

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

**B281B**

Terminal Paper – Section B  
(Foundation Tier)

Candidates answer on the question paper

**OCR Supplied Materials:**

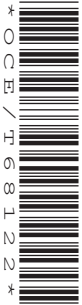
None

**Other Materials Required:**

- Geometrical instruments
- Pie chart scale (optional)
- Tracing paper (optional)
- Scientific or graphical calculator

**Monday 1 June 2009  
Morning**

**Duration: 1 hour**



|                    |  |                   |  |
|--------------------|--|-------------------|--|
| Candidate Forename |  | Candidate Surname |  |
|--------------------|--|-------------------|--|

|               |  |  |  |  |  |                  |  |  |  |  |
|---------------|--|--|--|--|--|------------------|--|--|--|--|
| Centre Number |  |  |  |  |  | Candidate Number |  |  |  |  |
|---------------|--|--|--|--|--|------------------|--|--|--|--|

**INSTRUCTIONS TO CANDIDATES**

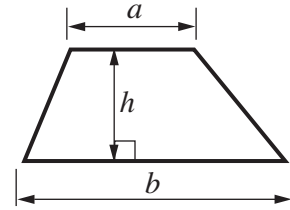
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show all your working.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

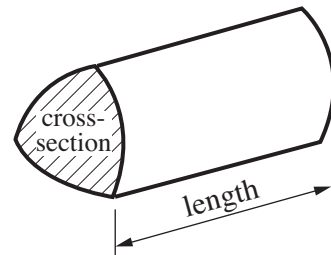
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 12.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.
- The total number of marks for this Section is **50**.
- This document consists of **12** pages. Any blank pages are indicated.

## Formulae Sheet

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

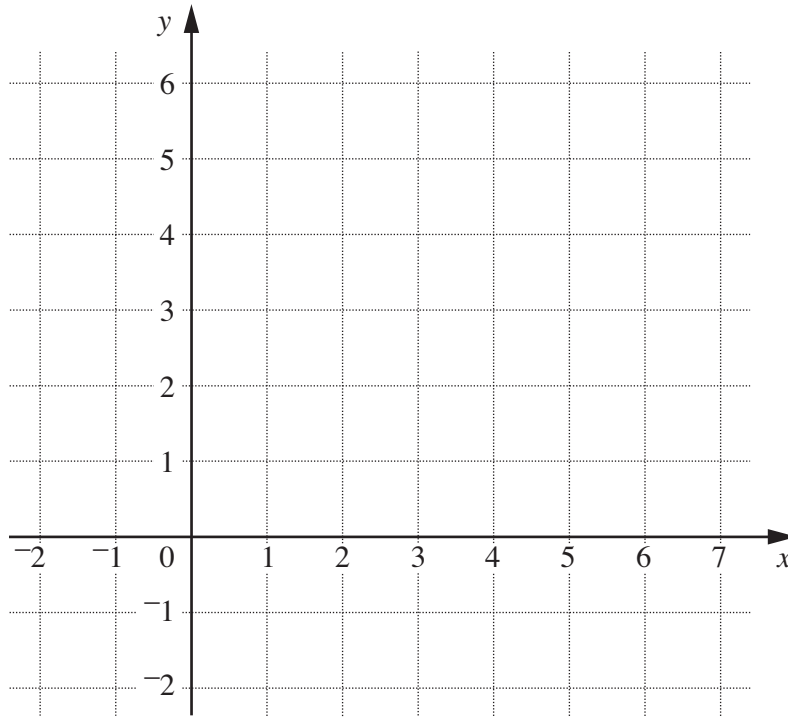


$$\text{Volume of prism} = (\text{area of cross-section}) \times \text{length}$$



**PLEASE DO NOT WRITE ON THIS PAGE**

12



- (a) Plot the points A (-1, 2) and B (5, 4). [2]
- (b) Mark the midpoint of the line AB with a cross. Label it M. [1]
- (c) Write down the coordinates of M. (c) (....., .....) [1]

13 (a) Here are the first four terms of a sequence.

5      9      13      17

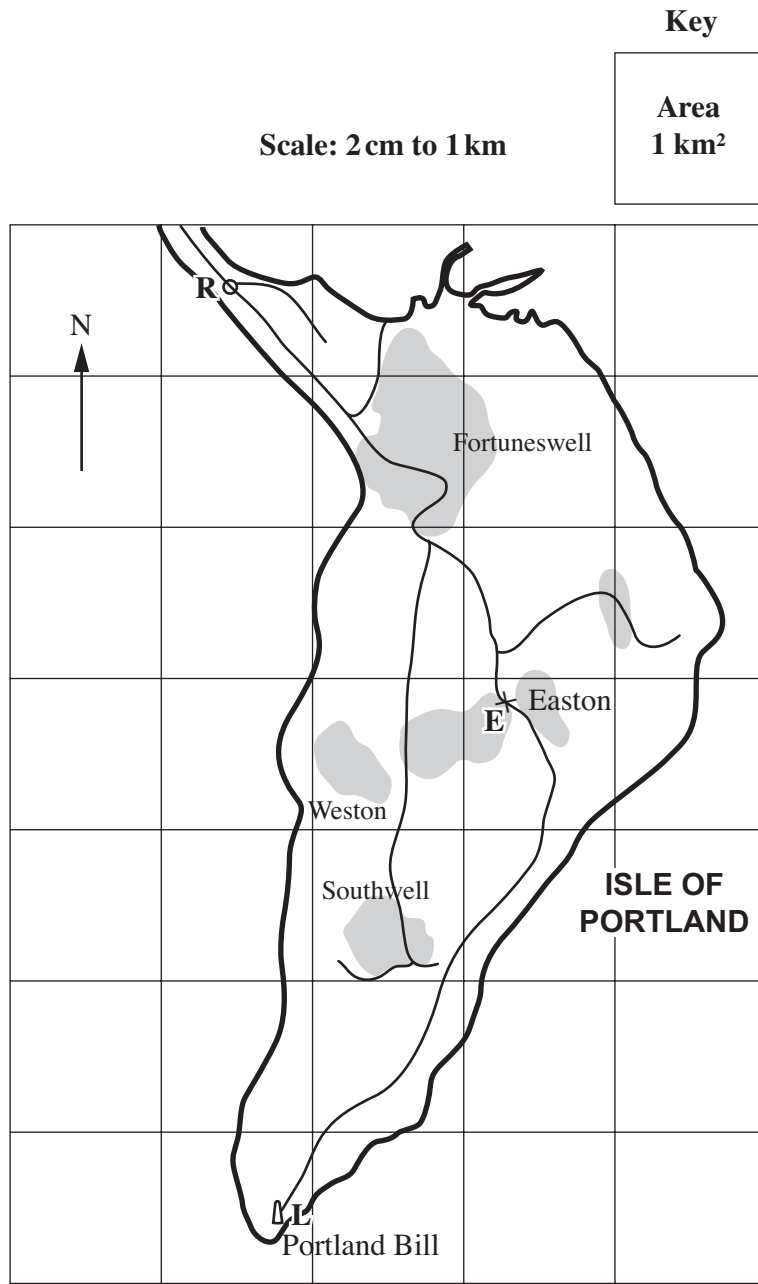
- (i) Write down the next term in the sequence. (a)(i) ..... [1]
- (ii) Describe the rule you used to work out the next term.  
 ..... [1]

(b) Here are the first four terms of another sequence.

1280      640      320      160

- (i) Write down the next term in the sequence. (b)(i) ..... [1]
- (ii) Describe the rule you used to work out the next term.  
 ..... [1]

14 This is a map of the Isle of Portland.



(a) Estimate the area of the Isle of Portland.

(a) .....km<sup>2</sup> [2]

- (b) Jenny walks from the roundabout (marked **R**) to Easton (marked **E**).

In which compass direction does she start walking?

(b) ..... [1]

- (c) She meets some friends at Easton and they walk along the road to the lighthouse at Portland Bill (marked **L**).

Estimate the distance from Easton to the lighthouse.  
Give the units of your answer.

(c) ..... [3]

- (d) Jenny buys 3 coffees and 3 biscuits at the café near the lighthouse.  
The coffees cost 80p each and the biscuits cost 27p each.  
Jenny pays with a £5 note.

How much change should she receive?

(d) £ ..... [3]

- (e) After visiting the café they travel home by bus.  
The bus leaves Portland Bill at 11 39 and they arrive home at 12 06.

How long does this journey take?

(e) .....minutes [1]

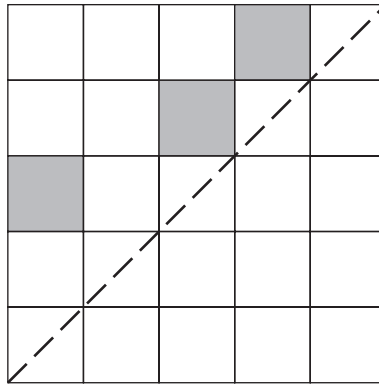
15 Each of these two statements is false.

For each statement, give an example to show that it is false.

| Statement                             | Example |
|---------------------------------------|---------|
| odd number + odd number = odd number  |         |
| odd number × odd number = even number |         |

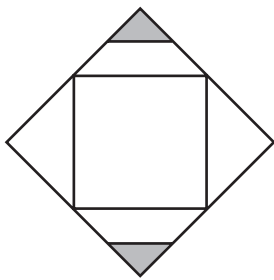
[2]

16 (a) Shade **three more** squares so that the dashed line is a line of symmetry.

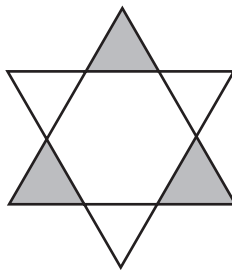


[2]

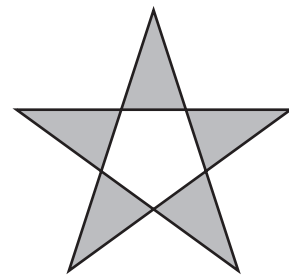
(b) Write down the order of rotation symmetry for each of these shapes.



.....



.....



.....

[2]

17 (a) *Move-it* estate agency sells 5 properties during one week. These are the selling prices.

- £145 000
- £210 000
- £165 000
- £95 000
- £180 000

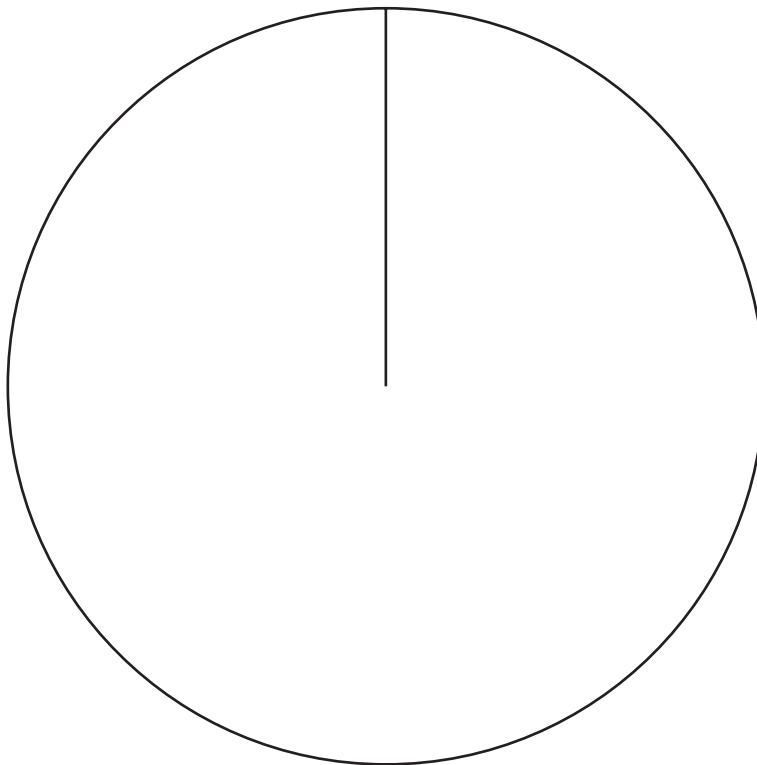
Work out the mean selling price.

(a) £..... [3]

(b) During the year *Move-it* sells 180 properties.

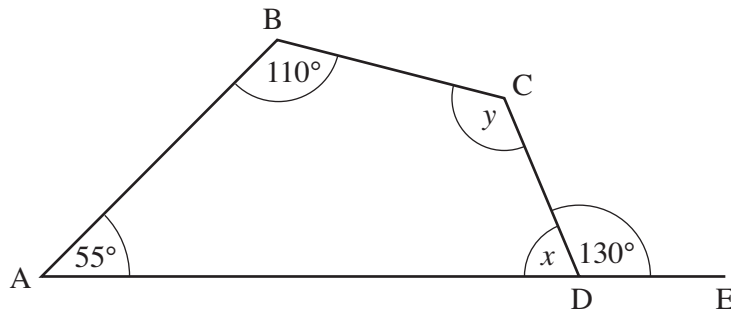
- 18 bungalows
- 45 flats
- 117 houses

Draw and label a pie chart to illustrate the data.



[3]

- 18 ABCD is a quadrilateral.  
AD is extended to E.



Not to scale

Work out angles  $x$  and  $y$ .  
Give a reason for each answer.

$x = \dots\dots\dots^\circ$  because .....

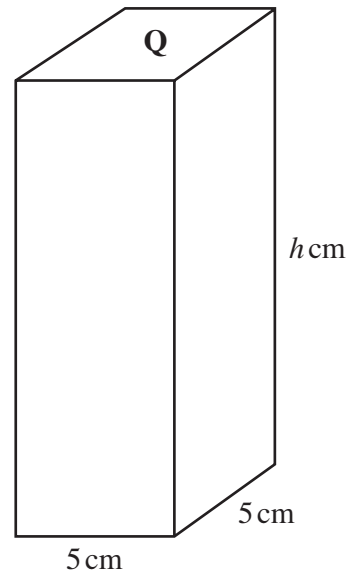
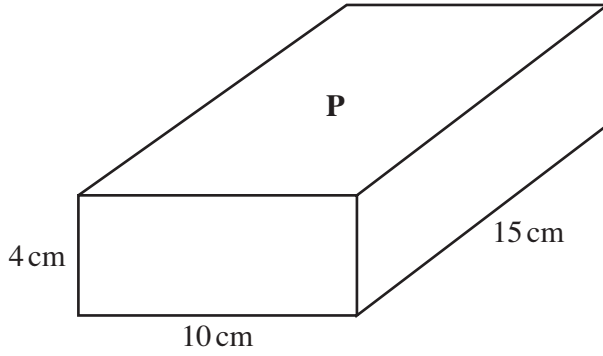
..... [2]

$y = \dots\dots\dots^\circ$  because .....

..... [2]



19 The two cuboids, **P** and **Q**, each have the same volume.

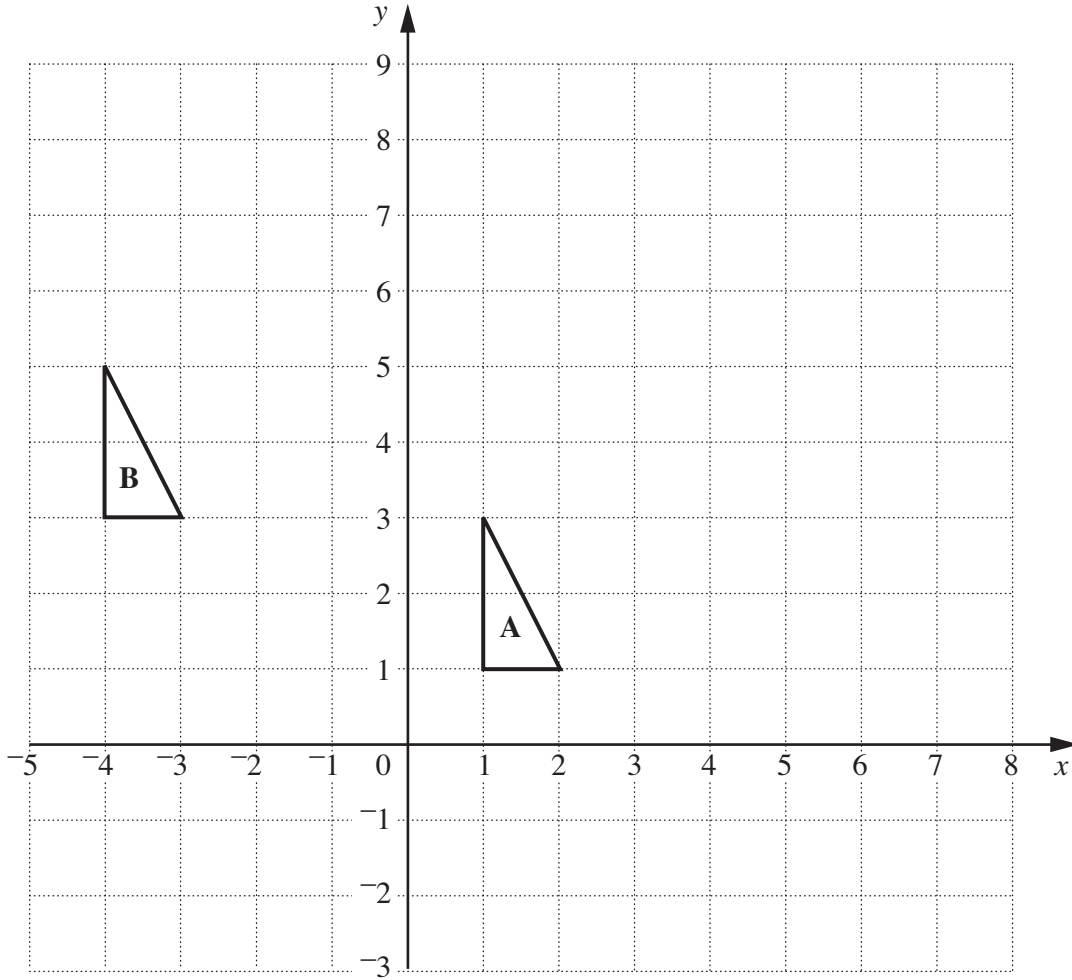


(a) Work out the volume of cuboid **P**.

(a) ..... $\text{cm}^3$  [2]

(b) Work out the height,  $h\text{ cm}$ , of cuboid **Q**.

(b) ..... $\text{cm}$  [2]



(a) Enlarge triangle **A** with centre  $(0, 2)$  and scale factor 3. [3]

(b) Write down the column vector of the translation which maps triangle **A** onto triangle **B**.

(b)  $\begin{pmatrix} \dots \\ \dots \end{pmatrix}$  [1]

21 Ana did a survey for the local optician.  
 She asked 100 people whether or not they wore glasses.  
 This table shows her results.

|        | Wear glasses | Not wear glasses | Total |
|--------|--------------|------------------|-------|
| Male   |              | 32               | 60    |
| Female | 15           |                  | 40    |
| Total  | 43           |                  | 100   |

(a) Complete the table. [1]

(b) One of the 100 people is chosen at random.  
 What is the probability that this person does not wear glasses?

(b) ..... [1]

(c) One of the females is chosen at random.  
 What is the probability that she wears glasses?

(c) ..... [1]

(d) In the survey, Ana wanted to find out how long each day people wore their glasses.

Write a suitable question she could ask, with response boxes for people to tick. [2]

**TURN OVER FOR QUESTION 22**

22 The equation  $x^3 - 8x + 6 = 0$  has a solution between  $x = 2$  and  $x = 3$ .

Use trial and improvement to find this solution correct to 1 decimal place.  
Show all your trials and the values of their outcomes.

..... [3]



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