Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

1682935576

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/22**

Paper 2 (Extended) **October/November 2016**

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.

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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. $\quad A = \pi rl$

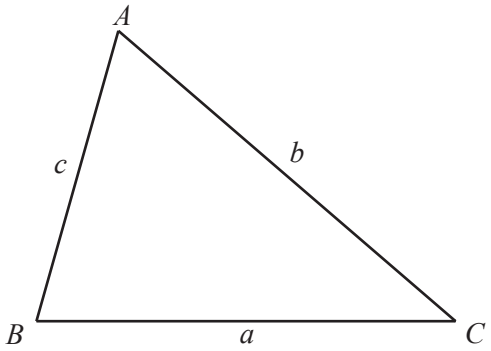
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 25 26 27 28 29 30

From this list, write down a prime number.

..... [1]

2 $84 is divided in the ratio 3 : 4.

Find the value of the largest share.

$..... [2]

3 In a sale, the price of all furniture is reduced by 30%.

(a) Before the sale the price of a chair was $40.

Find the price of this chair in the sale.

$..... [2]

(b) In the sale, the price of a table is $140.

Find the price of this table **before** the sale.

$..... [3]

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4 Work out the following, giving each answer in standard form.

(a) $(6.4\times10^{-2}) - (1.6\times10^{-3})$

..... [2]

(b) $(6.4\times10^{-2}) \div (1.6\times10^{-3})$

..... [2]

5 One day there were 720 students at a school.

The table shows the type of transport the students used to get to school.

Type of transport	Walk	Bus	Car	Bicycle
Number of students	117	280	240	x

(a) Find the value of x.

$x =$ ..... [1]

(b) Find the relative frequency of students who went to school by car.
Give your answer as a fraction in its lowest terms.

..... [2]

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6 A bag contains 10 discs.
5 discs are red, 4 are blue and 1 is green.
A disc is chosen at random and not replaced.
A second disc is then chosen at random.

Find the probability that

(a) both discs are green,

..... [1]

(b) both discs are the same colour.

..... [3]

7 Expand the brackets and simplify.

(a) $3x(4-5x)-5x(3x+2)$

..... [2]

(b) $(4x-y)(3x+2y)$

..... [3]

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8 Find the value of $64^{\frac{1}{3}}$.

..... [1]

9 Find the highest common factor (HCF) of $8x^3y^4$ and $12x^4y$.

..... [2]

10 In each of the following, rationalise the denominator and simplify your answer.

(a) $\frac{6}{\sqrt{3}}$

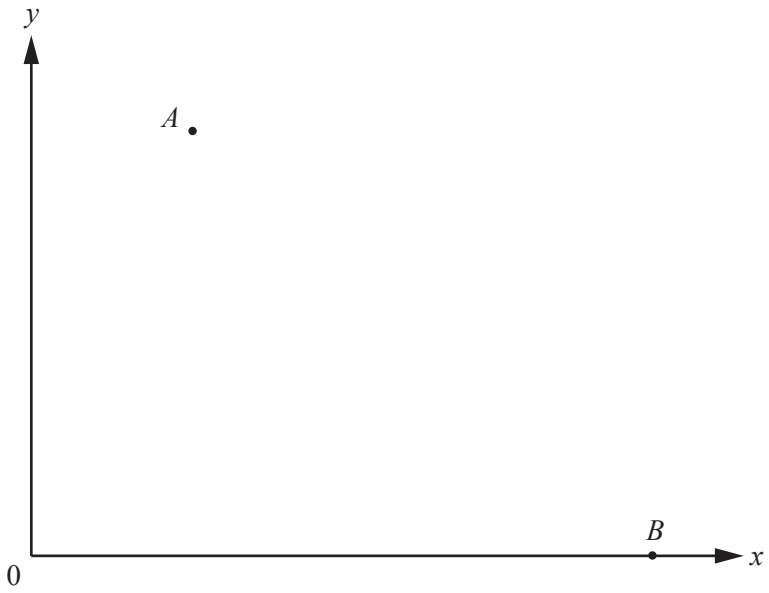
..... [2]

(b) $\frac{\sqrt{3}}{2+\sqrt{3}}$

..... [2]

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11 The points A (3, 8) and B (9, 0) are shown on the diagram below.



Find the equation of the perpendicular bisector of the line AB.

..... [5]

Question 12 is printed on the next page.

12 y is proportional to the square of x.

When $x = 4$, $y = 8$.

(a) Find an equation connecting y and x.

..... [2]

(b) Find the values of x when $y = 32$.

..... [2]

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