

**GENERAL CERTIFICATE OF SECONDARY EDUCATION  
MATHEMATICS C (GRADUATED ASSESSMENT)**

**M2<sup>B242B</sup>**

**MODULE M2 – SECTION B**

**TUESDAY 13 MARCH 2007**

Morning

Time: 30 minutes

Candidates answer on the question paper.  
Additional materials: Geometrical instruments  
Tracing paper (optional)  
Electronic calculator



Candidate  
Name

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Centre  
Number

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Candidate  
Number

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**INSTRUCTIONS TO CANDIDATES**

- Write your name, Centre Number and Candidate Number in the boxes above.
- Answer **all** the questions.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- In many questions marks will be given for a correct method even if the answer is incorrect.
- Do **not** write in the bar code.
- Do **not** write outside the box bordering each page.
- WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED. ANSWERS WRITTEN ELSEWHERE WILL NOT BE MARKED.

**INFORMATION FOR CANDIDATES**

- You are expected to use a calculator in Section B of this paper.
- 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.
- Section B starts with question 9.

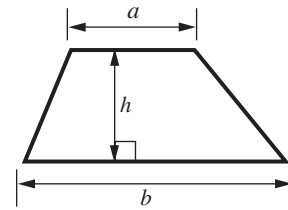
For Examiner's Use

Section B

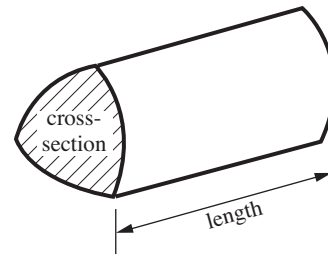
This document consists of **10** printed pages and **2** blank pages.

**Formulae Sheet**

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



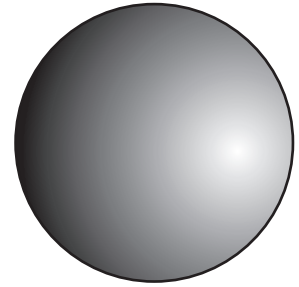
**Volume of prism** = (area of cross-section)  $\times$  length



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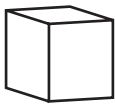
- 9 (a) Use the best word from this list to label each of the drawings below.

Cone	Rectangle	Quadrilateral	Cylinder
Triangle	Cuboid	Sphere	Cube

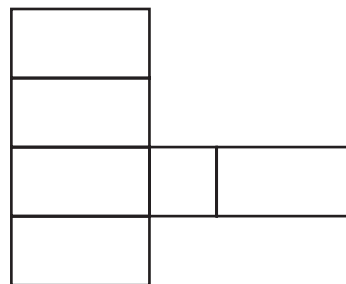


..... [2]

- (b) Match each one of these two solids to its net.



.....



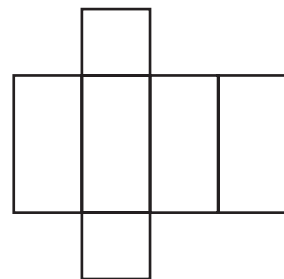
A



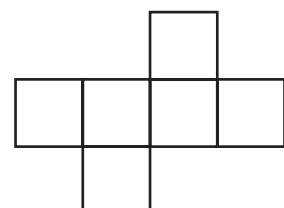
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B

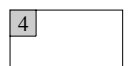


C

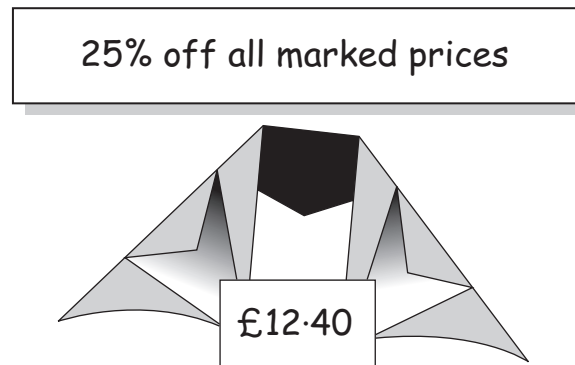


D

[2]



10 (a)

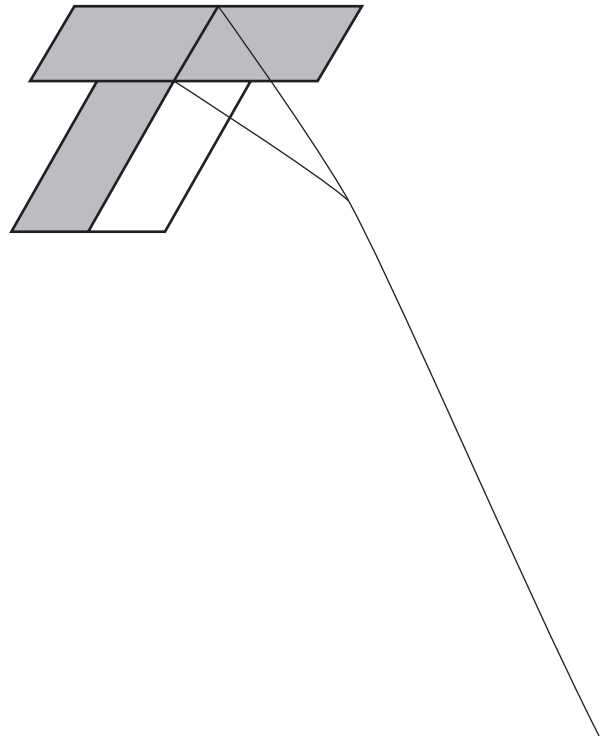


Work out 25% of £12.40.

(a) £..... [2]

(b) Three quarters of this kite is shaded.


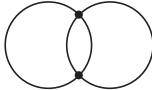
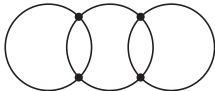
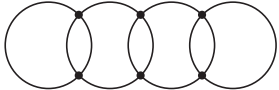

What percentage is this?



(b) .....% [1]

3

- 11 (a)** Tom is drawing circle patterns.  
He counts the number of circles and the number of dots.

Pattern	Number of circles	Number of dots
	1	0
	2	2
	3	4
	4	6
	5	8

- (i)** What is the number of dots for the pattern with 6 circles?

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

- (ii)** Explain how you can work out your answer without drawing the pattern.

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

- (b)** Here is part of another number pattern.

3      8      13      18      23      ...

- (i)** Explain how to find the next term in this number pattern.

..... [1]

- (ii)** Tom says that 45 will be in the number pattern.  
He is wrong.

Explain how you know.

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

- 12 (a) This table gives some information about wind speeds.

Wind speed (metres per second)	Description	Beaufort scale
Less than 0.2	Calm	0
0.3 to 1.5	Light air	1
1.6 to 3.3	Light breeze	2
3.4 to 5.4	Gentle breeze	3
5.5 to 7.9	Moderate breeze	4
8.0 to 10.7	Fresh breeze	5
10.8 to 13.8	Strong breeze	6
13.9 to 17.1	Near gale	7
17.2 to 20.7	Gale	8

- (i) What number on the Beaufort scale is a **gentle breeze**?

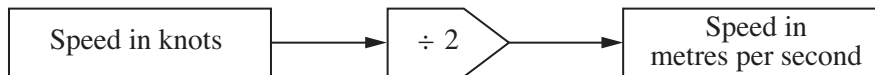
(a)(i) ..... [1]

- (ii) Write down a wind speed which is a **near gale**.

(ii) .....metres per second [1]

- (b) Wind speeds are also measured in knots.

This number machine can be used to change a speed in knots into a speed in metres per second.



Use the number machine to complete these sentences.

- (i) 170 knots is the same as ..... metres per second. [1]

- (ii) ..... knots is the same as 50 metres per second. [1]

(c) Here are some wind speeds, in knots.

10   8   15   9   25   17   9   12   11   9

(i) What is the mode of these wind speeds?

(c)(i) .....knots [1]

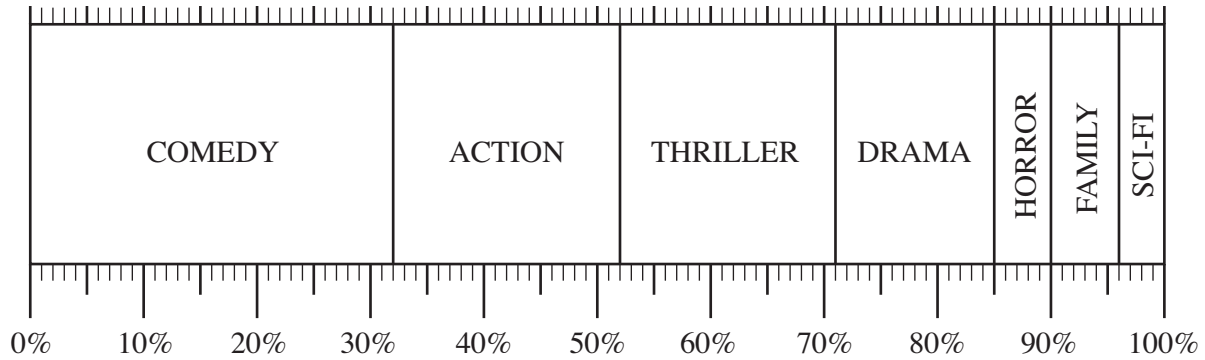
(ii) What is the median of these wind speeds?

(ii) .....knots [2]

7
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- 13 This percentage bar shows the types of films rented in 2002.

Percentage of types of film rented



- (a) What was the most popular type of film?

(a) ..... [1]

- (b) Estimate the percentage of horror films.

(b) ..... % [1]

- (c) Jade says:



Together Comedy and Drama films make up over half the number of films.

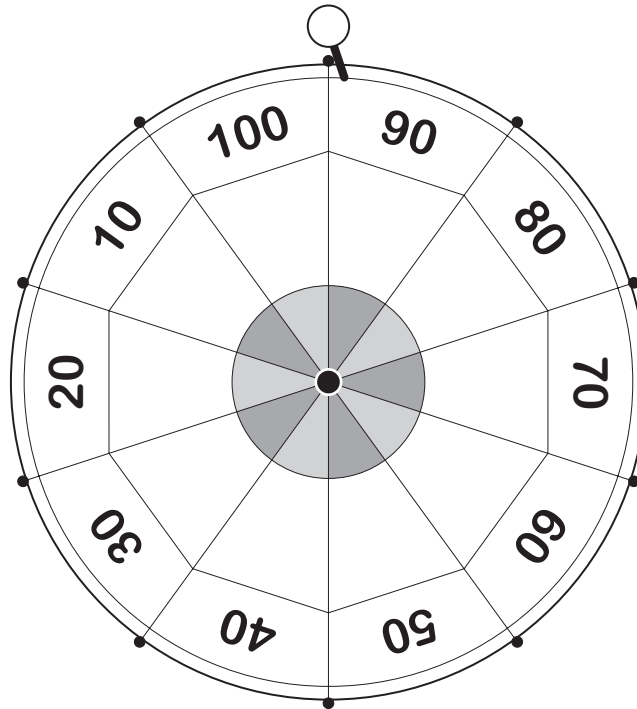
Is she right or wrong?  
Explain how you decided.

Jade is ..... because .....

..... [2]



- 14 In *Wheel of Chance* numbers are selected at random by spinning a wheel. Each number on the wheel is equally likely to come up.



Amy spins the wheel.  
Here are three statements about the result.

- A She gets 50.
- B She gets a number **greater than** 100.
- C She gets a number **less than** 100.

Using arrows labelled **A**, **B** and **C**, mark the probability of each statement on this probability line.



[3]

3
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