



M3

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M3 – SECTION B**

B273B

Candidates answer on the question paper.

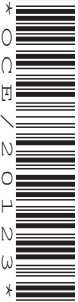
OCR supplied materials:
None

Other materials required:

- Geometrical instruments
- Tracing paper (optional)
- Electronic calculator

**Thursday 20 January 2011
Morning**

Duration: 30 minutes



Candidate forename		Candidate surname	
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Centre number							Candidate number				
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INSTRUCTIONS TO CANDIDATES

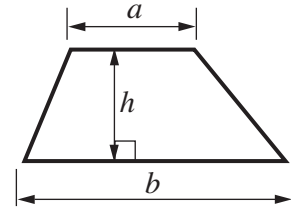
- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- 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).
- Answer **all** the questions.
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

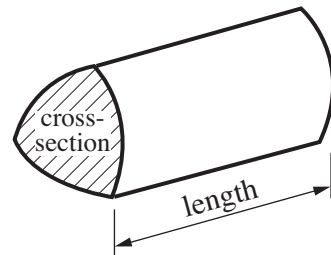
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 6.
- You are expected to use a calculator in Section B of this paper.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

Formulae Sheet

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



$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



PLEASE DO NOT WRITE ON THIS PAGE

6 Calculate.

(a) $\frac{1}{8}$ of 76

(a)..... [1]

(b) $\sqrt{225}$

(b) [1]

(c) $12^2 - 8^2$

(c)..... [2]

7 Choose a word from the box to complete the following sentences.

centimetres	grams	metres
kilograms	kilometres	

(a) It is about 270 from Sheffield to London. [1]

(b) An adult is about 1.7 tall. [1]

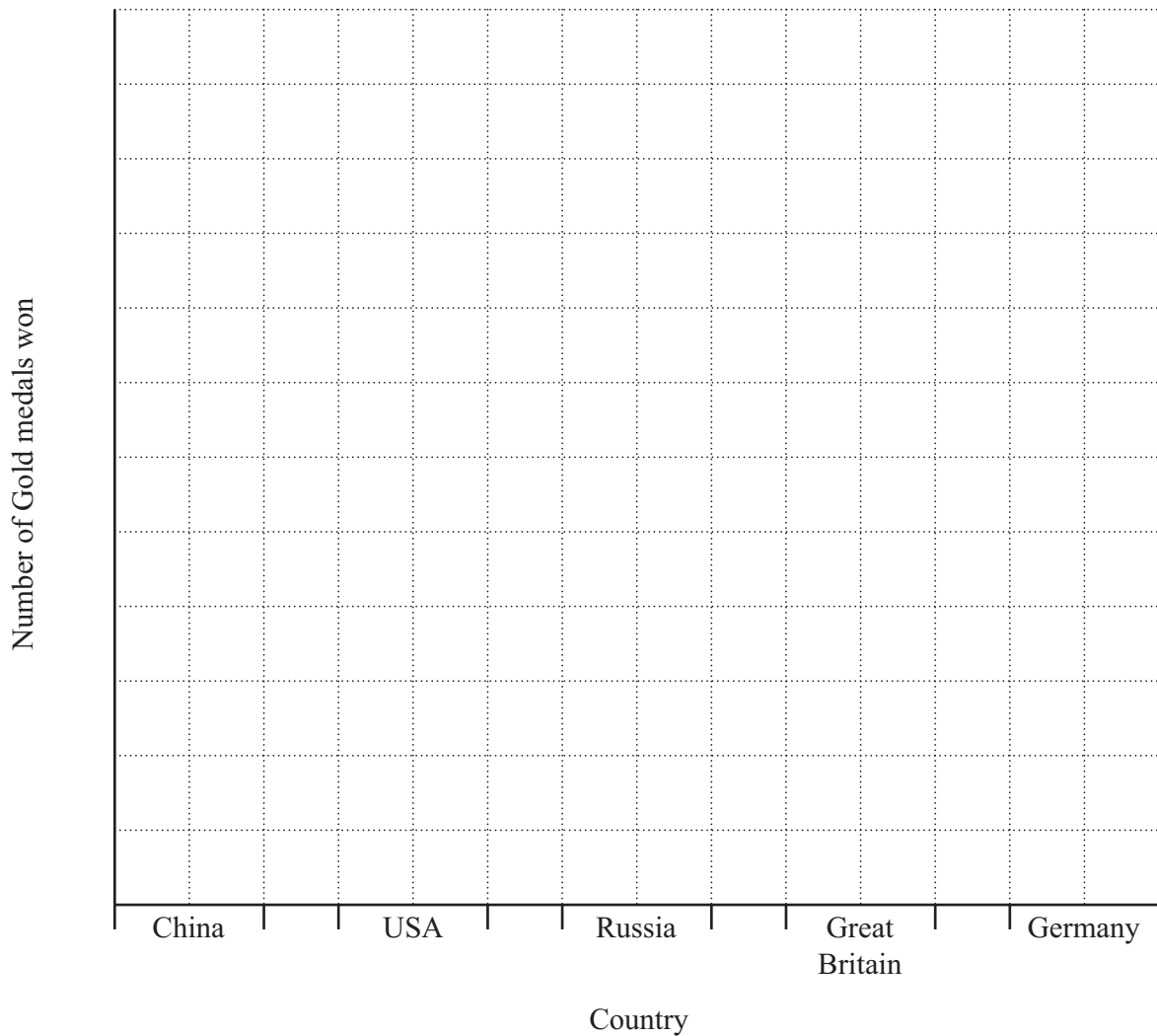
8 This table shows the number of Gold medals won by the top 5 countries at the 2008 Olympic Games.

Country	Number of Gold medals
China	51
USA	36
Russia	23
Great Britain	19
Germany	15

(a) How many more Gold medals did China win than Germany?

(a)..... [1]

(b) Draw a bar chart to show the number of Gold medals won.



[3]

(c) France won 40 medals altogether.

$\frac{2}{5}$ of these medals were Silver.

How many Silver medals did France win?

(c) [2]

(d) The men's cross-country cycle race started at 1010.
The winner finished at 1206.

How long did the winner take to complete the race?

(d) hours minutes [1]

9 Andrew works in a café.
His wage is worked out using this formula.

$$\text{Wage} = \text{Number of hours worked} \times \text{Pay per hour} + \text{Tips}$$

One week Andrew works 30 hours.
He is paid £6.50 per hour.
His tips are £12.74.

Calculate Andrew's wage for the week.

£ [2]

- 10 (a) Canals have locks on them.

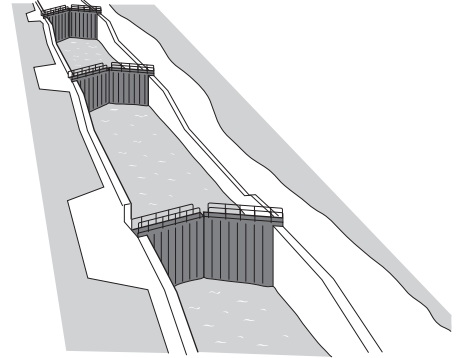
The time taken to travel through a flight of locks is worked out using this formula.

$$T = N \times 18$$

T is the time in minutes,

N is the number of locks in the flight.

- (i) Use the formula to work out how long a boat takes to travel through a flight of 8 locks.



(a)(i) minutes [1]

- (ii) The boat takes 270 minutes to travel through another flight of locks.

How many locks are in this flight?

(ii) [1]

- (b) Rebecca hired a canal boat for 8 days.

She recorded the number of hours she travelled each day.

12 8 7 6 13 11 10 9

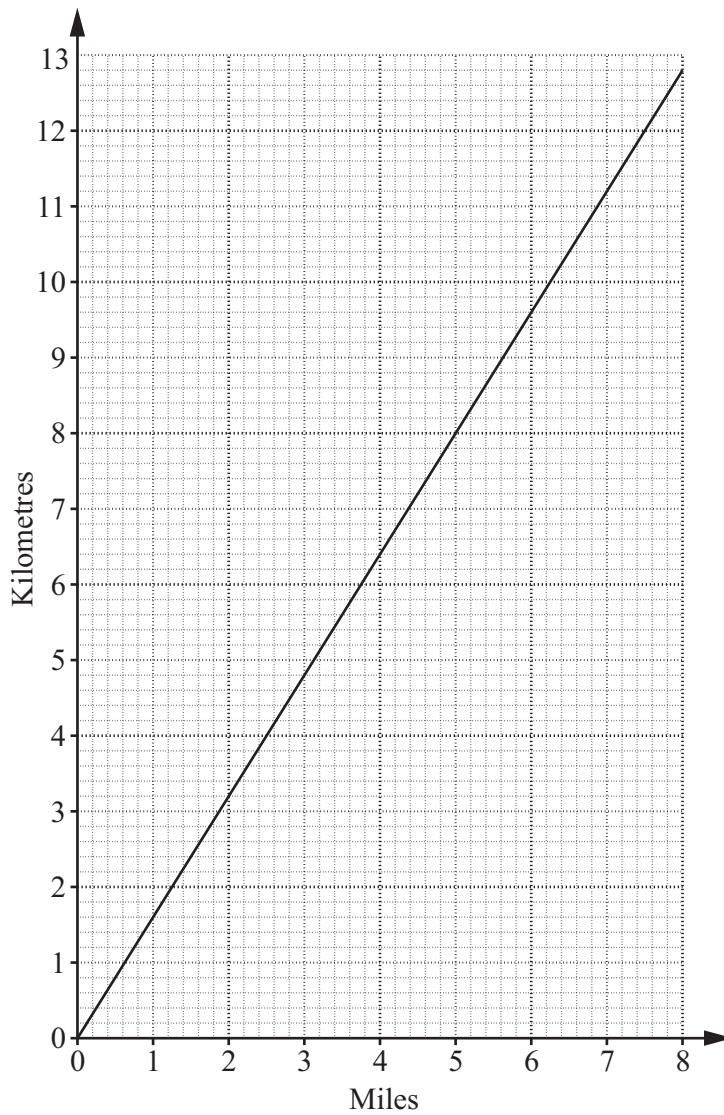
- (i) Work out the mean number of hours she travelled.

(b)(i) [3]

- (ii) Work out the range.

(ii) [1]

(c) Rebecca uses this graph to convert between miles and kilometres.



(i) A canal boat travels 4 miles.

Use the graph to find how many kilometres are equal to 4 miles.

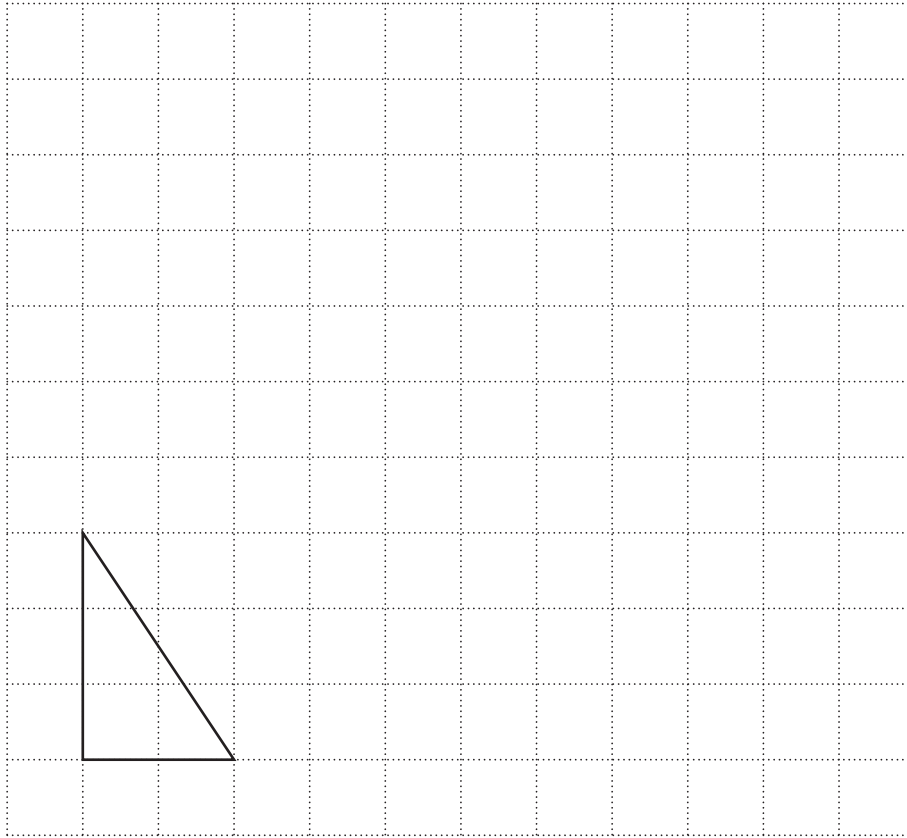
(c)(i) km [1]

(ii) Explain how you could use the graph to work out how many kilometres are equal to 14 miles.

.....
 [1]

TURN OVER FOR QUESTION 11

11 Draw an enlargement of this shape with scale factor 3.



[2]

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