

GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (GRADUATED ASSESSMENT)
TERMINAL PAPER – SECTION B (Foundation Tier)

B281B

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

Friday 15 January 2010
Morning

Duration: 1 hour



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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INSTRUCTIONS TO CANDIDATES

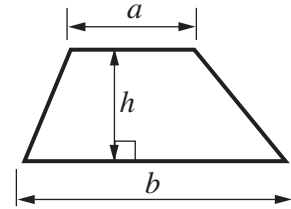
- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show all your working.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

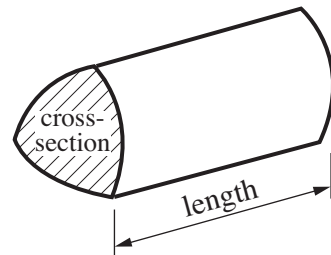
- The number of marks is given in brackets [] at the end of each question or part question.
- Section B starts with question 10.
- You are expected to use a calculator in Section B of this paper.
- Use the π button on your calculator or take π to be 3.142 unless the question says otherwise.
- The total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

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,

(a) [1]

(b) a square number,

(b) [1]

(c) a factor of 20.

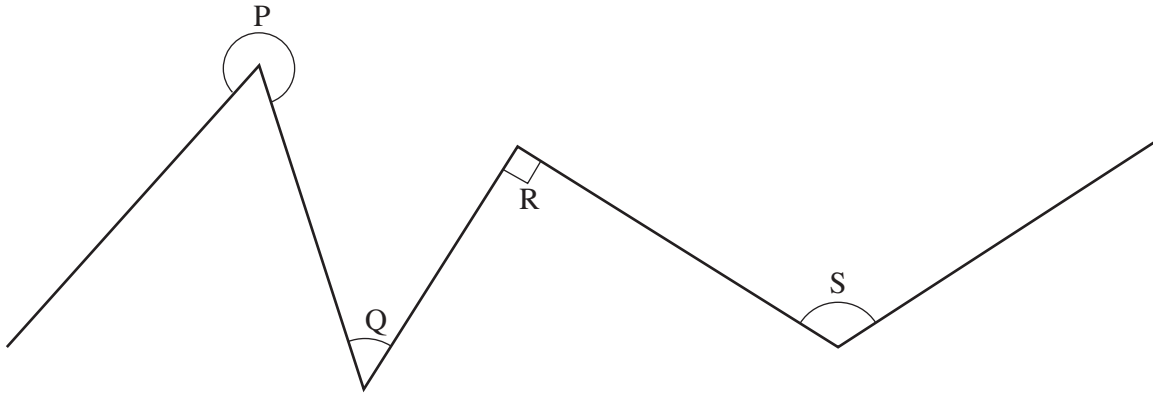
(c) [1]

11 A calculator costs £4.25.

How many of these calculators can be bought for £50?

..... [2]

12



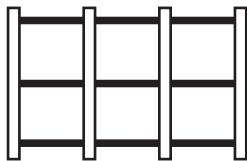
(a) Which of these angles is an acute angle?

(a) [1]

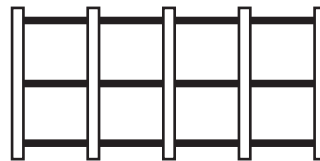
(b) Measure the size of angle S in degrees.

(b)^o [1]

13 Fences are made from posts and bars.



4 posts
9 bars



5 posts
12 bars

(a) Complete this table.

Posts	3	4	5	6	7
Bars		9	12		

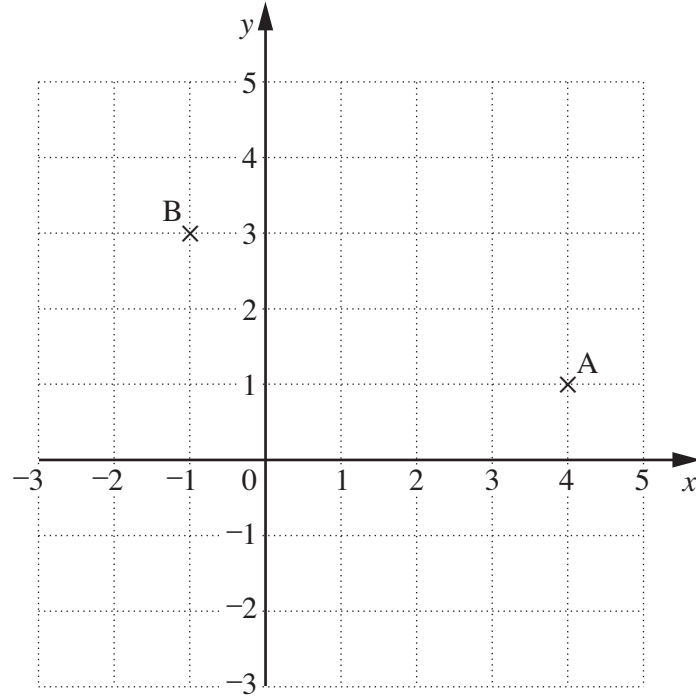
[2]

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

..... bars because

..... [2]

14



(a) Write down the coordinates of point A.

(a) (.....,) [1]

(b) Plot point C at $(-1, -1)$.

[1]

(c) What type of triangle is triangle ABC?

(c) [1]

15 Calculate.

(a) $\sqrt{4.84}$

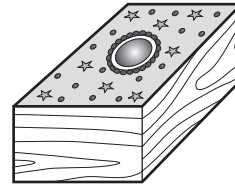
(a) [1]

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

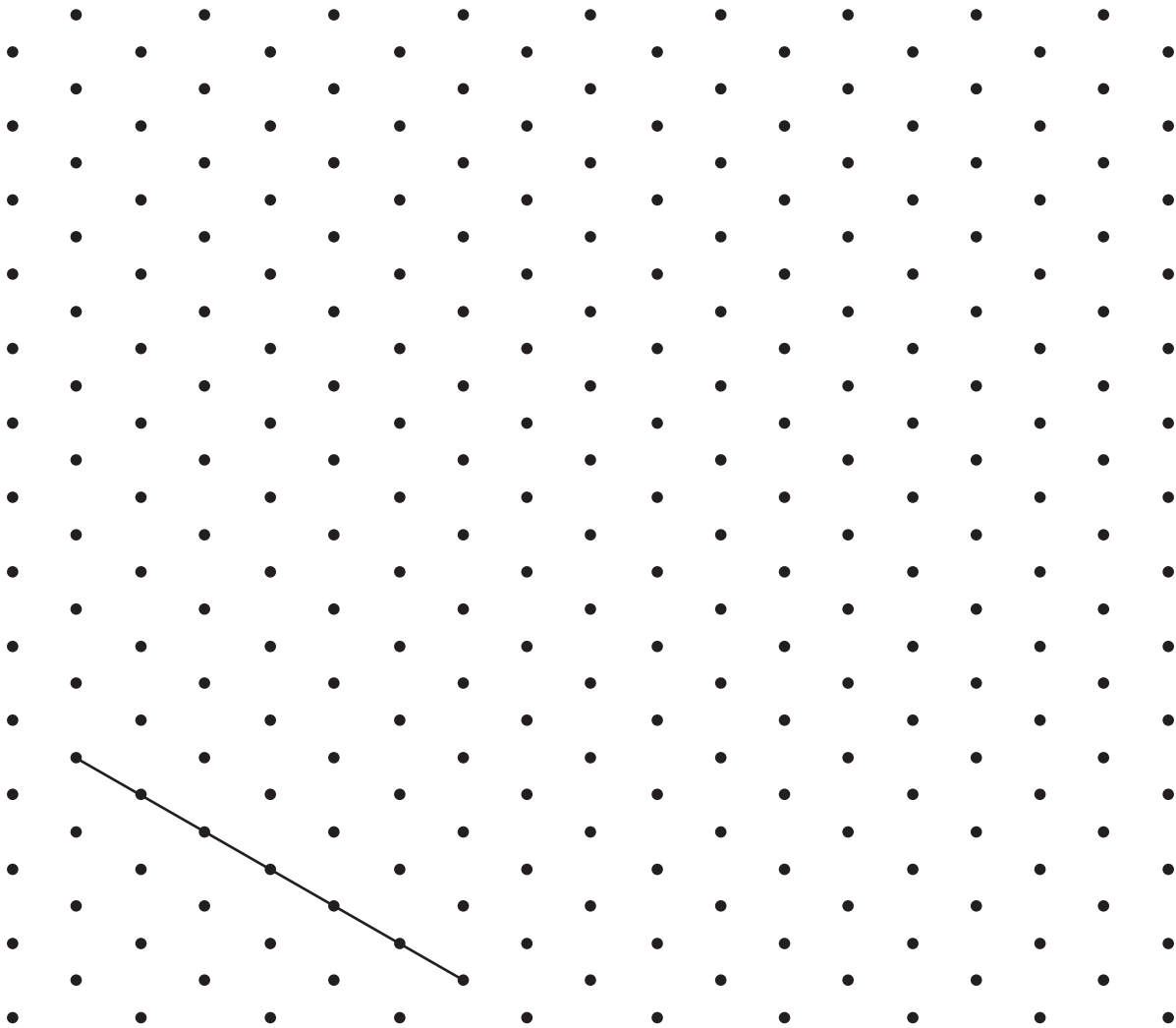
Write your answer correct to 1 decimal place.

(b) [2]

- 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]

- (b) Work out the volume of the jewellery box.
Give the units of your answer.

(b) [3]

- (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.

(c)(i) £ [2]

(ii) Work out the sale price of the jewellery box.

(ii) £ [1]

- 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.

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

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

0 1 2 3

more than 3

[2]

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.

(a)(i) [3]

(ii) Work out the range of Ben's scores.

(ii) [1]

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

	Chris	Denzil
Mean	135	160
Range	46	72

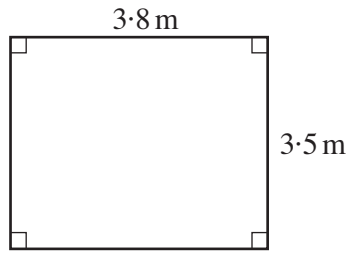
Which of the **three** players is the most consistent?

Give a reason for your decision.

..... because

..... [1]

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

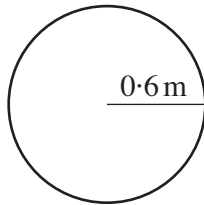


Not to scale

Work out the area of the floor.

(a)m² [2]

(b) The window in Marta's bedroom is a circle of radius 0.6 m.

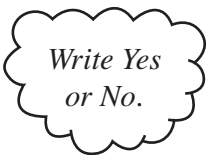


Work out the area of the window.

(b)m² [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.



..... because

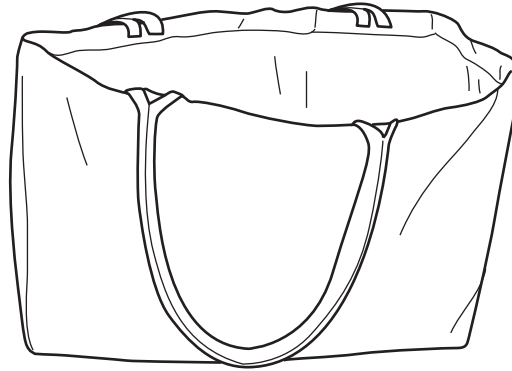
..... [2]

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]

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



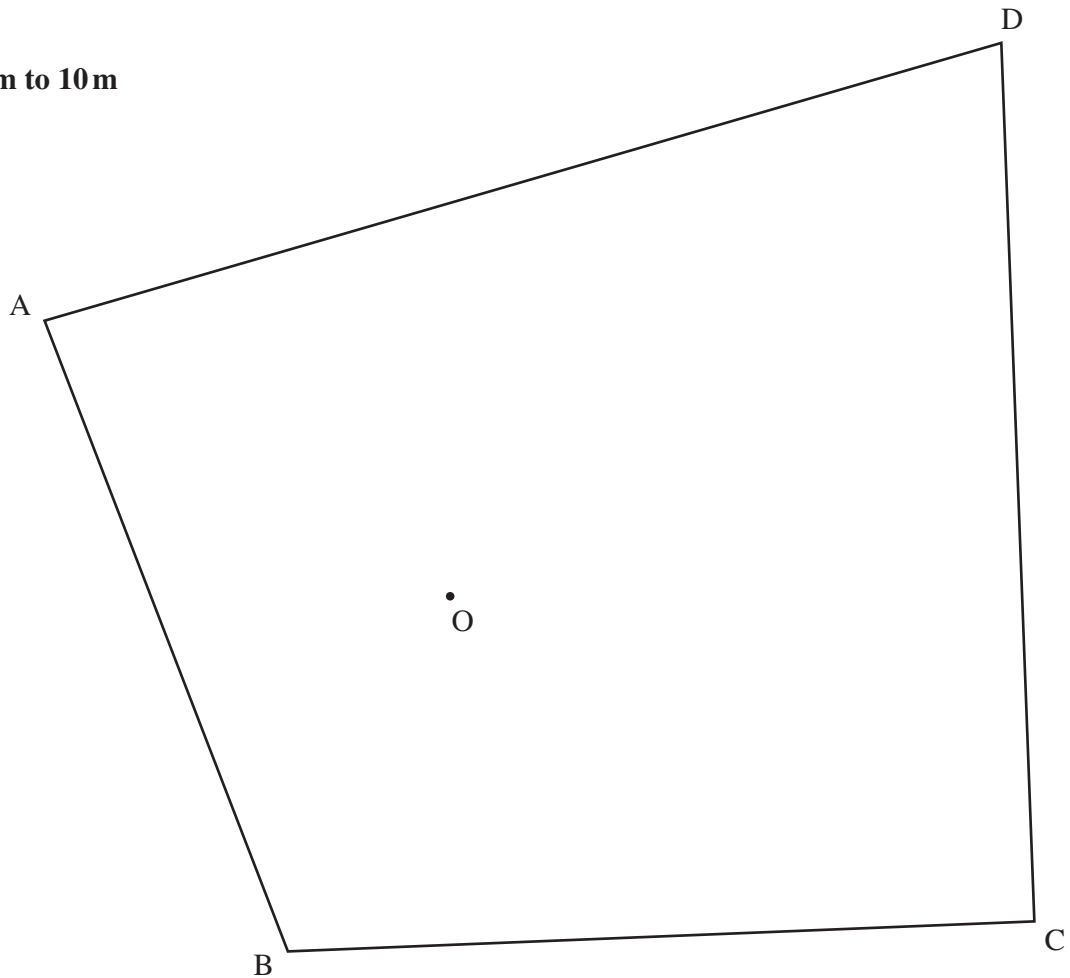
The capacity of a plastic carrier bag is about $12\,000\text{ cm}^3$.

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

(b) : [2]

- 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.

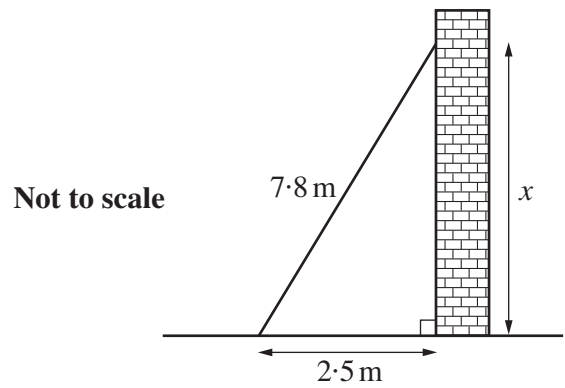
Construct and shade the region where the bandstand can go.
Leave in all your construction lines.

[4]

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.



..... m [4]

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