

<b>Candidate Forename</b>		<b>Candidate Surname</b>	
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<b>Centre Number</b>						<b>Candidate 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)**

**FRIDAY 15 JANUARY 2010: 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**

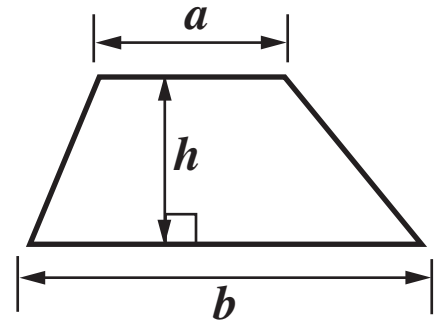
- **Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes on the first page.**
- **Use black ink. Pencil may be used for graphs and diagrams only.**
- **Read each question carefully and make sure that you know what you have to do before starting your answer.**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

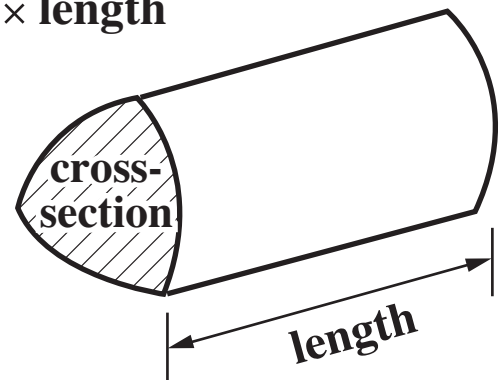
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **Section B starts with question 10.**
- **You are expected to use a calculator in Section B of this paper.**
- **Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.**
- **The total number of marks for this Section is 50.**

## Formulae Sheet

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



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



**10 Here is a list of numbers.**

**5    10    15    20    25    30    35    40**

**From the list, write down**

**(a) a multiple of 6,  
[1 mark]**

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

**(b) a square number,  
[1 mark]**

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

**(c) a factor of 20.  
[1 mark]**

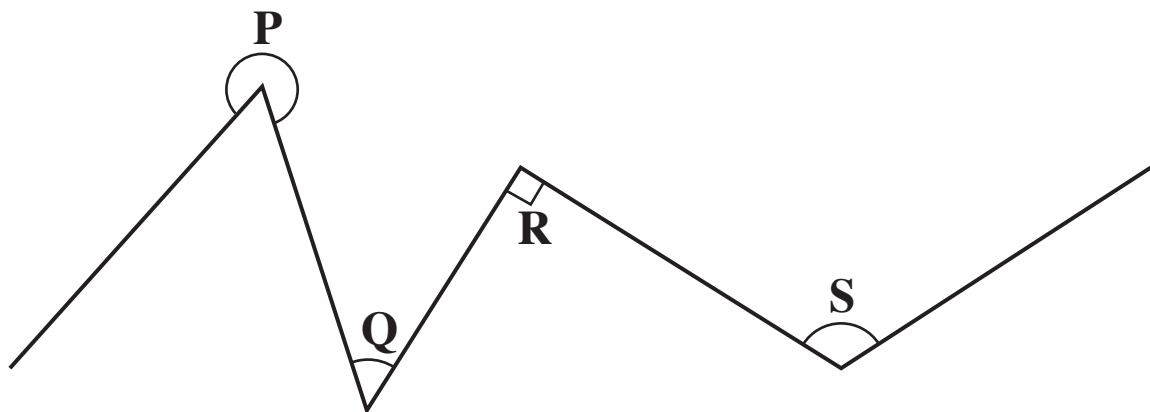
**(c)** \_\_\_\_\_

**11 A calculator costs £4.25.**

**How many of these calculators can be bought for £50?  
[2 marks]**

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**12** The diagram below shows a number of different angles.



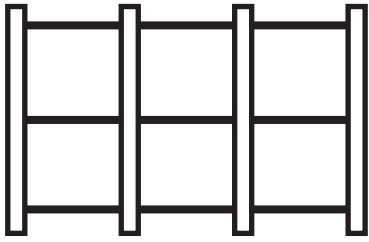
**(a)** Which of these angles is an acute angle?  
[1 mark]

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

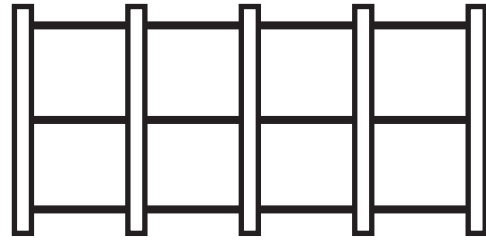
**(b)** Measure the size of angle S in degrees.  
[1 mark]

**(b)** \_\_\_\_\_ °

**13 Fences are made from posts and bars.**



**4 posts  
9 bars**



**5 posts  
12 bars**

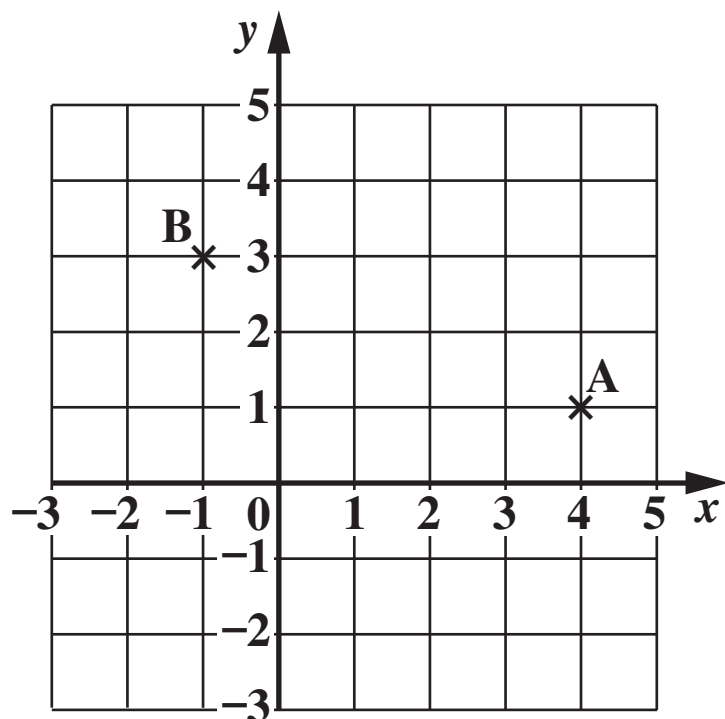
**(a) Complete this table.  
[2 marks]**

<b>Posts</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>Bars</b>		<b>9</b>	<b>12</b>		

**(b) How many bars are needed for a fence with 10 posts?  
Explain how you can work this out without drawing a  
diagram.  
[2 marks]**

\_\_\_\_\_ bars because \_\_\_\_\_  
\_\_\_\_\_

**14 Look at the diagram below.**



**(a) Write down the coordinates of point A.**  
**[1 mark]**

(a) \_\_\_\_\_ , \_\_\_\_\_)

**(b) Plot point C at (-1, -1).**  
**[1 mark]**

**(c) What type of triangle is triangle ABC?**  
**[1 mark]**

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



**15 Calculate.**

(a)  $\sqrt{4.84}$   
[1 mark]

(a) \_\_\_\_\_

(b)  $\frac{25.6 - 1.8}{3.7}$

**Write your answer correct to 1 decimal place.**  
[2 marks]

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

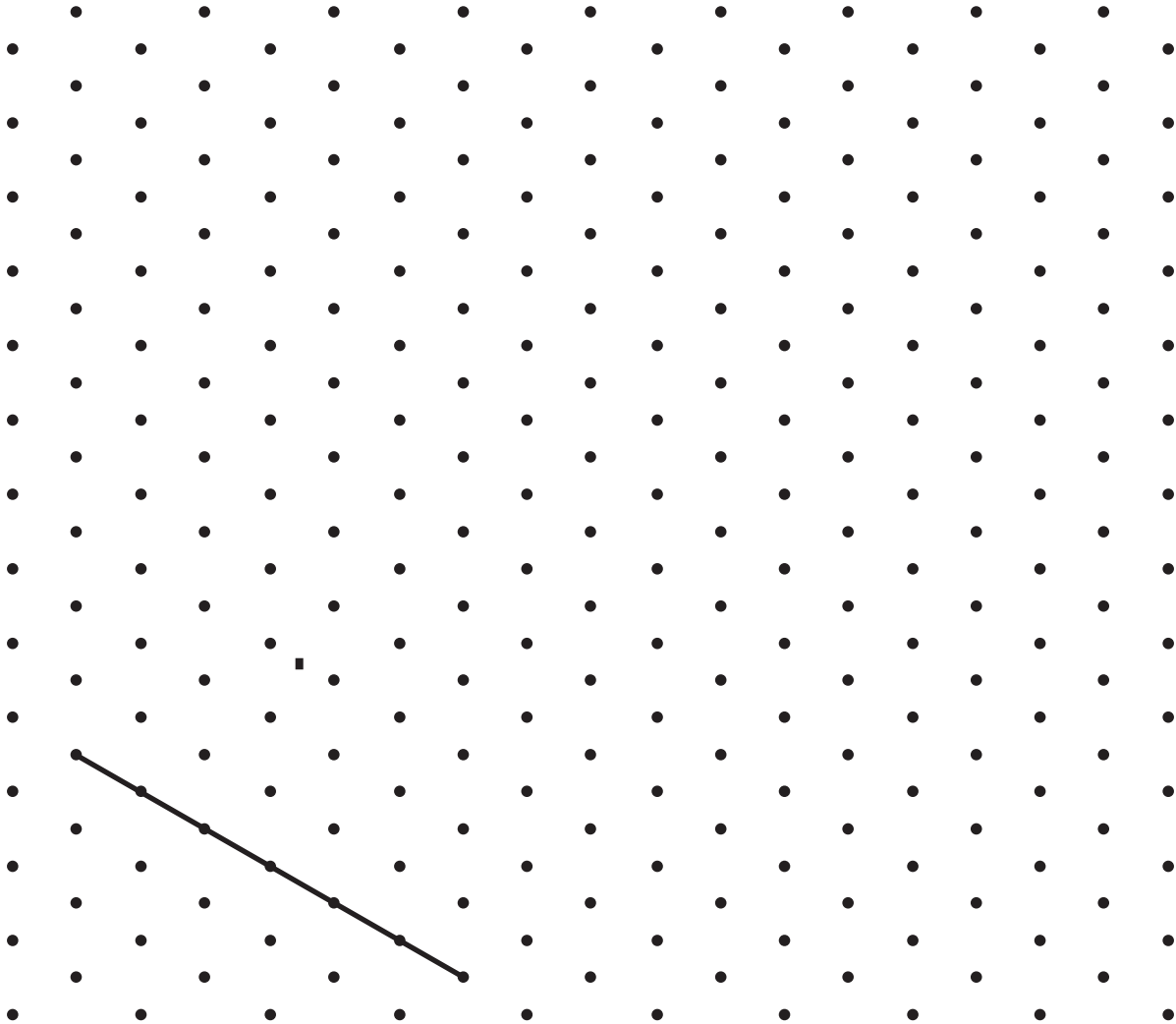
**16 A jewellery box is a cuboid.**

**The length is 8 cm, the width is 6 cm and the height is 4 cm.**

**(a) Draw the cuboid full-size on the isometric grid below.**

**The drawing has been started for you.**

**[2 marks]**



**(b) Work out the volume of the jewellery box.**

**Give the units of your answer.**

**[3 marks]**

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

**(c) The normal price of the jewellery box is £18.  
In a sale the price is reduced by 35%.**

**(i) Work out 35% of £18.  
[2 marks]**

**(c)(i) £ \_\_\_\_\_**

**(ii) Work out the sale price of the jewellery box.  
[1 mark]**

**(ii) £ \_\_\_\_\_**

- 17 Janna is writing a questionnaire about the fruit her friends eat.  
In each question she asks them to tick a box from a list of possible responses.**

How many portions of fruit do you usually eat each day?

0     1     2     3

more than 3

**Write a question that Janna could use to find out her friends' favourite fruit.  
Include the response boxes.  
[2 marks]**

**18 Three friends keep a record of their scores at ten-pin bowling.**

**(a) These are Ben's scores for 8 games.**

**104    118    156    78    110    162    176    144**

**(i) Work out the mean of Ben's scores.  
[3 marks]**

**(a)(i) \_\_\_\_\_**

**(ii) Work out the range of Ben's scores.  
[1 mark]**

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

**(b) This table shows the mean and range for Ben's two friends, Chris and Denzil.**

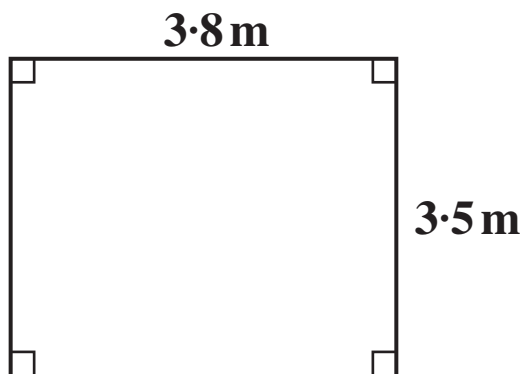
	<b>Chris</b>	<b>Denzil</b>
<b>Mean</b>	<b>135</b>	<b>160</b>
<b>Range</b>	<b>46</b>	<b>72</b>

**Which of the THREE players is the most consistent?  
Give a reason for your decision.  
[1 mark]**

\_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_

19 (a) This is the floor plan of Marta's bedroom.

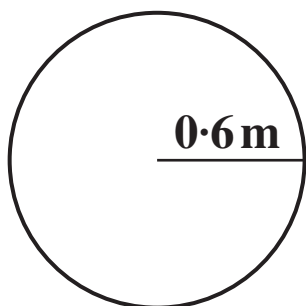


Not to scale

Work out the area of the floor.  
[2 marks]

(a) \_\_\_\_\_  $\text{m}^2$

(b) The window in Marta's bedroom is a circle of radius  $0.6\text{ m}$ .



Work out the area of the window.  
[2 marks]

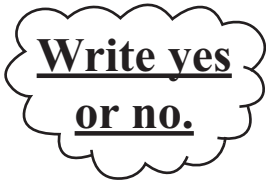
(b) \_\_\_\_\_  $\text{m}^2$

(c) The window area in a room should be at least 10% of the floor area.

Is Marta's window large enough?

Explain your answer.

[2 marks]



\_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

**20 (a) In the UK in 2006, an average of 410 plastic carrier bags were used per second.**

**Show that this is equivalent to 35 million bags per day, to the nearest million.**

**[2 marks]**

**(b) The capacity of a re-usable cloth bag is  $28\,000\text{ cm}^3$ .**

**The capacity of a plastic carrier bag is about  $12\,000\text{ cm}^3$ .**

**Write  $28\,000 : 12\,000$  as a ratio in its simplest terms.**

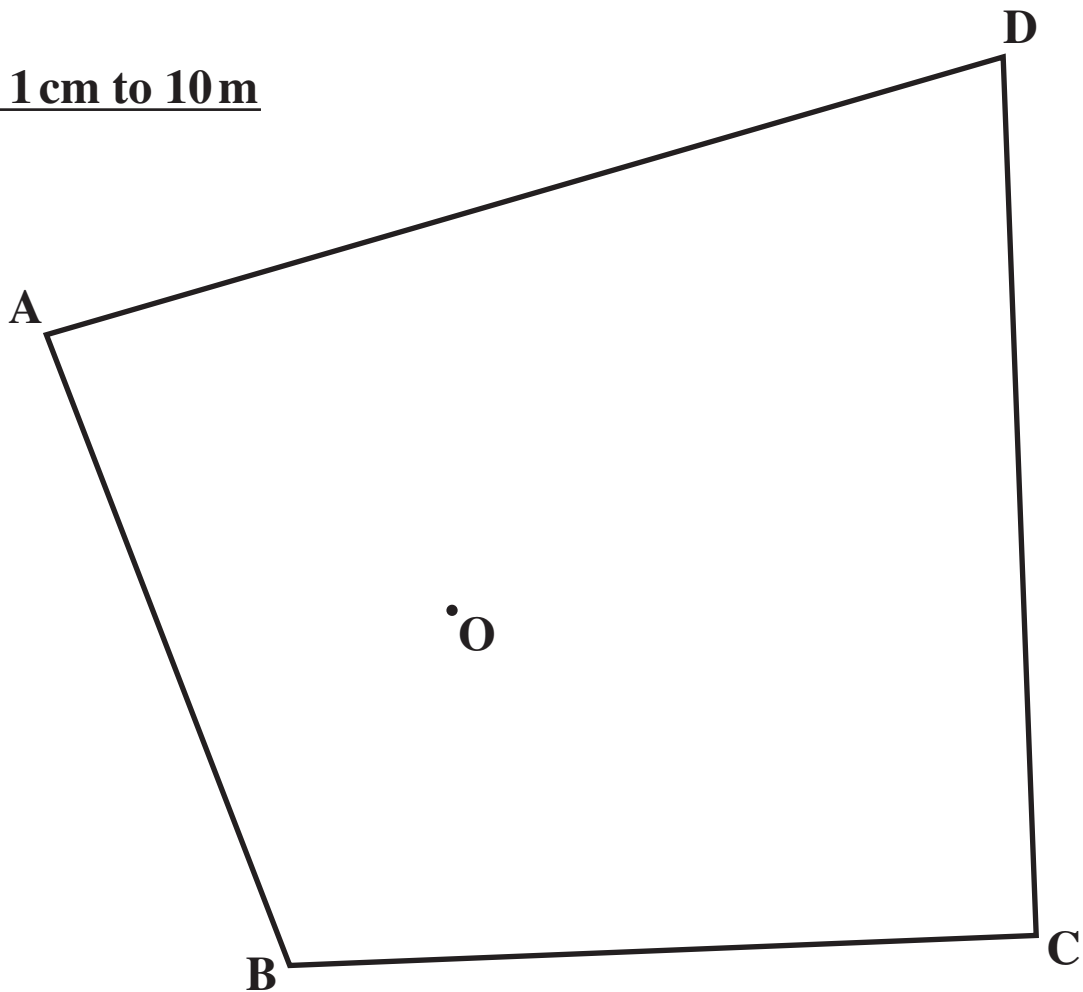
**[2 marks]**

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



- 21** The scale drawing shows a park ABCD.  
There is an old oak tree at O.

Scale: 1 cm to 10 m



The council wants to put a bandstand in the park.

It should be

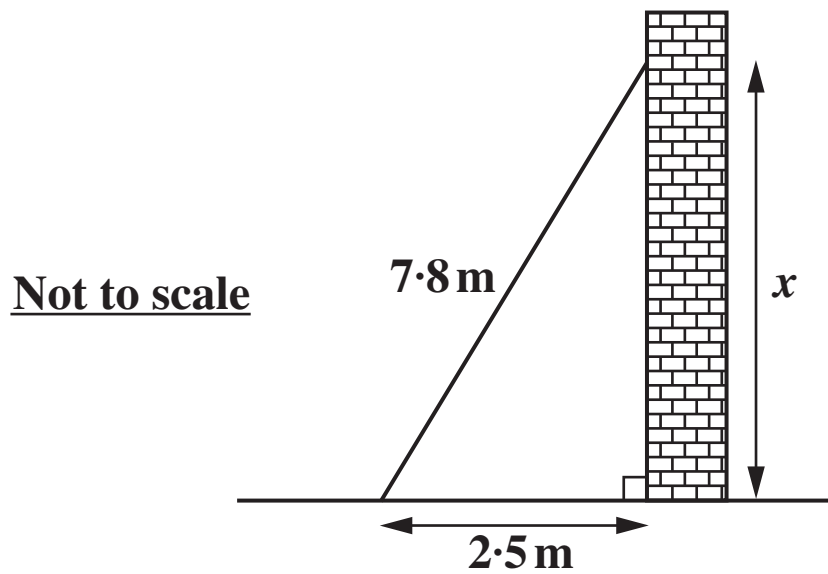
- at least 20 m from the old oak tree at O,
- at least 50 m from the boundary CD,
- nearer to gate A than to gate B.

Construct and shade the region where the bandstand can go.  
Leave in all your construction lines.

[4 marks]

**TURN OVER FOR QUESTION 22**

- 22 A ladder 7.8 m long is leaning against a wall, as shown. The foot of the ladder is 2.5 m from the wall.



Calculate  $x$ , the distance the ladder reaches up the wall.  
Give your answer to a sensible degree of accuracy.  
[4 marks]

\_\_\_\_\_ m

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