# OCR
RECOGNISING ACHIEVEMENT

**M6**

**GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**MATHEMATICS C (GRADUATED ASSESSMENT)**
MODULE M6 – SECTION A

**B276A**

**Thursday 21 January 2010**
**Afternoon**

**Duration:** 30 minutes
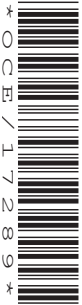
| Candidate Forename | | Candidate Surname | |
|---|---|---|---|

| Centre Number | | | | | | Candidate Number | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

**INSTRUCTIONS TO CANDIDATES**

* Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
* Use black ink. Pencil may be used for graphs and diagrams only.
* Read each question carefully and make sure that you know what you have to do before starting your answer.
* Show your working. Marks may be given for a correct method even if the answer is incorrect.
* Answer **all** the questions.
* Do **not** write in the bar codes.
* Write your answer to each question in the space provided, however additional paper may be used if necessary.

**INFORMATION FOR CANDIDATES**

* The number of marks is given in brackets **[  ]** at the end of each question or part question.
* The total number of marks for this Section is **25**.
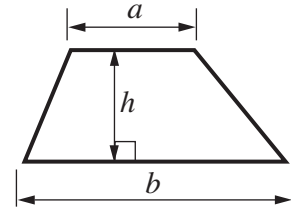* This document consists of **8** pages. Any blank pages are indicated.
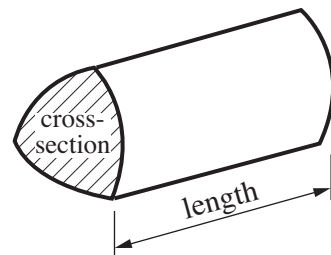
**WARNING**

No calculator can be used for Section A of this paper

**Formulae Sheet**

**Area of trapezium** $= \frac{1}{2}(a + b)h$



**Volume of prism** = (area of cross-section) × length



**PLEASE DO NOT WRITE ON THIS PAGE**

**1 (a)** Simplify.

    **(i)** $a \times a \times a \times a$

                         **(a)(i)** ...................................**[1]**

    **(ii)** $3c \times 2c$

                         **(ii)** ...................................**[1]**

**(b)** Solve.

    $5x = 3x + 7$

                         **(b)** ...................................**[2]**

**(c)** Multiply out.

    $3(5 - 2x)$

                         **(c)** ...................................**[2]**

**Turn over**

**2** **(a)** One weekend, 150 people visited a gym on Saturday and 360 visited it on Sunday.

What is the ratio of Saturday visitors to Sunday visitors?
Give your answer in its lowest terms.

**(a)**.................. : ...............**[2]**

**(b)** This table shows the probabilities for the length of time that a visitor, chosen at random, spends at the gym.

| Time | Probability |
|---|---|
| less than 30 minutes | 0·1 |
| 30 minutes to 1 hour | 0·3 |
| more than 1 hour | |

Complete the table. **[2]**

**(c)** It costs two adults £17 altogether to visit the gym.

Work out the cost for five adults.

**(c)** £ ................................**[2]**

**3**
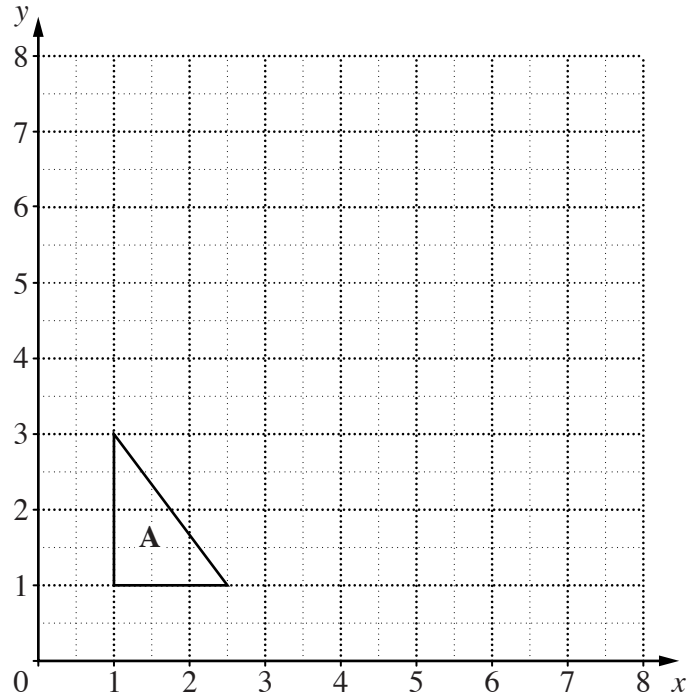


**(a)** Enlarge triangle **A** with scale factor 2 and centre $(0, 0)$.
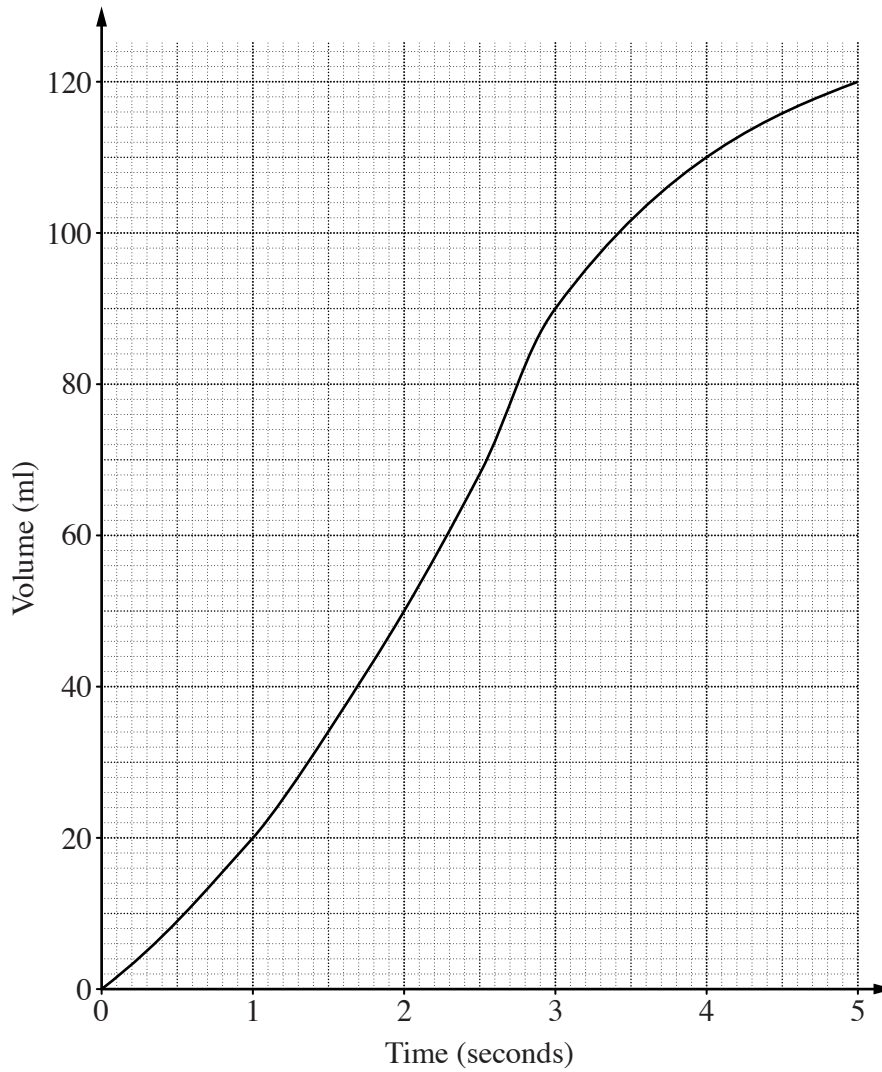Label the image **B**. **[2]**

**(b)** The perimeter of triangle **A** is 6 cm.
Choi draws an enlargement of triangle **A** with scale factor 4.

What is the perimeter of Choi's triangle?

**(b)** ............................... cm **[1]**

**Turn over**

**4** Jamie poured water into a glass until it was full.
This graph shows the volume of water in the glass as Jamie filled it.



(a) What was the volume of water in the glass when it was full?

(a)................................ml **[1]**

(b) How long after Jamie started pouring was the glass half-full?

(b) ...................... seconds **[1]**

(c) Explain how you can tell from the graph when Jamie was pouring water most quickly.

.........................................................................................................................................

......................................................................................................................... **[1]**

**5**    **(a)**   Work out.

       **(i)**    $6 - 2 \times 5$

                                                    **(a)(i)** ..................................**[1]**

       **(ii)**    $(4 + 2)^2$

                                                       **(ii)** ..................................**[1]**

**(b)**   Write $\dfrac{7}{20}$ as a decimal.

                                                     **(b)** ..................................**[2]**

**(c)**   Work out.

        $\dfrac{6}{7} \div \dfrac{4}{3}$

     Give your answer as a fraction in its simplest form.

                                                    **(c)** ..................................**[3]**

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