Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/23**

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. $\quad A = \pi rl$

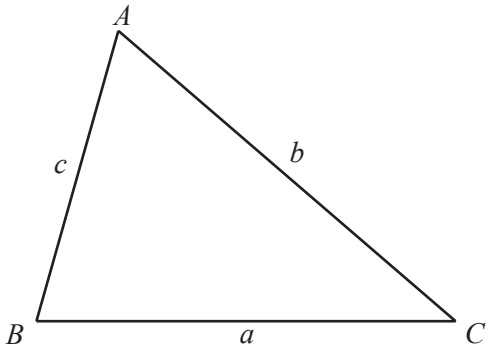
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 Here are the first four terms of a sequence.

11 8 5 2

Write down the next term of the sequence.

..... [1]

2 Use the formula $A = \frac{h}{2}(x + y)$ to find the value of A when $x = 7$, $y = 13$ and $h = 6.4$.

$A =$ ..... [2]

3 Work out.

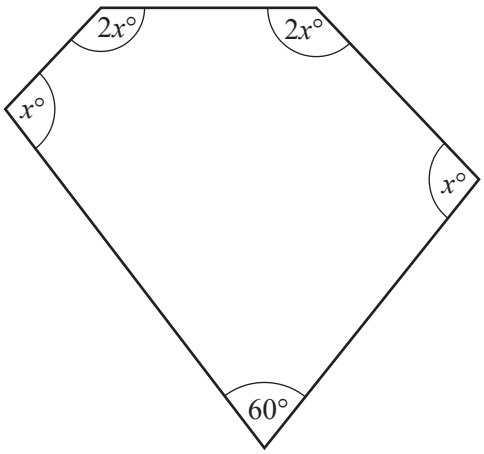
(a) $(0.2)^3$

..... [1]

(b) $\frac{3}{7} \div \frac{4}{5}$

..... [2]

4



NOT TO SCALE

The diagram shows a pentagon.

Find the value of x.

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

5 Triangle B is the image of triangle A after a reflection.
Triangle C is the image of triangle B after an enlargement, scale factor 2.
Triangle D is the image of triangle C after a rotation.
Triangle E is the image of triangle D after a stretch, factor 3.

Complete this table.
Write C if the triangles are congruent.
Write S if the triangles are similar.
Write N if the triangles are neither congruent nor similar.

Triangles	C, S or N
A and B	
A and C	
B and D	
D and E	

[3]

6 The table shows the numbers of pets owned by each of 100 families.

Number of pets	Frequency
0	23
1	37
2	25
3	10
4	5

(a) Write down the range.

..... [1]

(b) Find the median.

..... [1]

(c) Work out the mean.

..... [2]

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7 Solve the simultaneous equations.

$$4x - 3y = 12$$
$$6x - y = 11$$

$x =$ .....

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

8 Jakob draws a scatter diagram which shows that two quantities, x and y, are correlated.
He calculates the equation of the regression line as $y = 32 - 1.5x$.

(a) What type of correlation is there between x and y?

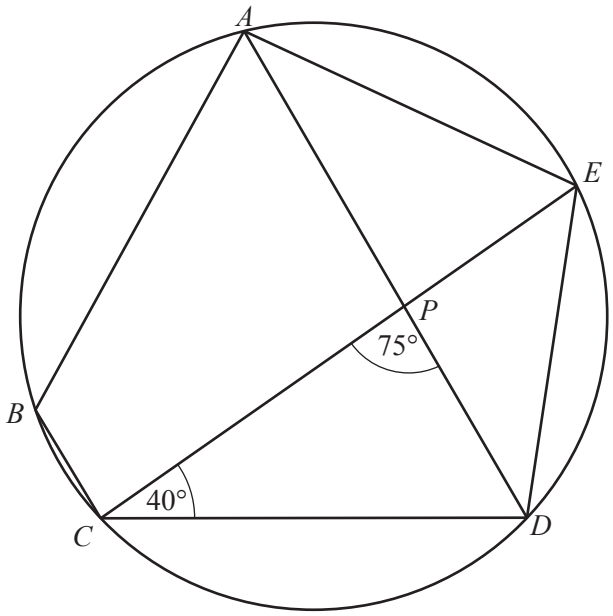
..... [1]

(b) The mean of the y values is 14.

Find the mean of the x values.

..... [2]

9



NOT TO SCALE

A, *B*, *C*, *D* and *E* are points on a circle.
CE and *AD* intersect at *P*.
Angle *DCP* = 40° and angle *CPD* = 75°.

Find

(a) angle *DAE*,

Angle *DAE* = ... [1]

(b) angle *ABC*.

Angle *ABC*= ..... [2]

10 **(a)** Find $\log_5 25$.

..... [1]

(b) $2 \log 3 - \log 5 = \log p$

Find *p*.

p = ... [2]

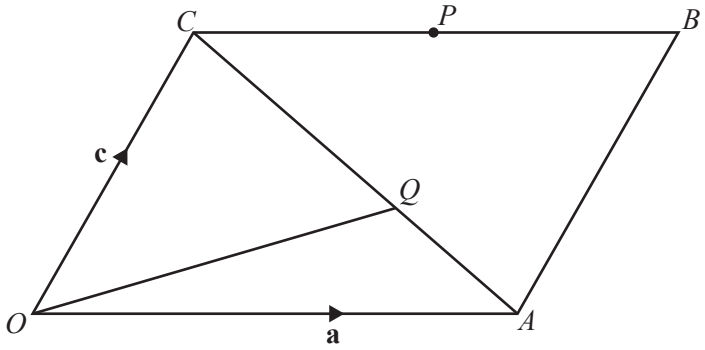
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11 Solve.

$$4x + 2 > 3(2x - 4)$$

..... [3]

12



NOT TO SCALE

OABC is a parallelogram.
P is the midpoint of *CB*.
CQ : *QA* = 5 : 3.

$\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OC} = \mathbf{c}$.

Find these vectors in terms of **a** and/or **c**, giving your answers in their simplest form.

(a) $\overrightarrow{CP}$

..... [1]

(b) $\overrightarrow{OQ}$

..... [3]

Question 13 is printed on the next page.

13 Simplify.

(a) $\frac{12}{\sqrt{2}}$

..... [2]

(b) $(5-2\sqrt{3})^2$

..... [3]

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