Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

1643446595

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/21**

Paper 2 (Extended) **May/June 2015**

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.

DC (LEG/SW) 99284/5
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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. $\quad A = \pi rl$

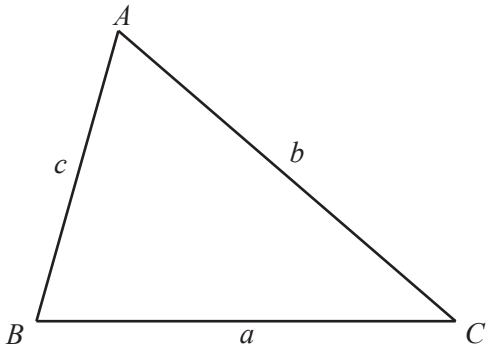
Curved surface area, A, of sphere of radius r. $\quad A = 4\pi r^2$

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 **(a)** Write 4725.6 correct to two significant figures.

Answer(a) ..... [1]

(b) Write 0.01026 correct to three decimal places.

Answer(b) ..... [1]

---

2 Expand and simplify.

(a) $-3x(2-x)-(3x^2-7)$

Answer(a) ..... [2]

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

Answer(b) ..... [3]

---

3 Find the exact value of $27^{-\frac{1}{3}}$.

Answer ..... [2]

---

4 Simplify $(16x^8y^2)^{\frac{1}{2}}$.

Answer ..... [2]

---

5 **(a)** Simplify.

$$\sqrt{27} + \sqrt{147}$$

Answer(a) ..... [2]

(b) Rationalise the denominator.

$$\frac{3 - \sqrt{5}}{3 + \sqrt{5}}$$

Answer(b) ..... [3]

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6 Solve.

$$\log x + \log 5 - \log 25 = \log 10$$

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

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7 There are 400 students at a school.

$\frac{2}{5}$ of the students are boys.

70% of the girls can swim.

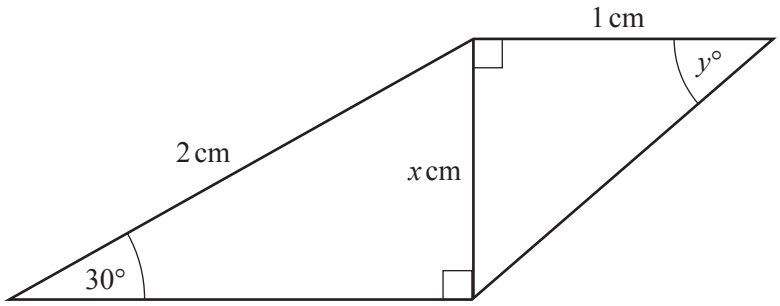
The ratio of boys that **cannot** swim to girls that **cannot** swim is 2 : 3.

Complete the table.

	Boys	Girls	Total
Can swim			
Cannot swim			
Total			400

[4]

8



NOT TO SCALE

(a) Write down the value of x.

Answer(a) $x =$ .....[1]

(b) Find the value of y.

Answer(b) $y =$ .....[2]

---

9 $\mathrm{f}(x) = \dfrac{1}{3x-2}$

(a) Find $\mathrm{f}(4)$.

Answer(a) .....[1]

(b) Solve $\mathrm{f}(x) = \dfrac{1}{4}$.

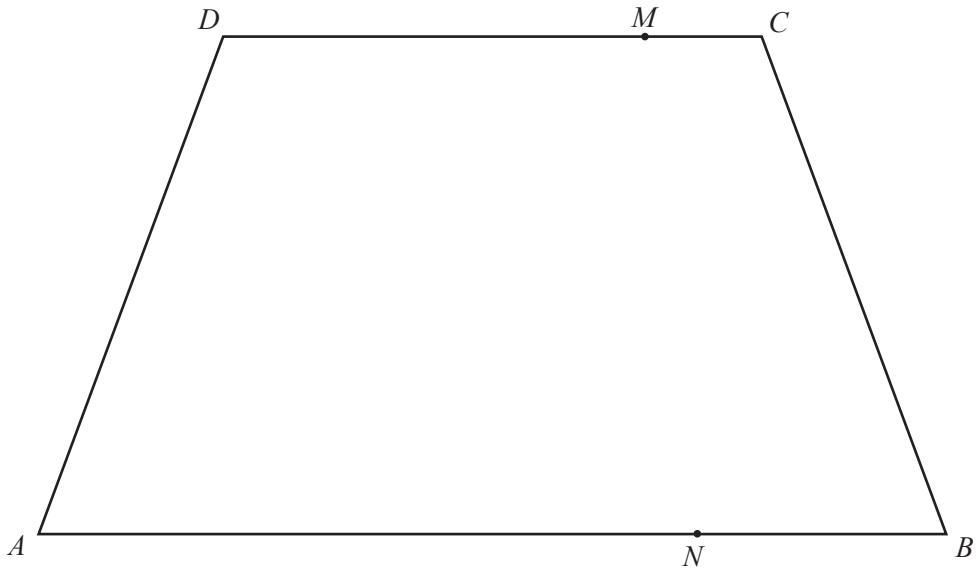
Answer(b) .....[2]

(c) Find $\mathrm{f}^{-1}(x)$.

Answer(c) .....[3]

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NOT TO SCALE

$ABCD$ is a trapezium.
$AB = 2DC$, $DM = 2MC$ and $AN = 3NB$.
$\overrightarrow{AB} = \mathbf{p}$ and $\overrightarrow{AD} = \mathbf{q}$.

(a) Write $\overrightarrow{MC}$ in terms of $\mathbf{p}$.

Answer(a) ..... [2]

(b) Find $\overrightarrow{MN}$ in terms of $\mathbf{p}$ and $\mathbf{q}$.

Answer(b) ..... [2]

Question 11 is printed on the next page.

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[Turn over

11 The point A has co-ordinates (2, 8) and the point B has co-ordinates (6, 6).

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

Answer ..... [4]

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