



CANDIDATE
NAME

--

CENTRE
NUMBER

--	--	--	--	--

CANDIDATE
NUMBER

--	--	--	--

0607/23

October/November 2021

45 minutes

You must answer on the question paper.

You will need: Geometrical instruments

- 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.

- 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. Any 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 . $A = \pi rl$

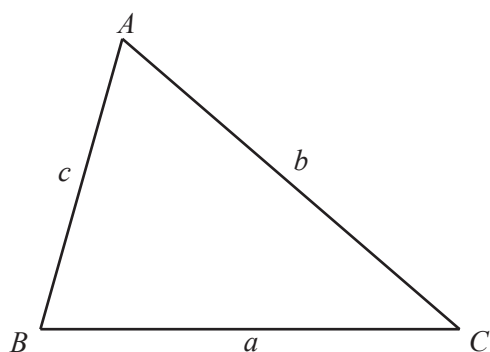
Curved surface area, A , of sphere of radius r . $A = 4\pi r^2$

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 Work out.

(a) $(-2) + (-3) - (-4)$

..... [1]

(b) $(-2) \times (-3) \times (-4)$

..... [1]

2 91 93 95 97 99

From this list write down a prime number.

..... [1]

3 \$126 is divided into 3 shares in the ratio 1 : 2 : 4 .

Find the value of the largest share.

\$ [2]

4 Solve.

(a) $5 - 2x = 0$

$x =$ [1]

(b) $-12 + 2x = 5x - 3$

$x =$ [2]

- 5** There are 640 students in a school.
The table shows the favourite colour of each of the students.

Favourite colour	Blue	Green	Red	Yellow
Number of students	120	$2x$	280	x

- (a)** Find the value of x .

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

- (b)** Find the relative frequency of students whose favourite colour is red.
Give your answer as a fraction in its lowest terms.

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

- 6 (a)** Simplify.

$$\sqrt{75} - \sqrt{27}$$

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

- (b)** Rationalise the denominator and simplify your answer.

$$\frac{10}{5 - \sqrt{5}}$$

$$\dots\dots\dots [3]$$

- 7 A is the point $(3, 7)$ and B is the point $(9, -1)$.

Calculate the length AB .

$$AB = \dots\dots\dots [3]$$

- 8 (a) A regular polygon has 12 sides.

Work out the sum of the interior angles of the polygon.

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

- (b) The interior angle of a regular polygon is x° .

Find an expression, in terms of x , for the number of sides of this polygon.

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

- 9 Expand the brackets and simplify.

$$5x(2 - 3x) - 3x(3x - 2)$$

..... [2]

- 10 Solve the simultaneous equations.
You must show all your working.

$$4x + 3y = -10$$

$$3x - 4y = 5$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots [4]$$

- 11 $f(x) = \frac{1}{2x-5}$, $x \neq 2.5$

- (a) Find $f(2)$.

..... [1]

- (b) Solve $f(x) = 5$.

..... [2]

12
$$\frac{2x-3}{2x+3} - \frac{2x+3}{2x-3} = \frac{ax}{bx^2-c}$$

Find the values of a , b and c .

$$a = \dots\dots\dots$$

$$b = \dots\dots\dots$$

$$c = \dots\dots\dots [4]$$

- 13** A bag contains 12 discs.
 There are 2 red discs, 4 blue discs, 5 green discs and 1 yellow disc.
 A disc is chosen at random and not replaced.
 A second disc is then chosen at random.

Find the probability that both discs are the same colour.

$$\dots\dots\dots [3]$$

BLANK PAGE

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 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.