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|-------------------------------|--|------------------------------|--|
| <b>Candidate<br/>Forename</b> |  | <b>Candidate<br/>Surname</b> |  |
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|--------------------------|--|--|--|--|--|-----------------------------|--|--|--|--|
| <b>Centre<br/>Number</b> |  |  |  |  |  | <b>Candidate<br/>Number</b> |  |  |  |  |
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GENERAL CERTIFICATE OF SECONDARY EDUCATION**

**B281B**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**Terminal Paper – Section B (Foundation Tier)**

**MONDAY 1 JUNE 2009: Morning**

**DURATION: 1 hour**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**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**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

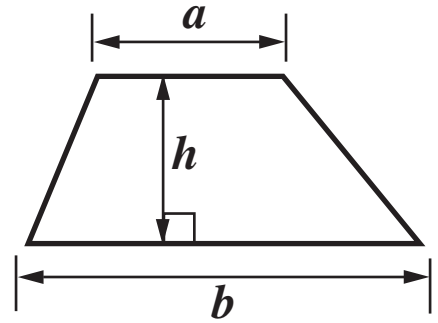
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- Answer ALL the questions.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

## **INFORMATION FOR CANDIDATES**

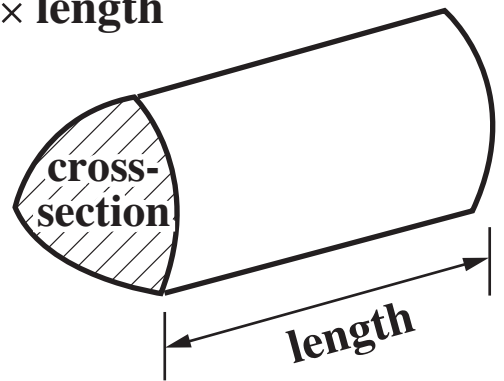
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Section B starts with question 12.
- You are expected to use a calculator in Section B of this paper.
- Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.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

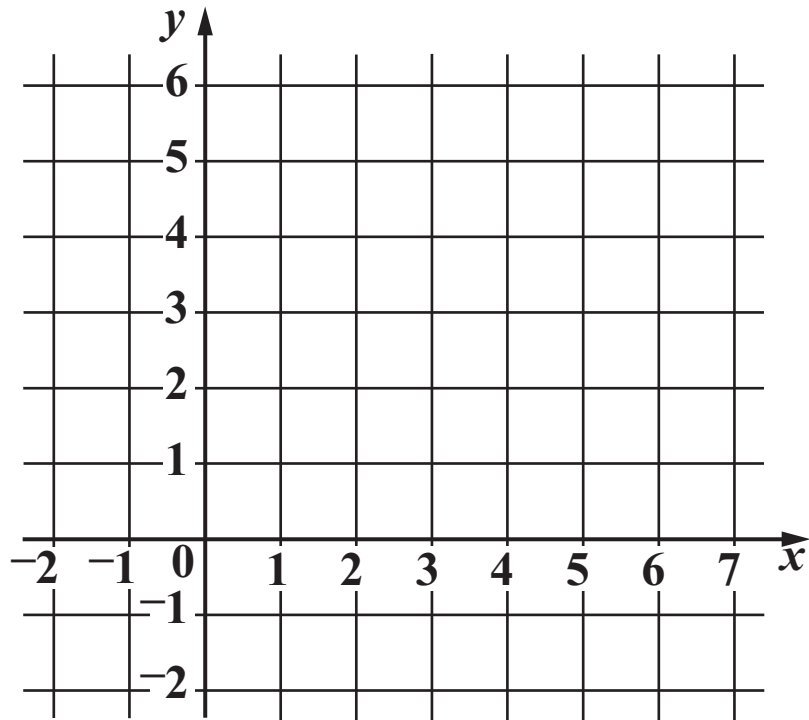
## Formulae Sheet

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



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





(a) Plot the points A  $(-1, 2)$  and B  $(5, 4)$ .  
[2 marks]

(b) Mark the midpoint of the line AB with a cross. Label it M.  
[1 mark]

(c) Write down the coordinates of M.

(c) ( \_\_\_\_\_ , \_\_\_\_\_ )

[1 mark]

**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 mark]**

**(ii) Describe the rule you used to work out the next term.**

---

**[1 mark]**

**(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) \_\_\_\_\_**

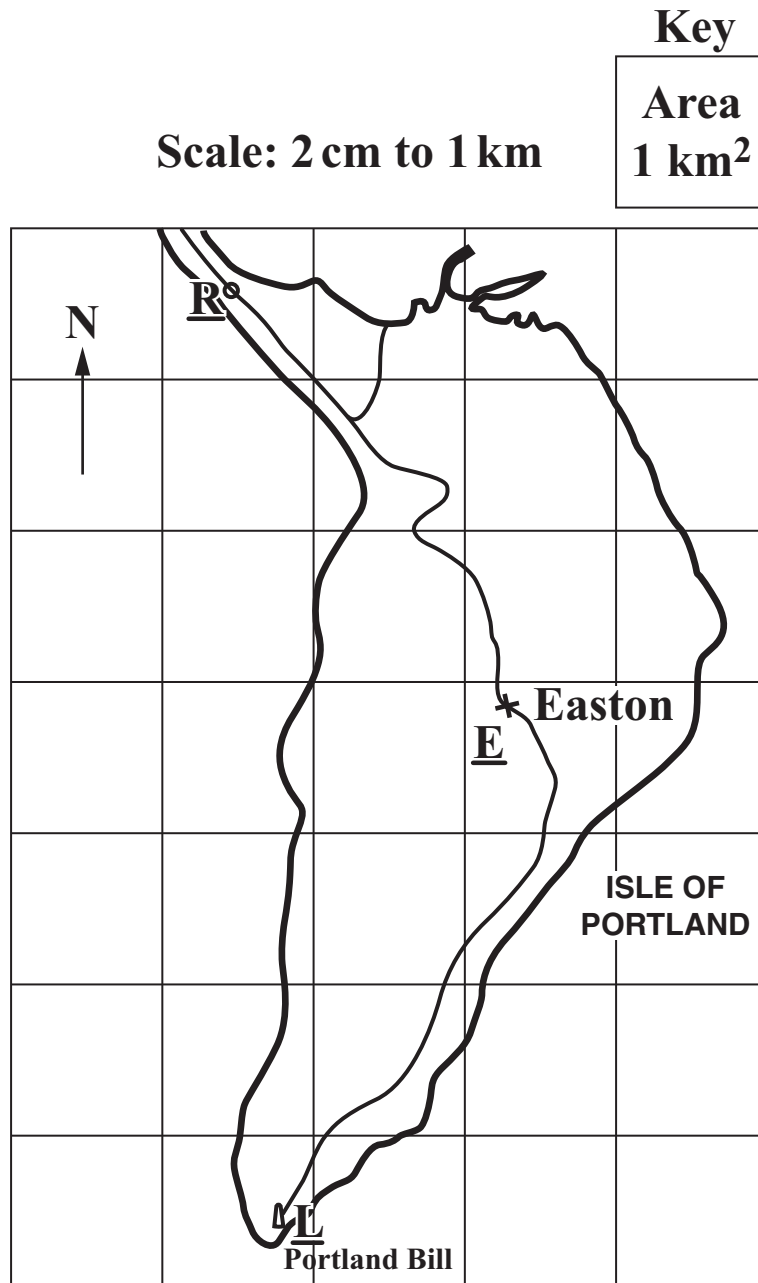
**[1 mark]**

**(ii) Describe the rule you used to work out the next term.**

---

**[1 mark]**

14 This is a map of the Isle of Portland.



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

[2 marks]

(a) \_\_\_\_\_ km<sup>2</sup>

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

**In which compass direction does she start walking?**

**(b) \_\_\_\_\_**

**[1 mark]**

- (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 marks]**

- (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 marks]**

- (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 mark]**



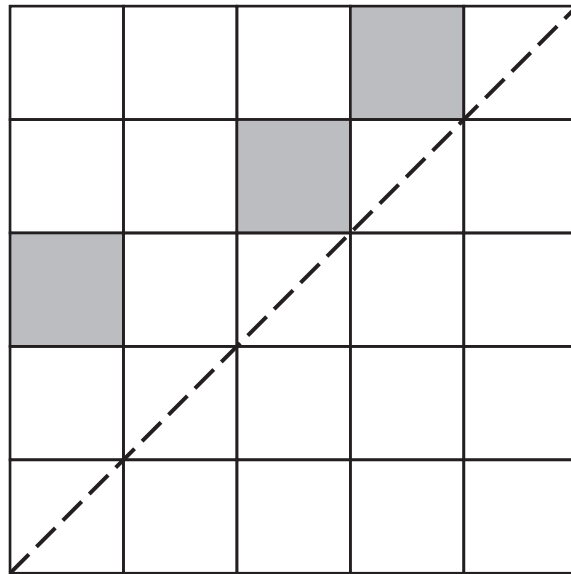
**15 Each of these two statements is false.**

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

| <b>Statement</b>   | <b>Example</b> |
|--|----------------|
| <b>odd number + odd number = odd number</b>                    |                |
| <b>odd number <math>\times</math> odd number = even number</b> |                |

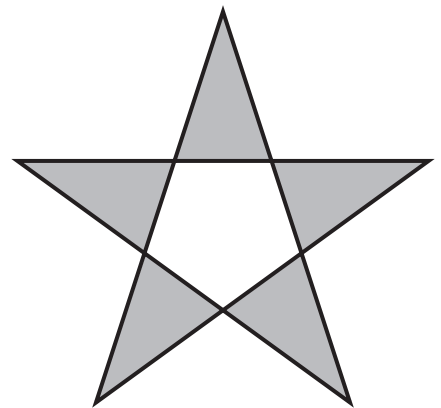
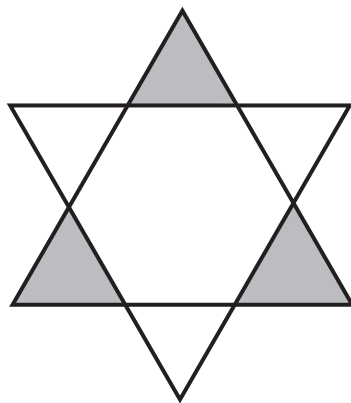
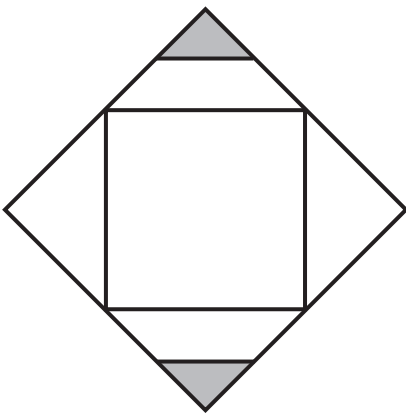
**[2 marks]**

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



[2 marks]

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




---

[2 marks]

**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.**

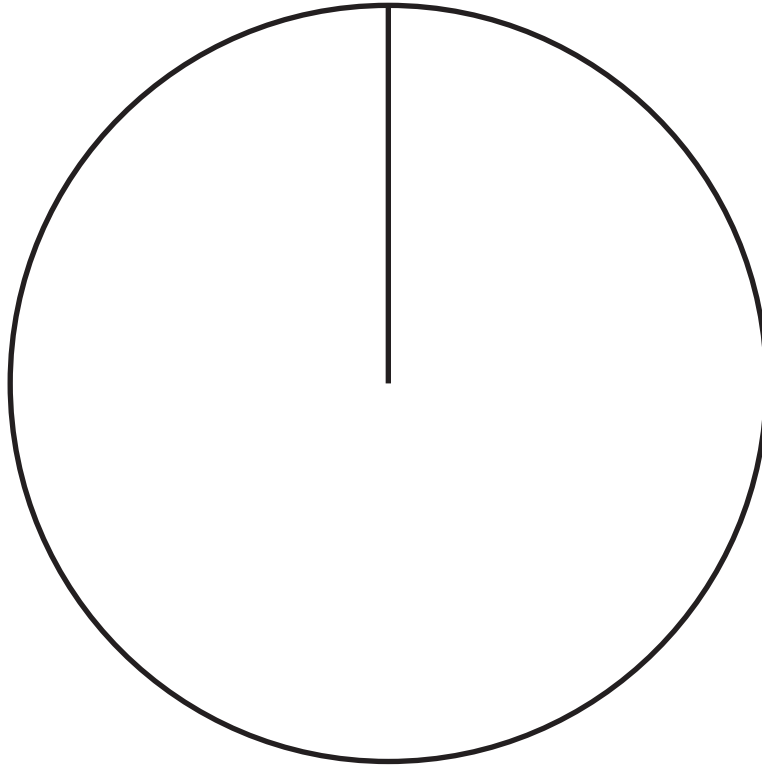
**[3 marks]**

**(a) £ \_\_\_\_\_**

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

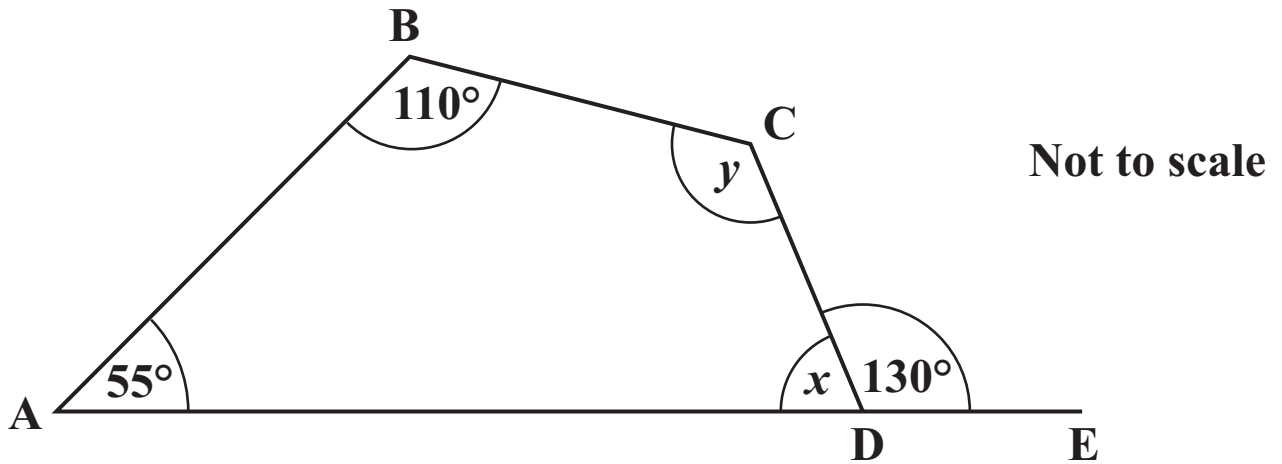
- **18 bungalows**
- **45 flats**
- **117 houses**

**Draw and label a pie chart to illustrate the data.**



**[3 marks]**

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



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

$x =$  \_\_\_\_\_  $^{\circ}$  because \_\_\_\_\_

\_\_\_\_\_

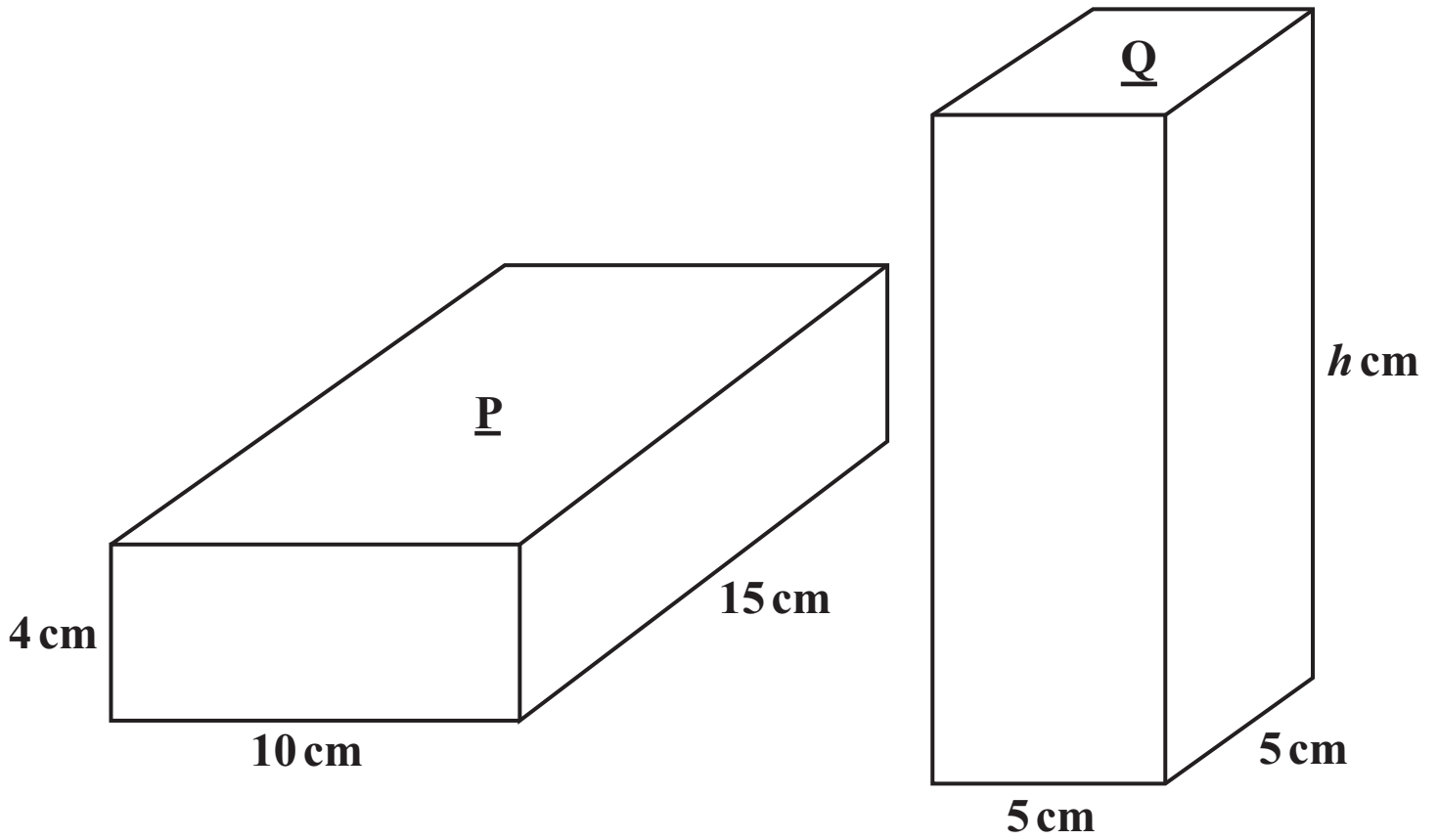
[2 marks]

$y =$  \_\_\_\_\_  $^{\circ}$  because \_\_\_\_\_

\_\_\_\_\_

[2 marks]

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



(a) Work out the volume of cuboid P.

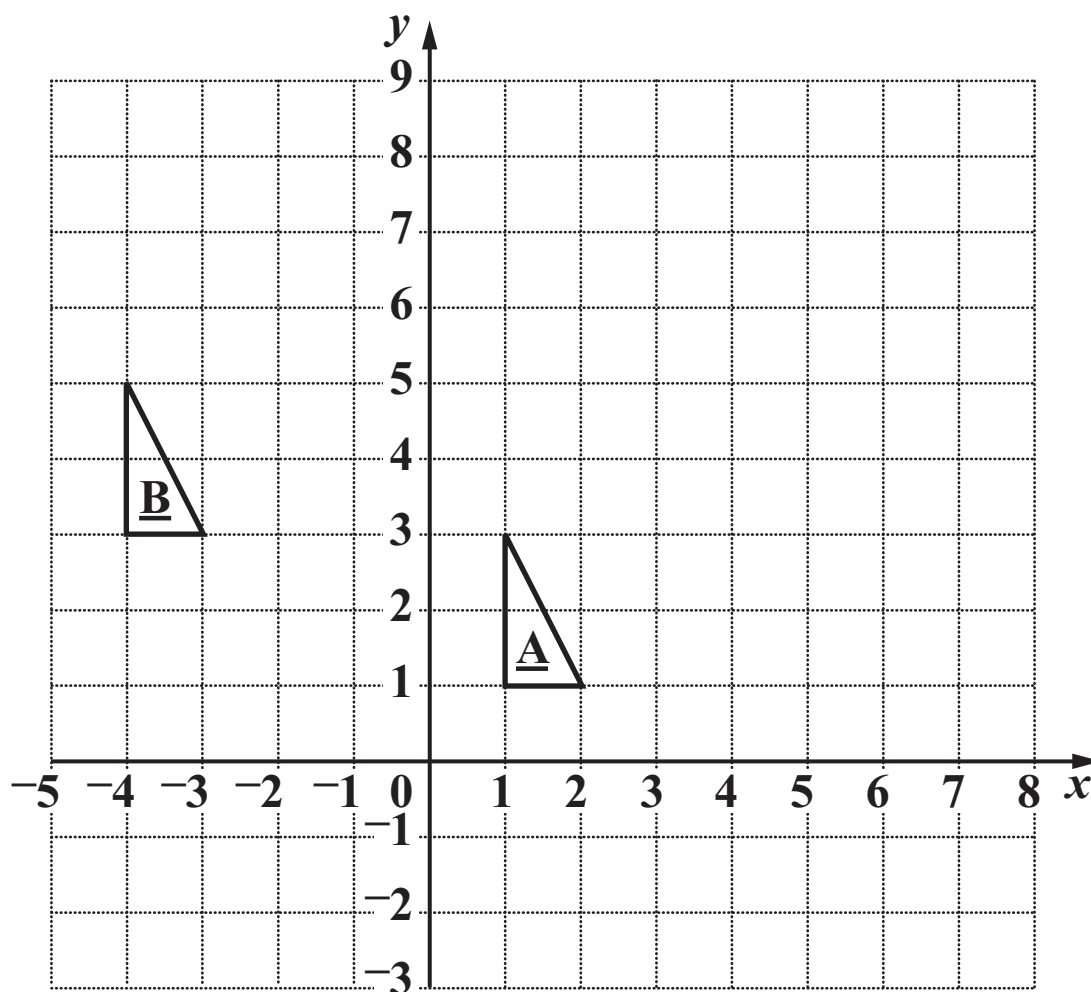
[2 marks]

(a) \_\_\_\_\_  $\text{cm}^3$

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

**[2 marks]**

**(b) \_\_\_\_\_ cm**



- (a) Enlarge triangle A with centre  $(0, 2)$  and scale factor 3.  
[3 marks]
- (b) Write down the column vector of the translation which maps triangle A onto triangle B.

[1 mark]

(b)  $\begin{pmatrix} \text{---} \\ \text{---} \end{pmatrix}$



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

|               | <b>Wear glasses</b> | <b>Not wear glasses</b> | <b>Total</b> |
|---------------|---------------------|-------------------------|--------------|
| <b>Male</b>   |                     | <b>32</b>               | <b>60</b>    |
| <b>Female</b> | <b>15</b>           |                         | <b>40</b>    |
| <b>Total</b>  | <b>43</b>           |                         | <b>100</b>   |

**(a) Complete the table.  
[1 mark]**

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

**[1 mark]** (b) \_\_\_\_\_

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

**[1 mark]** (c) \_\_\_\_\_

**(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 marks]**

**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 marks]**



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