OCR
RECOGNISING ACHIEVEMENT

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

# M5 B245A

MODULE M5 – SECTION A

**WEDNESDAY 27 JUNE 2007** Morning

Time: 30 minutes

Candidates answer on the question paper.
Additional materials: Geometrical instruments
Tracing paper (optional)
Pie chart scale (optional)

*CUP/T40931*

Candidate Name

Centre Number

Candidate Number

**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**

- 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.

**WARNING**

**You are not allowed to use a calculator in Section A of this paper.**

| For Examiner's Use | |
|---|---|
| Section A | |
| Section B | |
| Total | |

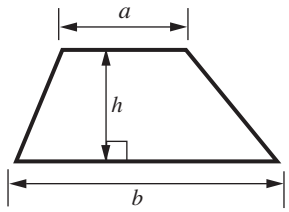
This document consists of **8** printed pages.



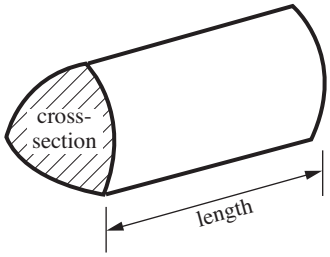
**[Turn over**

## Formulae Sheet

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




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

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**1** Solve.

**(a)** $6x + 3 = 15$

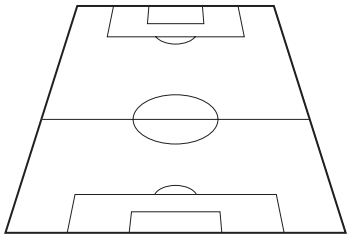
**(a)** ..... [2]

**(b)** $1 = 2x - 6$

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

4

**2** **(a)** The United football pitch is 103 metres long and 66·8 metres wide.



**Estimate** the area of the pitch in square metres.

**(a)** .....$m^2$ [2]

**(b)** United play the Wanderers.

**(i)** The first half is 45 minutes long.
United have possession for 40% of the time.

Work out 40% of 45.

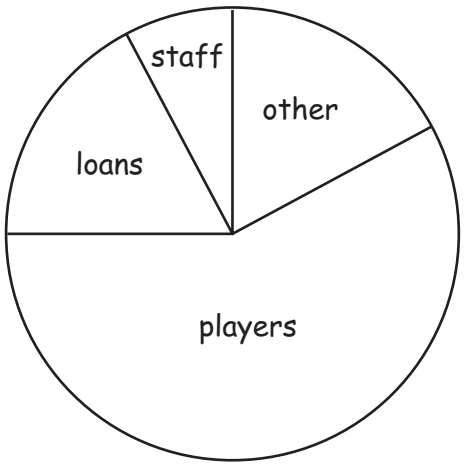
**(b)(i)** ..... [2]

**(ii)** The second half is 50 minutes long.
United have possession for 28 minutes.

Write 28 out of 50 as a percentage.

**(ii)** .....% [2]

**(c)** This pie chart shows how United spend their money.




Spending

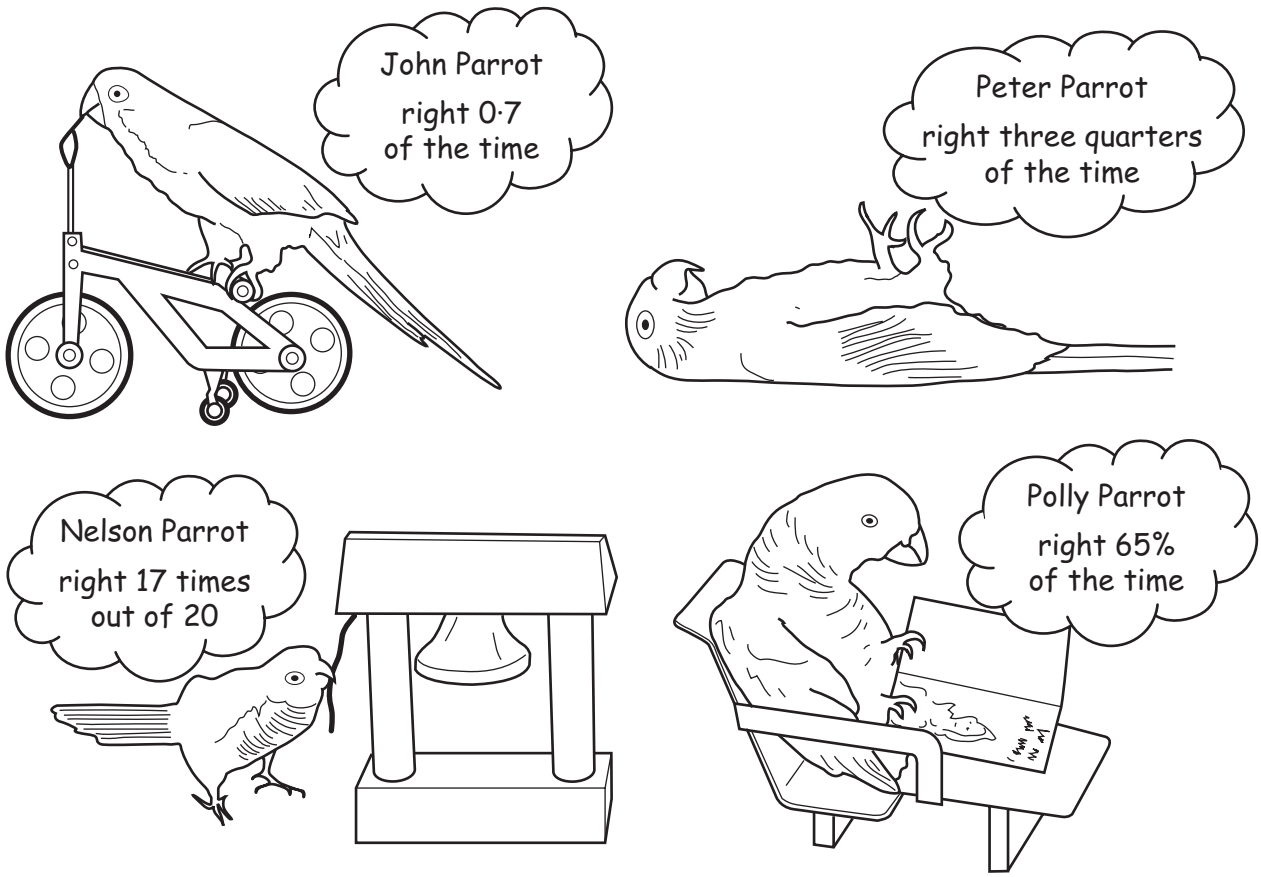
United spend a total of £800 000.

How much is spent altogether on players and loans?

**(c)** £ ..... [3]

9

**3** Ben teaches his parrots tricks.
The parrots often get their tricks right.




Complete these sentences.
Show all your working.

..... Parrot is most likely to get its trick right.

..... Parrot is least likely to get its trick right.

I know because .....

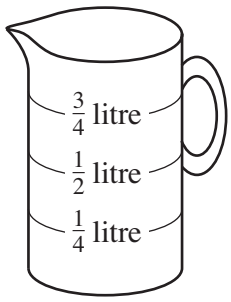
..... [3]

3

**4** **(a)** Jamie needs to make $\frac{3}{4}$ litre of fruit drink.

Half of the drink is orange juice.

Work out half of $\frac{3}{4}$, giving your answer as a fraction.




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

**(b)** Dale makes 40 salads.

$\frac{3}{5}$ are ham salads.

Work out $\frac{3}{5}$ of 40.

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

4

**TURN OVER FOR QUESTION 5**

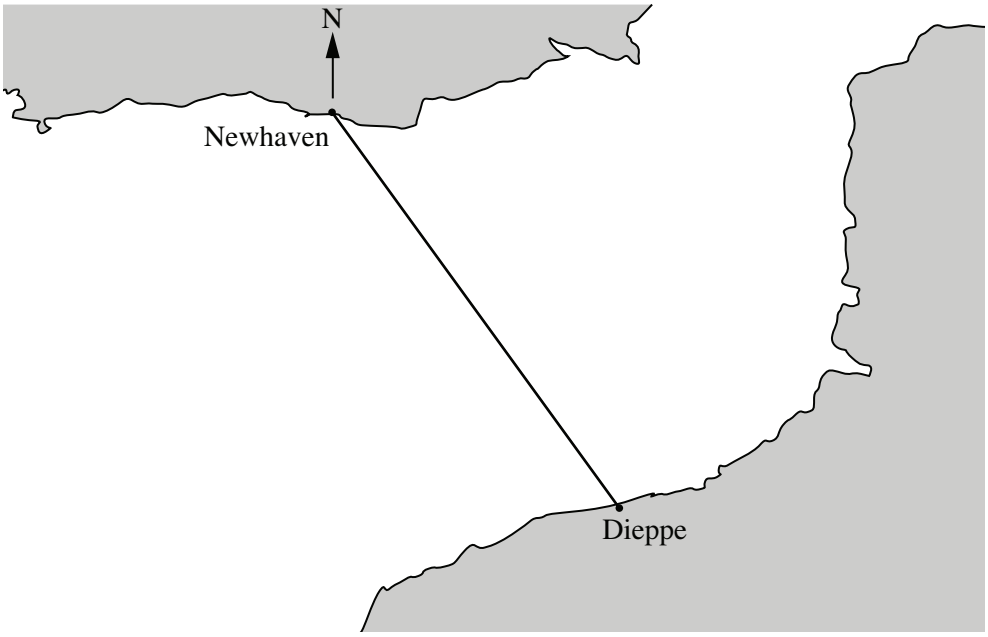
**5** Use the formula $P = 3a - 2b$ to find $P$ when $a = 7$ and $b = 5$.

..... [2]

2

**6** Helen is travelling by ferry from Newhaven to Dieppe.

This scale drawing shows the positions of Newhaven and Dieppe.




**Scale: 1 cm to 20 km**

**(a)** What is the bearing of Dieppe from Newhaven?

**(a)** .....° [1]

**(b)** The scale of the drawing is 1 cm to 20 km.

What is the actual distance, in kilometres, from Newhaven to Dieppe?

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

3

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**GENERAL CERTIFICATE OF SECONDARY EDUCATION**
**MATHEMATICS C (GRADUATED ASSESSMENT)**
MODULE M5 – SECTION B
**WEDNESDAY 27 JUNE 2007**

# M5 B245B

Morning
Time: 30 minutes

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

*CUP/T40932*

Candidate Name

Centre Number

Candidate Number

**INSTRUCTIONS TO CANDIDATES**

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**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 7.

| For Examiner's Use | |
|---|---|
| Section B | |

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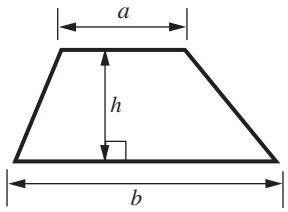
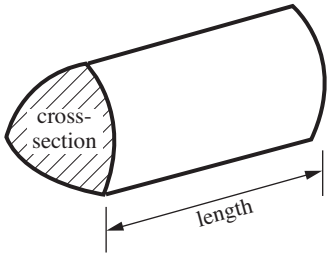
**[Turn over**

## Formulae Sheet

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




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

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**7** Complete.

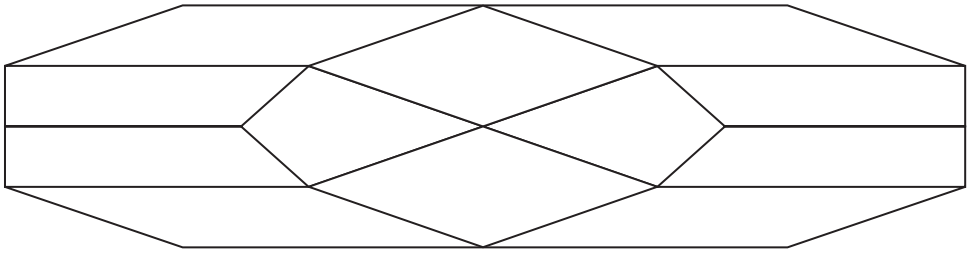
**(a)** 7 squared = ..... [1]

**(b)** 10 cubed = ..... [1]

**(c)** the cube of ..... = 125 [1]

3

**8** This diagram shows some shapes.



**(a)** Put a ✓ inside a kite. [1]

**(b)** These statements are **true** for **both** a rhombus and a parallelogram.

| | |
|---|---|
| A rhombus has 2 pairs of parallel sides.<br>A parallelogram has 2 pairs of parallel sides. | A rhombus has 4 sides.<br>A parallelogram has 4 sides. |

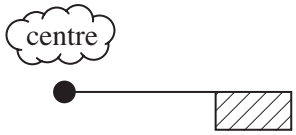
Write down a statement that is **true** for a rhombus but **not true** for a parallelogram.

.....

..... [2]

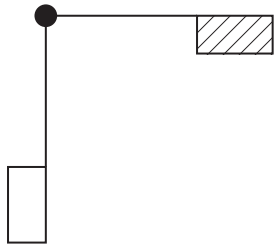
3

**9** Mr Hammond asks each student in his group to draw a rotation of this shape.



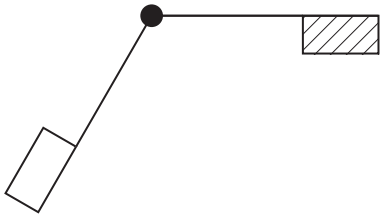

**(a)** Complete these sentences about each of these diagrams.

Jimmy



My rotation:
Direction is .....
Angle is one quarter of a turn.

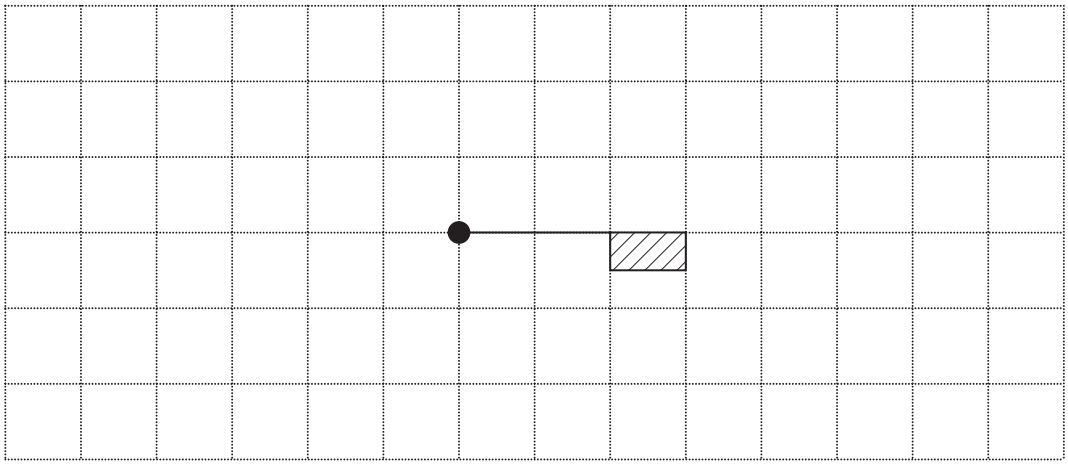
Frances



My rotation:
Direction is anticlockwise. [1]
Angle is ..... of a turn. [1]

**(b)** Lesley decides to draw a clockwise rotation of half a turn.

Complete her diagram.



[1]

3

**10** Complete.

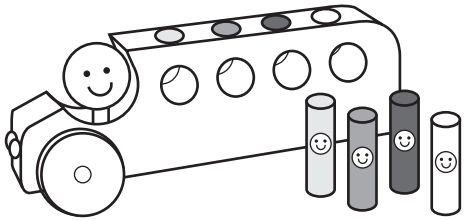
**(a)** $12h - 7h =$ ..... [1]

**(b)** $3a +$ ..... $= 7a$ [1]

**(c)** $5x +$ ..... $+ 9y - 2y = 8x +$ ..... [2]

4

**11** Katie is learning to match colours.
She has four tubes, one each of red, blue, yellow and green.
She must put each tube in the correct colour hole.



She always puts the **yellow** tube in the **yellow** hole.

**(a)** Complete the table below to show all the possibilities.

This is one way of putting the tubes in

You may not need all the lines

| red hole | blue hole | yellow hole | green hole |
|---|---|---|---|
| blue tube | green tube | yellow tube | red tube |
| | | Y | |
| | | Y | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

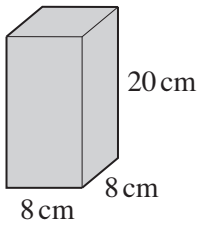
[2]

**(b)** Use the table to work out the probability that Katie puts all the tubes in the right holes.

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

4

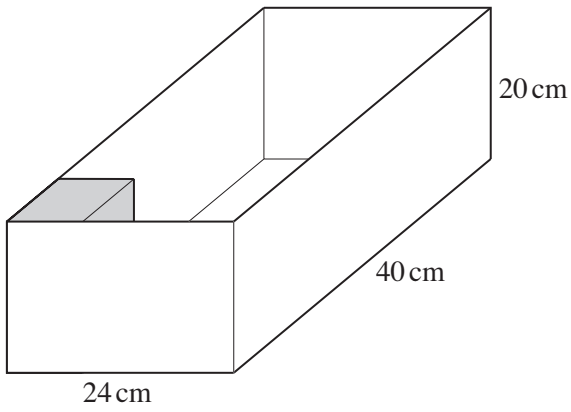
**12** A carton of juice is a cuboid.




**(a)** Calculate the volume of the cuboid.
Give the units of your answer.

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

**(b)** Some of these cartons of juice are packed into a box.




Calculate the number of cartons needed to fill the box.

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

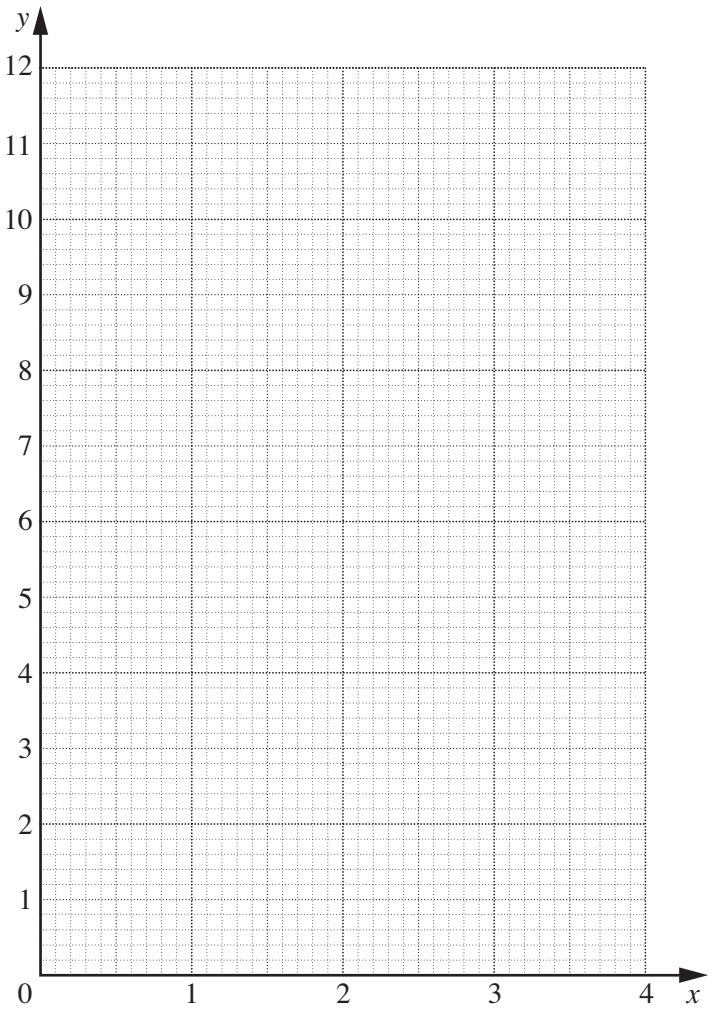
5

**13** **(a)** Complete this table for $y = 2x + 3$.

| $x$ | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| $y$ | 3 | 5 | | |

[1]

**(b)** Draw the graph of $y = 2x + 3$.




[2]

3