Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

1855009495

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **October/November 2017**

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. $\quad A = \pi rl$

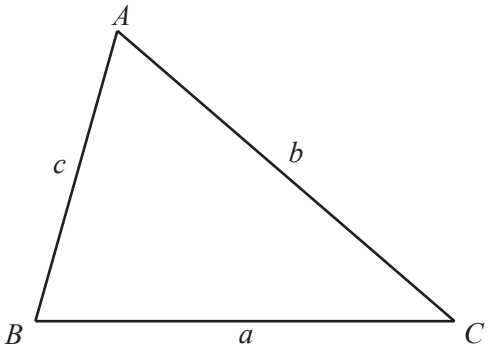
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 By rounding each number correct to 1 significant figure, estimate the value of

$$\frac{189.6 \times 41.28}{0.00509 + 0.00298}.$$

..... [3]

2 Written as the product of their prime factors,

$$7056 = 2^4 \times 3^2 \times 7^2 \quad \text{and} \quad 8232 = 2^3 \times 3 \times 7^3.$$

Giving your answers as the product of prime factors, find

(a) the highest common factor (HCF) of 7056 and 8232,

..... [1]

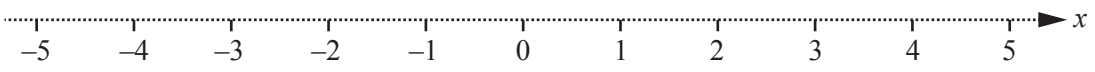
(b) the lowest common multiple (LCM) of 7056 and 8232,

..... [1]

(c) $\sqrt{7056}$.

..... [1]

3 Show the inequality $-1 < x \leqslant 4$ on this number line.



[2]

4 Work out $\frac{3}{8}-\frac{1}{6}$, giving your answer as a fraction in its lowest terms.

..... [2]

5 Solve the simultaneous equations.

$$x - 3y = 4$$
$$5x - 6y = -7$$

$x =$ .....

$y =$ ..... [3]

6 A is the point (3, 6) and B is the point $(-5, 10)$.

(a) Work out the co-ordinates of the midpoint of AB.

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

(b) Find the length of AB, giving your answer in the form $a\sqrt{5}$.

..... [3]

7 Work out, giving your answer in standard form.

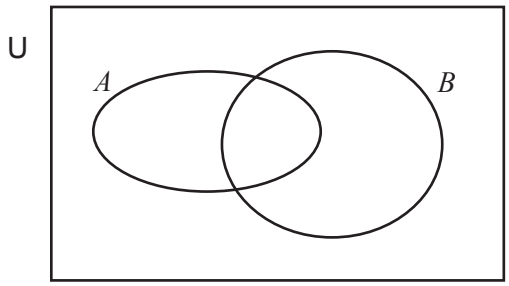
$$(6.3 \times 10^4) + (5.6 \times 10^5)$$

..... [2]

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8 Shade the region indicated in each of these Venn diagrams.

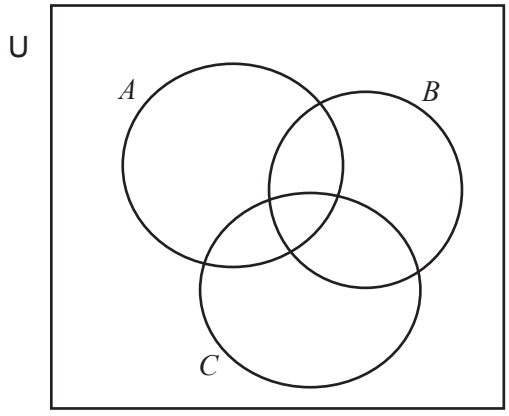
(a)



$A' \cap B'$

[1]

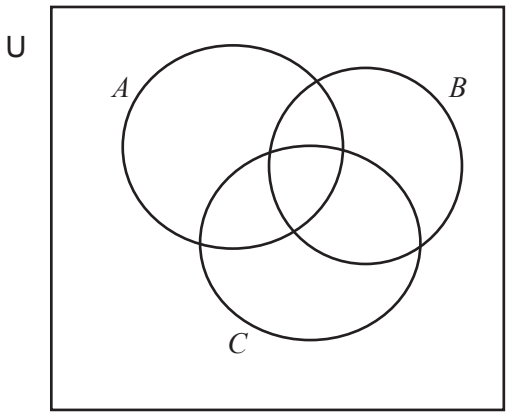
(b)



$A \cup (B \cap C)$

[1]

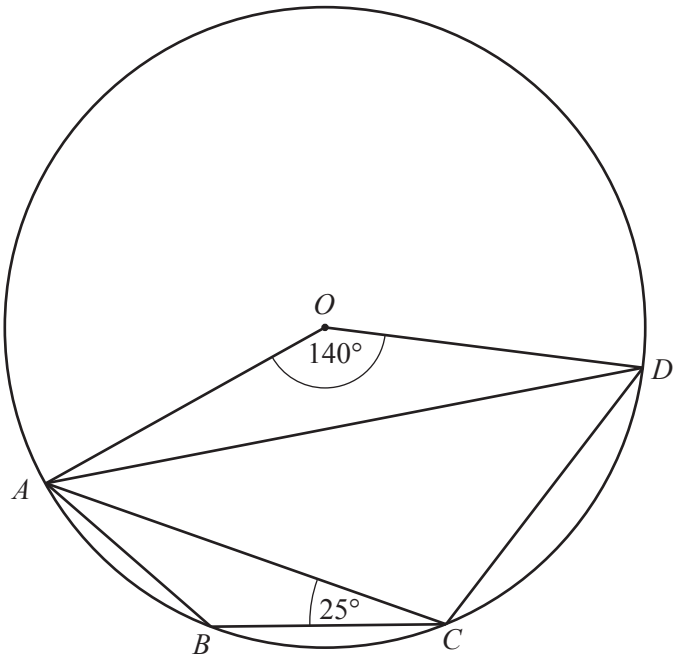
(c)



$A \cap B \cap C'$

[1]

9



NOT TO SCALE

A, B, C and D are points on a circle centre O.

Find

(a) angle ACD,

Angle ACD = ... [2]

(b) angle BAD.

Angle BAD = ... [2]

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10 y is inversely proportional to the square root of x.
When $x = 9$, $y = 12$.

Find y when $x = 100$.

..... [3]

11 **(a)** Factorise $x^2 - 3x - 10$.

..... [2]

(b) Using your answer to **part (a)**, solve $x^2 - 3x - 10 > 0$.

..... [2]

Questions 12 and 13 are printed on the next page.

12 Rationalise the denominator and simplify.

$$\frac{14\sqrt{2}}{3+\sqrt{2}}$$

..... [3]

13 Expand the brackets and simplify.

$$(3a-5b)(2a-3b)$$

..... [3]

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