OCR
RECOGNISING ACHIEVEMENT

M2

GENERAL CERTIFICATE OF SECONDARY EDUCATION

MATHEMATICS C (GRADUATED ASSESSMENT) B272B

MODULE M2 – SECTION B

OCE/T63799

Candidates answer on the question paper

OCR Supplied Materials:
None

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

Tuesday 23 June 2009
Morning

Duration: 30 minutes

B272B

Candidate Forename		Candidate Surname	

Centre Number						Candidate Number				

INSTRUCTIONS TO CANDIDATES

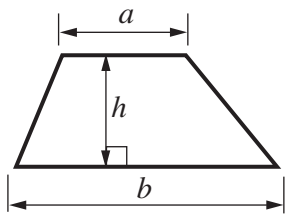
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working.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

INFORMATION FOR CANDIDATES

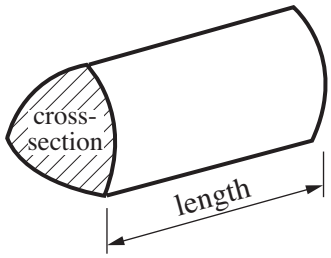
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- Section B starts with question 4.
- You are expected to use a calculator in Section B of this paper.
- The total number of marks for this Section is **25**.
- This document consists of **8** pages. Any blank pages are indicated.

Formulae Sheet

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



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



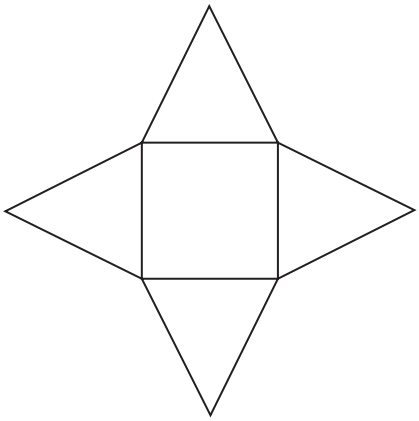
PLEASE DO NOT WRITE ON THIS PAGE

4

cone	cuboid	pyramid
cube	cylinder	sphere

Use this list of solids to answer these questions.

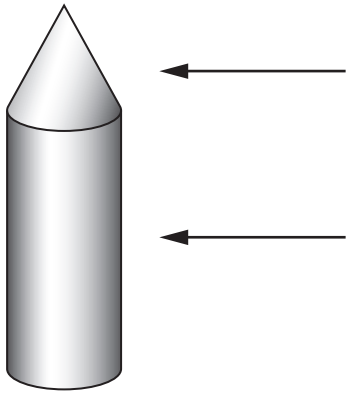
(a) Which solid can be made using this net?



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

(b) This tower is made from two of the solids.

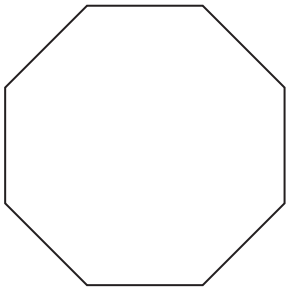
Write down the name of each solid.



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

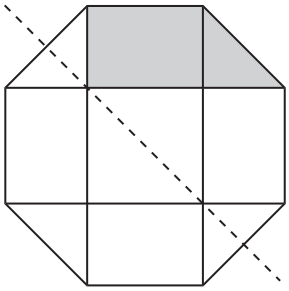
..... **[1]**

5 **(a)** **(i)** Write down the name of this shape.



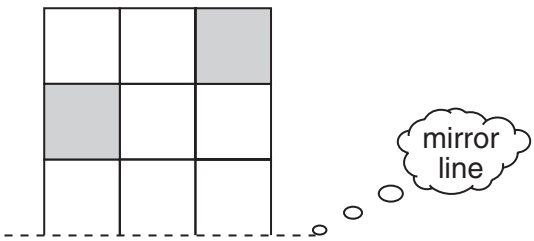
(a)(i) ..... **[1]**

(ii) Shade **two** more sections in this pattern so that the dotted line is a line of symmetry.

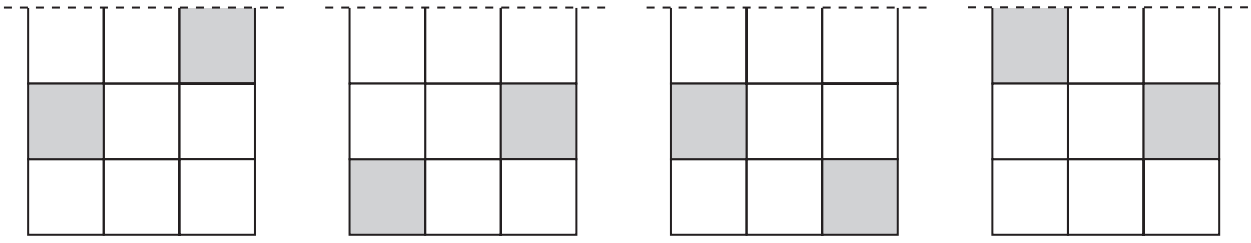


[1]

(b) This is one half of a pattern with reflection symmetry,



Which of these is the other half?
Put a tick (✓) under the correct diagram.



....

[1]

6 **(a)** Here are some number patterns.

4	**14**	**24**	**34**	**…**
1	**5**	**9**	**13**	**…**
4	**8**	**16**	**32**	**…**
1	**4**	**16**	**64**	**…**

Janet is working out the next number in each pattern.

She says

The rule for the first pattern is **add 4**.

She is wrong.

Which pattern **does** have the rule **add 4**?
Put a tick (✓) next to your choice. **[1]**

(b) Here is a different number pattern.

52	**47**	**42**	**37**	**32**	**…**

What is the next number?
Explain how you worked it out.

The next number is ..... because .....

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

(c) Make a different number pattern of your own, starting with 6.

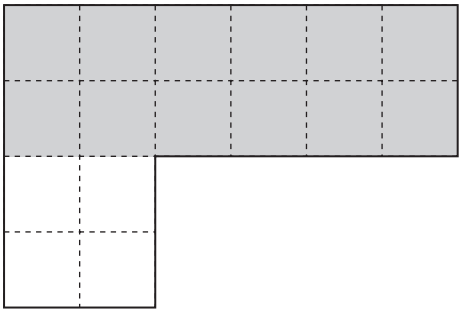
6	...	...	...	...	...

Explain how your number pattern works.

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

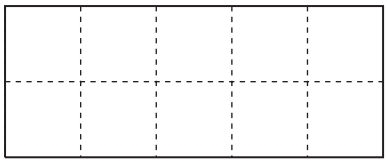
7 **(a)** Ailsa has shaded part of this shape.

What fraction of this shape is shaded?



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

(b) Nina wants to shade 0·3 of this shape.



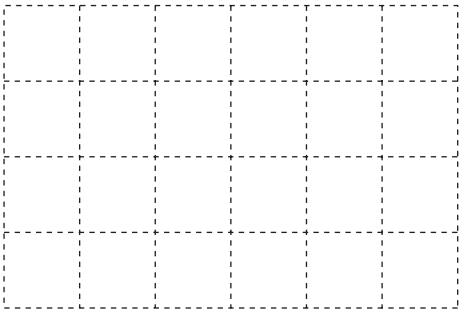
How many squares does she need to shade?
Explain how you worked out your answer.

She needs to shade ..... squares because .....

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

(c) Nikki wants to draw a shape with an area of 8 square centimetres.

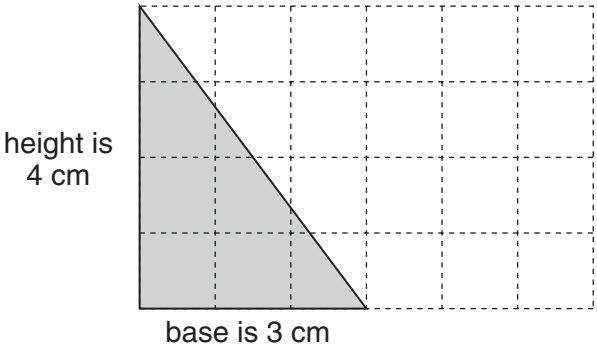
Draw a shape with an area of 8 square centimetres.



[2]

(d) Catherine uses this formula to work out the area of this triangle.

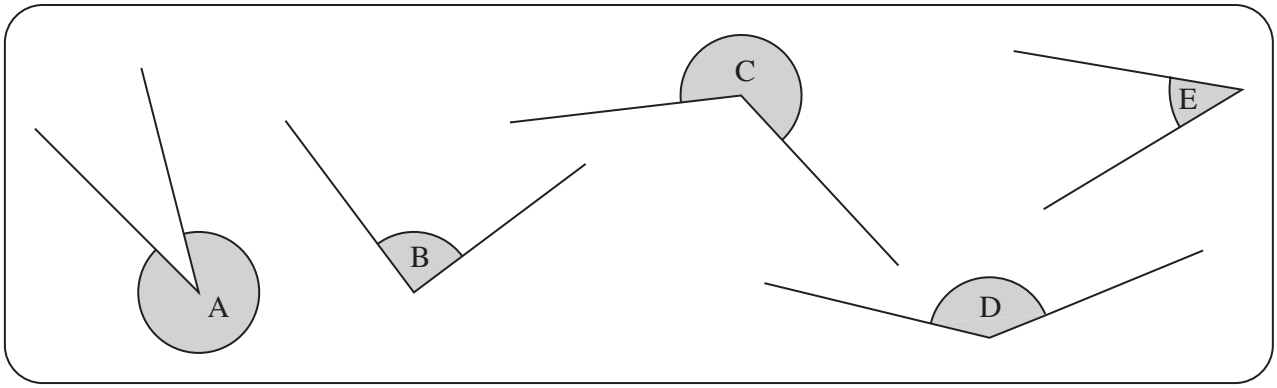
Multiply the height by the base then divide by 2.



Use the formula to work out the area of the triangle.

(d) ..... square centimetres **[2]**

8



Complete each sentence.

Angle ..... is the biggest.

Angle ..... is the smallest.

Angle ..... is a right angle.

Angle ..... is obtuse. **[4]**

TURN OVER FOR QUESTION 9

9 Emma has 10 pens in her pencil case.

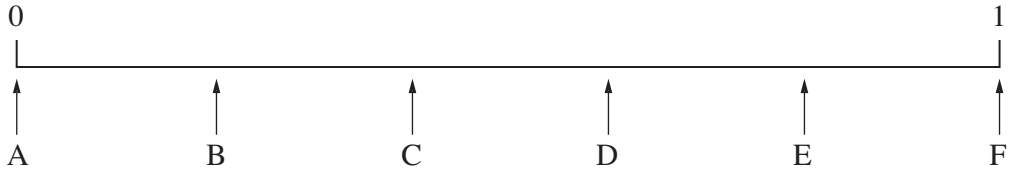
- 5 are black
- 2 are blue
- 2 are purple
- 1 is pink

She takes one pen at random and looks at the colour.

(a) Complete this sentence using a colour.

It is **evens** that she takes ..... . **[1]**

(b) Some probabilities are shown on this number line.



(i) Match the correct arrows with these statements.

The probability that she takes **purple** is shown by arrow ..... . **[1]**

The probability that she takes **green** is shown by arrow ..... . **[1]**

(ii) Mark an arrow on the probability line to show the probability that she takes pink.
Label your arrow P. **[1]**