



# Cambridge IGCSE™

CANDIDATE  
NAME

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--

**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/21**

Paper 2 (Extended)

**May/June 2020**

**45 minutes**

You must answer on the question paper.

You will need: Geometrical instruments

## INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly and you will be given marks for correct methods even if your answer is incorrect.
- All answers should be given in their simplest form.

## INFORMATION

- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **8** pages. Blank pages are indicated.



## 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 A cuboid has a square base of side 10 cm and a volume of  $1200 \text{ cm}^3$ .

Work out the height of the cuboid.

..... cm [2]

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

- (a) Find  $\mathbf{p} + \mathbf{q}$ .

$\begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

- (b)  $A$  is the point (2, 7).

The point  $A$  is translated to the point  $B$  by the vector  $\mathbf{p} + \mathbf{q}$ .

Find the coordinates of  $B$ .

(....., .....) [2]

3 Work out  $\frac{3}{4} \div 2\frac{1}{2}$ .

Give your answer as a fraction in its lowest terms.

..... [3]

- 4 A truck of length 10 m passes a gate of length 2 m.  
The speed of the truck is 8 m/s.

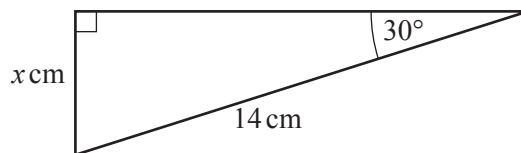
Find the time the truck takes to completely pass the gate.

..... s [2]

- 5 Find the volume of a cone with radius 3 cm and perpendicular height 8 cm.  
Give your answer in terms of  $\pi$ .

.....  $\text{cm}^3$  [2]

6



NOT TO  
SCALE

Work out the value of  $x$ .

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

- 7 Simplify.

(a)  $\frac{15w^{15}}{3w^3}$

..... [2]

(b)  $(125y^6)^{\frac{2}{3}}$

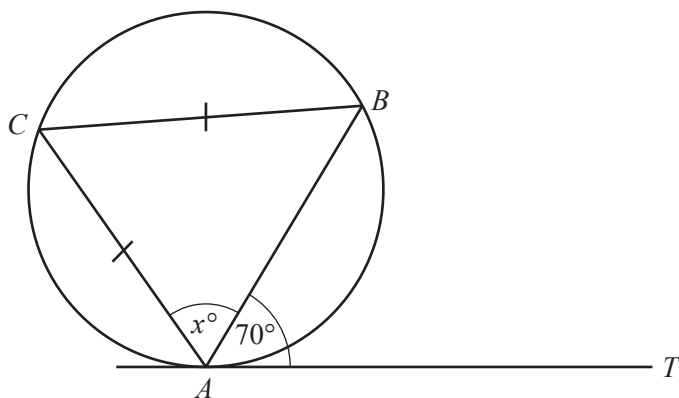
..... [2]

8 
$$A = 2\pi rh + 3\pi r^2$$

Rearrange the formula to write  $h$  in terms of  $\pi$ ,  $r$  and  $A$ .

$$h = \dots\dots\dots [2]$$

9



NOT TO SCALE

$A$ ,  $B$  and  $C$  are points on a circle.  
 $TA$  is a tangent to the circle at  $A$ .  
 $CA = CB$  and angle  $BAT = 70^\circ$ .

Work out the value of  $x$ .

$$x = \dots\dots\dots [2]$$

10 When Jack sells a computer for \$264 he makes a profit of 20%.

Work out the price Jack paid for the computer.

$$\text{\$ } \dots\dots\dots [2]$$

- 11  $y$  is inversely proportional to  $\sqrt{x}$ .  
When  $x = 9$ ,  $y = 2$ .

Find  $y$  in terms of  $x$ .

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

- 12  $3 \log y = 2 \log x - \log w$

Find  $y$  in terms of  $x$  and  $w$ .

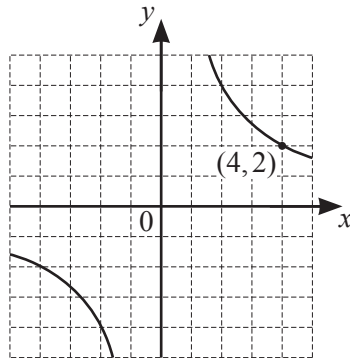
$$y = \dots\dots\dots [3]$$

- 13 Rationalise the denominator.

$$\frac{9}{\sqrt{7}-2}$$

$$\dots\dots\dots [2]$$

14



In the diagram, the graph passes through the point (4, 2).

Write down the equation of the graph.

..... [2]

15 Simplify.

$$\frac{3-a}{3p-6t-ap+2at}$$

..... [3]

**Question 16 is printed on the next page.**

16 Write as a single fraction in its simplest form.

$$\frac{1}{x-3} - \frac{2}{x}$$

..... [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 Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cambridgeinternational.org](http://www.cambridgeinternational.org) after the live examination series.

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