

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
MODULE M2 – SECTION B

B272B

Candidates answer on the Question Paper

OCR Supplied Materials:
None

- Other Materials Required:**
- Geometrical instruments
 - Tracing paper (optional)
 - Electronic calculator

Monday 8 March 2010
Morning

Duration: 30 minutes



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

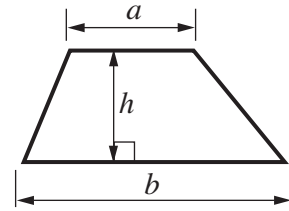
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working.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

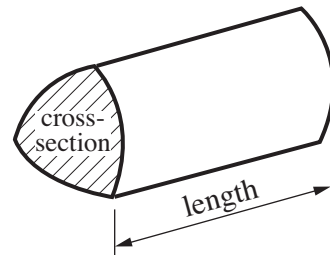
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 5.
- You are expected to use a calculator in Section B of this paper.
- The total number of marks for this Section is **25**.
- This document consists of **12** pages. Any blank pages are indicated.

Formulae Sheet

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

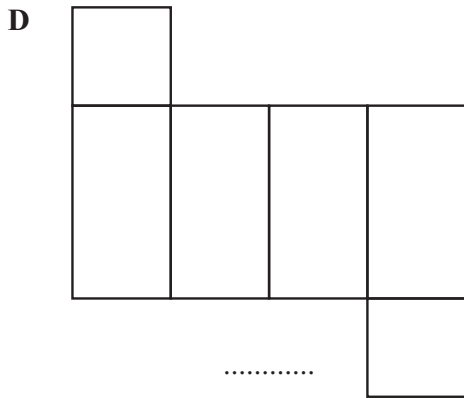
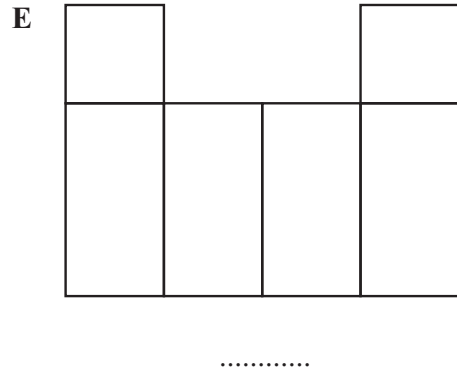
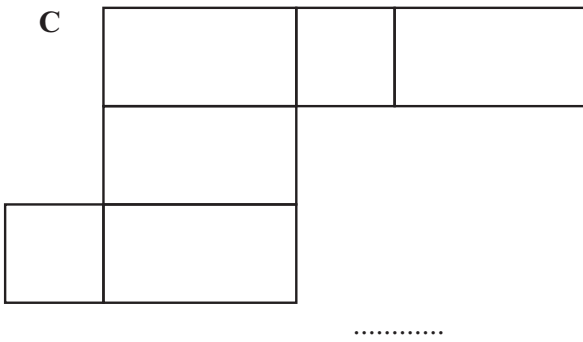
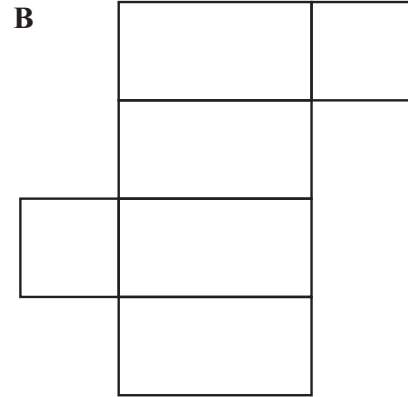
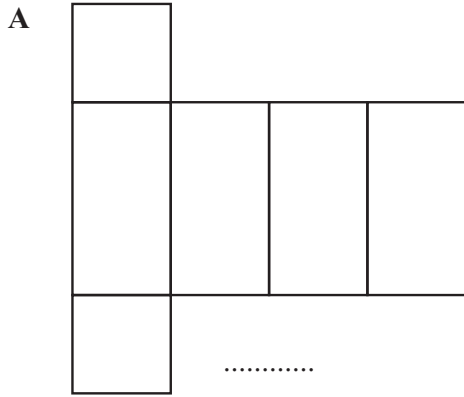


Volume of prism = (area of cross-section) \times length



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5 Each of these shapes is made from two squares and four rectangles. Some of them have reflection symmetry.



(a) Put a tick (✓) under those that **do have** reflection symmetry.
Put a cross (✗) under those that **do not have** reflection symmetry.

[2]

(b) Which of the shapes are **not** nets of a cuboid?

..... [2]

6 James is going to a party at his friend Alex's house.

(a) He is not sure of the house number.
He knows that it is even and between 21 and 27.

(i) Which even numbers are between 21 and 27?

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

(ii) James then also remembers that three divides into the house number exactly.

What is the number of Alex's house?

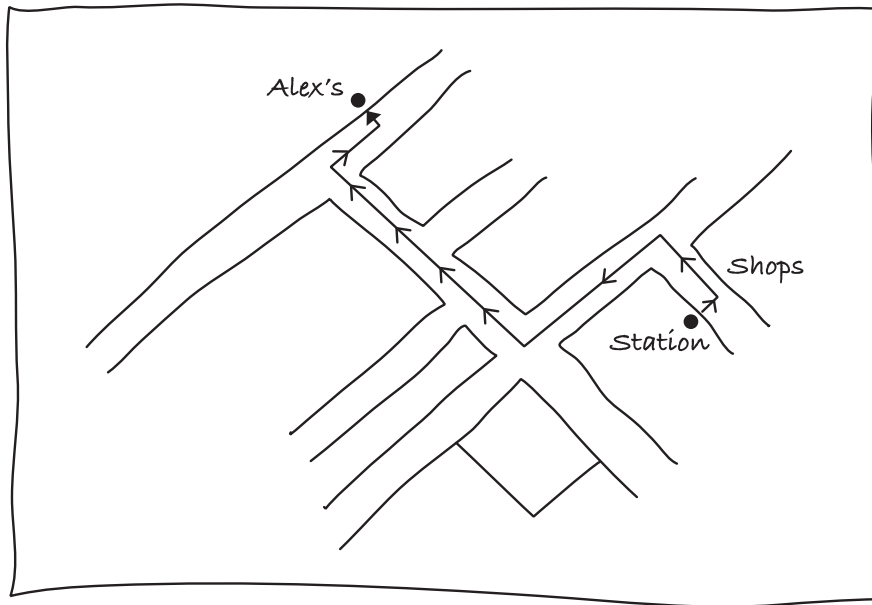
(ii)..... [1]

(b) The train fare costs £3.45.

How much change should James get from a £5 note?

(b) £ [1]

(c) James has this map showing how to get from the station to Alex's house.



He phones a friend to give these directions to Alex's house.

Put **R (right)** or **L (left)** in the spaces to complete his instructions.

The shops are opposite the station.

Go out of the station, turn

Take the first road on the

Then take the first road on the

Then second road on the

Alex's house is down the road a bit, on the

[4]

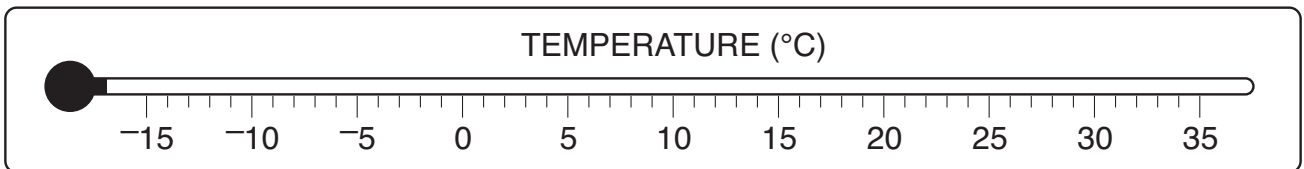
- 7 (a) Estimate the height of this snowman.
The man's height is 1.8 metres.



(a).....m [1]

- (b) When the snowman was made the temperature was -3°C .

- (i) Show -3°C on this temperature scale.



[1]

- (ii) That evening the temperature got colder by 2°C .

What was the temperature that evening?

(b)(ii)..... $^{\circ}\text{C}$ [1]

8 There are 76 seats in a standard railway carriage.

(a) On one journey only 25% of these seats are occupied.

Calculate 25% of 76.

(a)..... [2]

(b) A school rail trip to London is to be arranged for 300 people.

(i) How many standard railway carriages need be booked?
Explain how you decide.

.....
..... [2]

(ii) Here is some information about trains to London.

Outward journey							
Option	1	2	3	4	5	6	7
Depart	07:45	08:00	08:12	08:30	08:52	09:00	09:30
Arrive	09:06	09:42	10:24	10:02	11:02	10:30	10:59
Changes	0	0	0	0	0	0	0
Duration	1:21	1:42	2:12	1:32	2:10	1:30	1:29
Details	View	View	View	View	View	View	View
Find earlier trains				Find later trains			

The trip organiser wants to depart **after** 08:00 but arrive in London as early as possible.

Circle the train option she should choose. [1]

(c) Here is part of the seating plan for a standard railway carriage.

→ window seats left-hand side →

1	5	9		13	17	21	25	29	33	37	41		45
2	6	10		14	18	22	26	30	34	38	42		46
3		7	11		15	19		23	27	31		35	39
4		8	12		16	20		24	28	32		36	40

→ window seats right-hand side →

(i) Write down the number for the next window seat on the left-hand side.

(c)(i) [1]

(ii)



Explain how you know Frank is right.

.....

.....

..... [1]

(d) One of the helpers remembers using this formula on the last school trip to find how fast the train was going.

- * Time how many minutes it takes to get from Watford station to Wembley station.
- * Divide 500 **by** this time.
- * The answer is the speed of the train in miles per hour.

(i) The train took 10 minutes to get from Watford station to Wembley station.

How fast was the train going?

(d)(i) miles per hour [2]

(ii) Frank says:

If the train took twice as long to travel from
Watford station to Wembley station it would be
travelling twice as fast.

Explain why Frank is wrong.

.....
..... [2]

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