OCR
RECOGNISING ACHIEVEMENT

# M6

**GENERAL CERTIFICATE OF SECONDARY EDUCATION**

## MATHEMATICS C (GRADUATED ASSESSMENT) B276B

MODULE M6 (SECTION B)



Candidates answer on the Question Paper

**OCR Supplied Materials:**
None

**Other Materials Required:**
- Geometrical instruments
- Tracing paper (optional)
- Scientific or graphical calculator

**Monday 21 June 2010**
**Afternoon**

**Duration:** 30 minutes



| Candidate Forename | | Candidate Surname | |
|---|---|---|---|

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

**INSTRUCTIONS TO CANDIDATES**

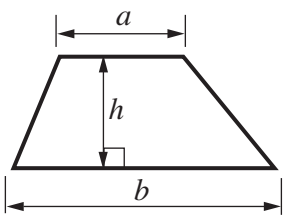
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. 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. Additional paper may be used if necessary but you must clearly show your Candidate Number, Centre Number and question number(s).

**INFORMATION FOR CANDIDATES**

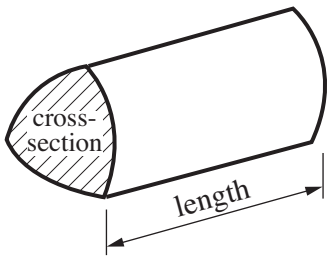
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Section B starts with question 8.
- You are expected to use a calculator in Section B of this paper.
- Use the $\pi$ button on your calculator or take $\pi$ to be 3·142 unless the question says otherwise.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

# Formulae Sheet

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

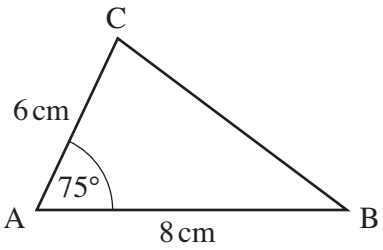



**Volume of prism** = (area of cross-section) × length




**PLEASE DO NOT WRITE ON THIS PAGE**

**8** Here is a sketch of a triangle.



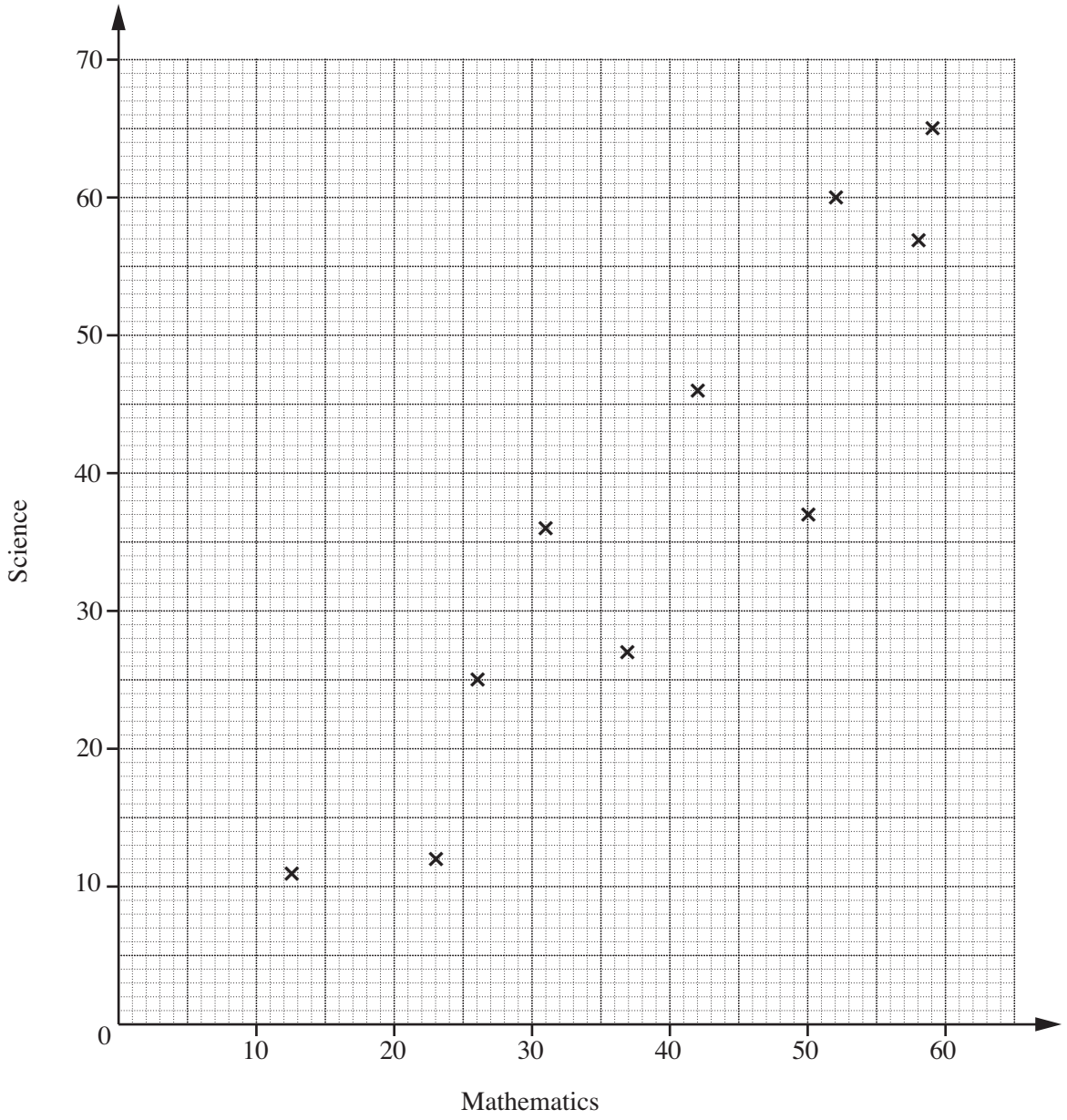

**Not to scale**

Make an accurate full-size drawing of triangle ABC.
The side AB has been drawn for you.

A B

**[2]**

**9** The scatter diagram shows the marks in a Mathematics test and a Science test for some pupils.




**(a)** Describe the relationship between the Mathematics and Science marks.

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

**(b)** Draw a line of best fit on the diagram. **[1]**

**(c)** Ben scored 40 in Mathematics but was absent for Science.

Use your line of best fit to estimate a Science mark for Ben.

**(c)** .....**[1]**

**10** Miss Bates gives her students Smiley stickers when they complete a good piece of work.

**(a)** The stem and leaf diagram shows the number of stickers each of the 21 students in class 7A has received.

| | |
|---|---|
| 0 | 2 3 5 7 7 |
| 1 | 0 4 6 6 6 7 8 |
| 2 | 1 6 7 9 |
| 3 | 1 5 8 |
| 4 | 1 5 |

Key : 2 | 7 represents 27 stickers

**(i)** Find the median.

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

**(ii)** Find the range.

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

**(b)** Here are the mean and range of the number of stickers for two other classes.

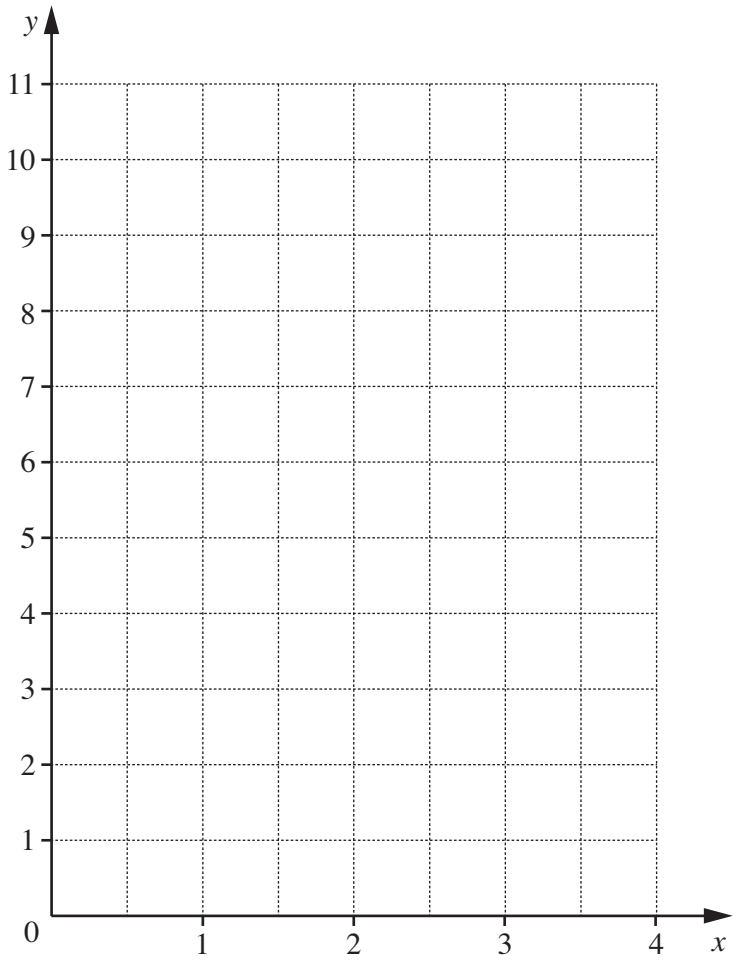
| | Mean | Range |
|---|---|---|
| 7B | 29·5 | 25 |
| 7C | 26 | 31 |

Which class, 7B or 7C, had more stickers per student?
Give a reason for your answer.

Class ..... because .....

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

**11** **(a)** Draw the graph of $y = 2x + 2$ on the grid below.




**[3]**

**(b)** Use your graph to find the value of $x$ when $y = 5$.

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

**12** **(a)** Calculate.

$$\frac{6{\cdot}3^2}{15{\cdot}8 + 9{\cdot}7}$$

Write your answer correct to 2 decimal places.

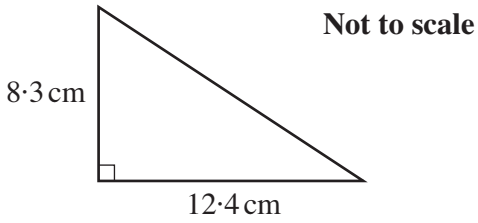
**(a)** ..... **[2]**

**(b)** A calculator shows an answer of 5·4 hours.

Write this answer in hours and minutes.

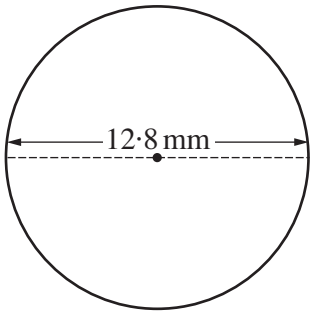
**(b)** ..... hours ..... minutes **[1]**

**13** **(a)** Calculate the area of this right-angled triangle.
Give the units of your answer.




**(a)** ..... **[3]**

**(b)** Calculate the circumference of this circle.




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

**TURN OVER FOR QUESTIONS 14 AND 15**

**14** **(a)** Multiply out.

$4(x + 2)$

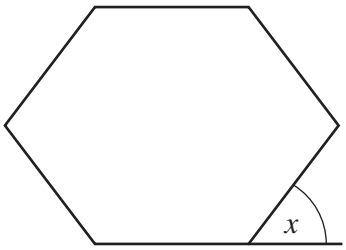
**(a)** ..... **[1]**

**(b)** Factorise.

$6x + 15$

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

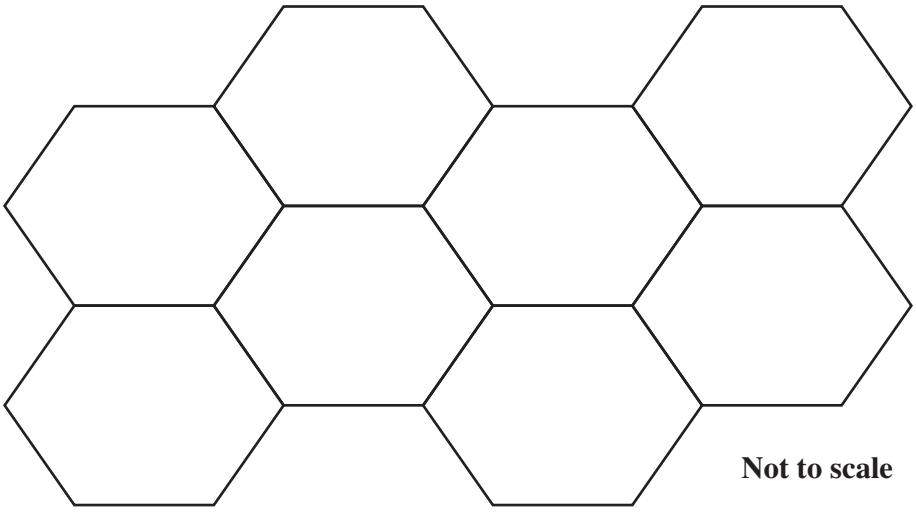
**15** **(a)** This is a sketch of a regular hexagon.
Calculate the exterior angle $x$.




**Not to scale**

**(a)** ..... ° **[2]**

**(b)** This sketch shows a tessellation of regular hexagons.



**Not to scale**

Explain why regular hexagons tessellate.

.....

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