Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

6350934650

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

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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[Turn over

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. $\quad A = \pi rl$

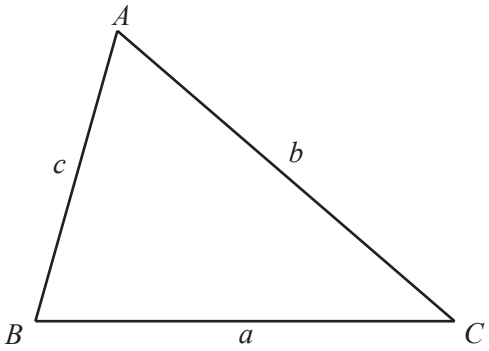
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 Sara and Klaus share some money in the ratio 5 : 4 .
Klaus receives $48.

Work out how much Sara receives.

$ ..... [2]

2

A P N F H

From the list above, write down the letter which has

line symmetry only, ...

line symmetry and rotational symmetry, ...

rotational symmetry only. .....

[2]

3 The list shows the quiz scores of 13 students.

11 11 11 12 12 13 14 15 15 16 16 19 19

Find

(a) the mode,

..... [1]

(b) the median,

..... [1]

(c) the upper quartile.

..... [1]

4 Write 4.07×10^{-3} as an ordinary number.

..... [1]

5 $v = u + at$

(a) Find v when $u = 5$, $a = -1$ and $t = 1.5$.

$v =$ ..... [2]

(b) Rearrange the formula to write a in terms of t, u and v.

$a =$ ..... [2]

6 Work out $\frac{8}{9} - \frac{7}{18}$, giving your answer in its lowest terms.

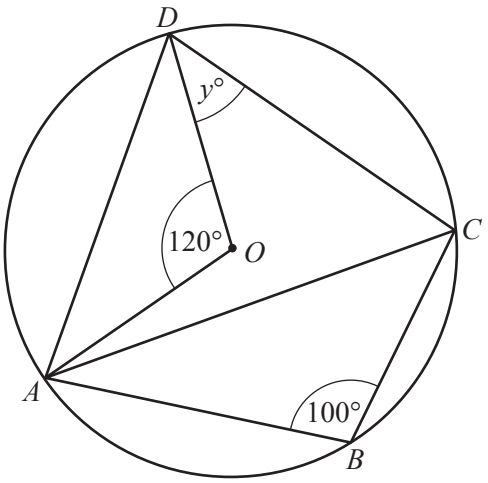
..... [3]

7 The interior angle of a regular polygon is 176°.

Work out how many sides the polygon has.

..... [3]

8



NOT TO SCALE

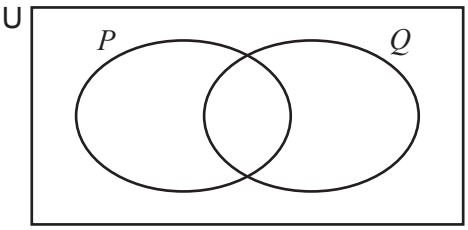
A, B, C and D lie on the circle, centre O.

Work out the value of y.

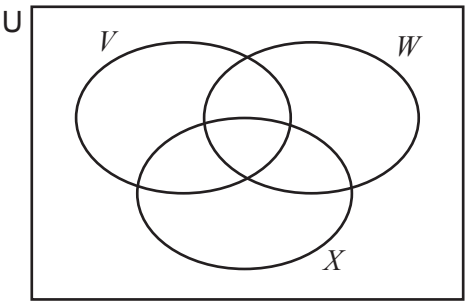
$y =$ ..... [3]

9 On each Venn diagram, shade the area indicated.

$(P \cap Q)'$



$W \cap V' \cap X'$



[2]

10 Multiply out the brackets and simplify.

$(2\sqrt{3}-1)(\sqrt{3}+2)$

..... [2]

11 Solve the equation.

$|x-3|=1$

..... [2]

12 Find the value of $25^{-\frac{3}{2}}$.

..... [2]

13 x is positive and $x^8 = 3^4$.

Find the exact value of x.

$x =$ ..... [2]

14 The roots of the quadratic equation $x^2 + ax + b = 0$ are 5 and -2.

Find the value of a and the value of b.

$a =$ .....

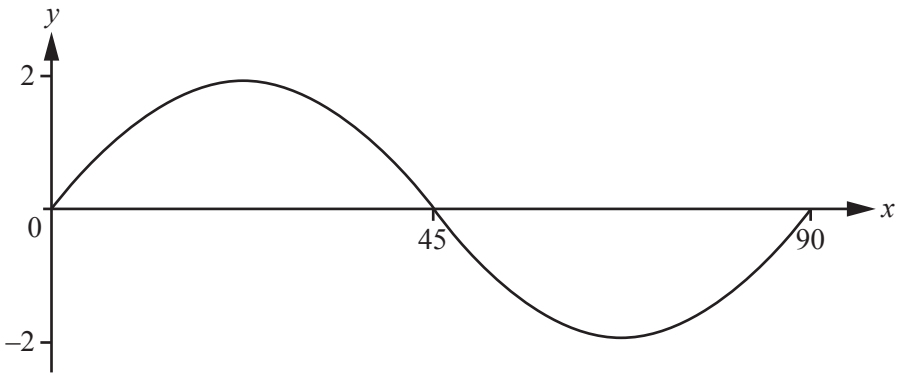
$b =$ ..... [3]

15 y is inversely proportional to the square root of $(x - 3)$.
When $x = 7$, $y = 3$.

Find y in terms of x.

$y =$ ..... [2]

16



The diagram shows the graph of $y = a\sin(bx)°$, for $0 \leqslant x \leqslant 90$.

Find the value of a and the value of b.

$a =$ .....

$b =$ ..... [2]

Question 17 is printed on the next page

17 **(a)** $2\log 3 = \log k$

Find the value of k.

$k =$ ..... [1]

(b) $\log 5 - \log 2 = \log p$

Find the value of p.

$p =$ ..... [1]