ is a cyclic quadrilateral.

Find the value of p and the value of q .



NOT TO SCALE

$p = \dots\dots\dots$

$q = \dots\dots\dots$ [2]

12 $\sin \theta = -\frac{1}{\sqrt{2}}$ and $0^\circ \leq \theta \leq 360^\circ$.

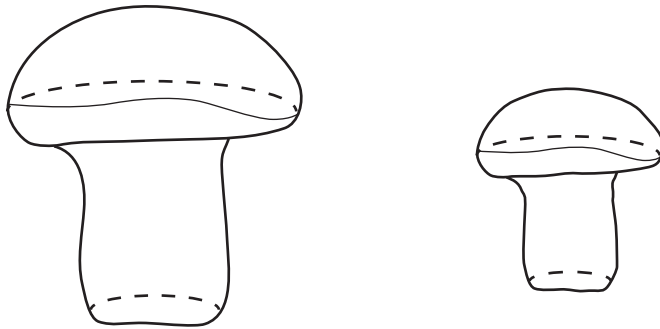
Find the two values of θ .

$\theta = \dots\dots\dots$ or $\theta = \dots\dots\dots$ [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 $y = mx + c$.

$y = \dots\dots\dots$ [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.

$\dots\dots\dots$ 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]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.