



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

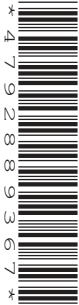
CANDIDATE
NAME

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--



CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/23

Paper 2 (Extended)

October/November 2015

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 . $A = \pi rl$

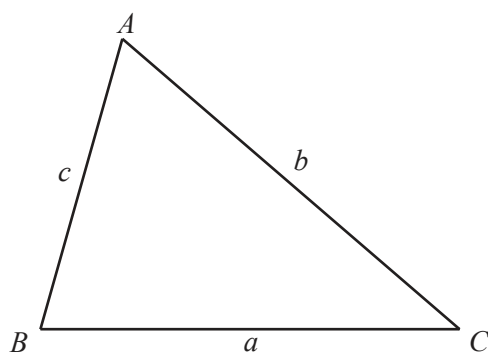
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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



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

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

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

3Answer **all** the questions.

- 1** Find the highest common factor (HCF) of 60 and 90.

Answer [1]

- 2** Insert one pair of brackets to make the statement correct.

$$5 - 2 + 3 \times 2 = -5 \quad [1]$$

3 $\mathbf{p} = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$ $\mathbf{q} = \begin{pmatrix} 1 \\ 6 \end{pmatrix}$

Find $2\mathbf{p} - 3\mathbf{q}$.

Answer [2]

- 4** Write 0.72 as a fraction in its lowest terms.

Answer [1]

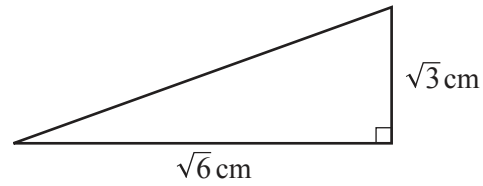
- 5** The mean of a list of 9 numbers is 6.
When a 10th number is included in the list the mean is 5.5 .

Find the value of this 10th number.

Answer [2]

4

6

NOT TO
SCALE

Find the length of the hypotenuse of the triangle.

Answer cm [2]

7 Solve the simultaneous equations.

$$u - w = 9$$

$$3u + w = 19$$

Answer $u =$

$w =$ [2]

8 The scale of a map is 1 : 250 000 .

Find the actual distance, in kilometres, between two cities which are 42 cm apart on the map.

Answer km [2]

5

- 9** $|x| < 4$ and x is an integer.

Find the smallest possible value of x .

Answer [1]

- 10** The first 4 terms of a sequence are 20, 13, 6 and -1 .

Find

- (a)** the next term,

Answer(a) [1]

- (b)** the n th term.

Answer(b) [2]

- 11** Make u the subject of the formula.

$$v^2 = u^2 + 2as$$

Answer $u =$ [2]

- 12** Factorise completely.

$$2a - b + 2ax - bx$$

Answer [2]

6

13 Find the exact value of

(a) 3^{-3} ,

Answer(a) [1]

(b) $16^{\frac{3}{4}}$,

Answer(b) [1]

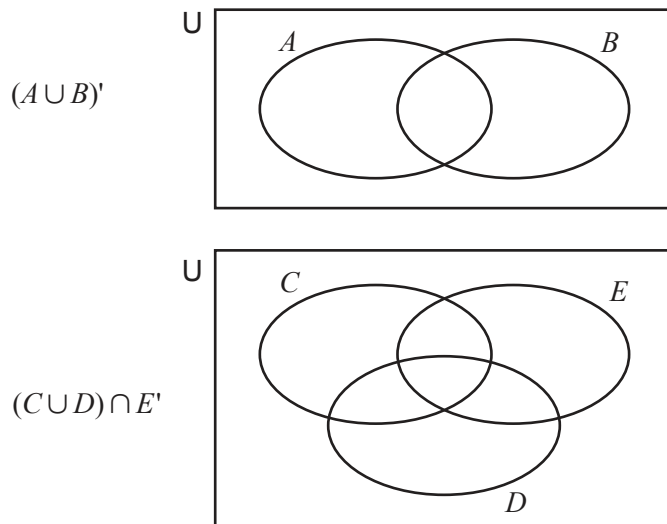
(c) $\cos 30^\circ$.

Answer(c) [1]

14 Simplify $(64x^{12})^{\frac{1}{6}}$.

Answer [2]

15 On each Venn diagram, shade the region indicated.



[2]

7

- 16** Find the equation of the straight line passing through $(-2, -4)$ and $(2, 0)$.

Answer [3]

- 17** Rationalise the denominator.

$$\frac{3}{\sqrt{5} + 2}$$

Answer [2]

- 18 (a)** Factorise $3y - y^2$.

Answer(a) [1]

(b) Simplify $\frac{3y - y^2}{9 - y^2}$.

Answer(b) [2]

Questions 19 and 20 are printed on the next page.

19 Find the value of

(a) $\frac{\log 4}{\log 8}$,

Answer(a) [2]

(b) $\log_4 8$.

Answer(b) [1]

20 $g(x) = \frac{2x+1}{x-1}$, $x \neq 1$

Solve the equation $g^{-1}(x) = 2$.

Answer x = [1]

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.