

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Secondary Education
Foundation Tier
June 2013

Mathematics

43603F

Unit 3

Friday 14 June 2013 9.00 am to 10.30 am

F

<p>For this paper you must have:</p> <ul style="list-style-type: none"> • a calculator • mathematical instruments. 	
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Time allowed

- 1 hour 30 minutes

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.
- If your calculator does not have a π button, take the value of π to be 3.14 unless another value is given in the question.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- The quality of your written communication is specifically assessed in Questions 5 and 11. These questions are indicated with an asterisk (*).
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Examiner's Initials	
Pages	Mark
3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14 – 15	
16 – 17	
18 – 19	
20 – 21	
22 – 23	
24 – 25	
26	
TOTAL	



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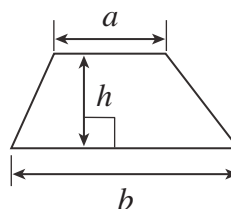
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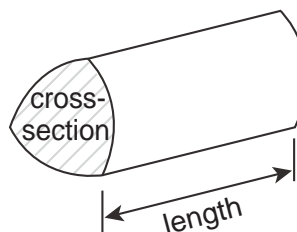
Formulae Sheet: Foundation Tier

You may need to use the following formulae:

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

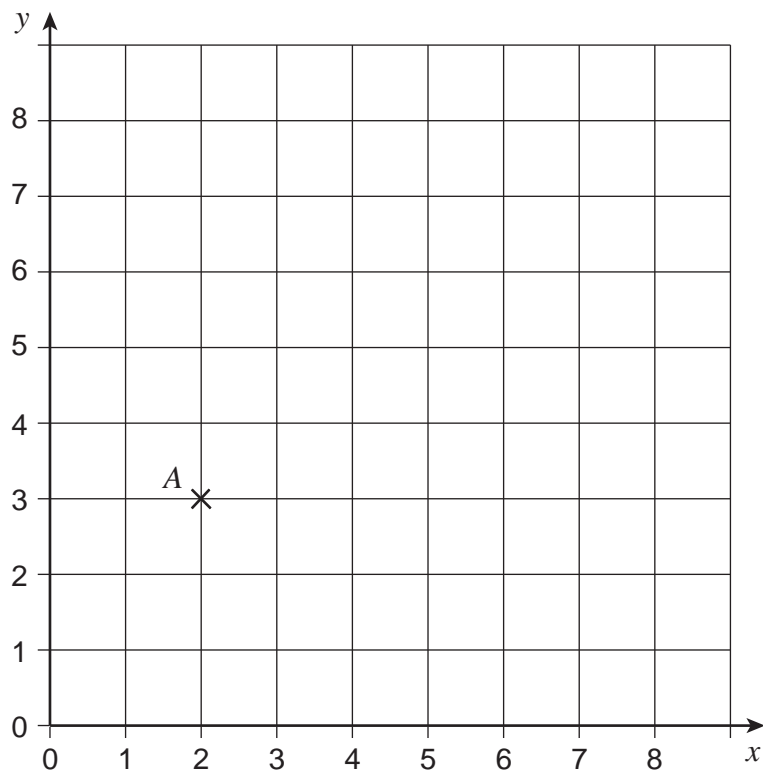


Volume of prism = area of cross-section \times length



Answer **all** questions in the spaces provided.

1



1 (a) Write down the coordinates of A.

Answer (.....,

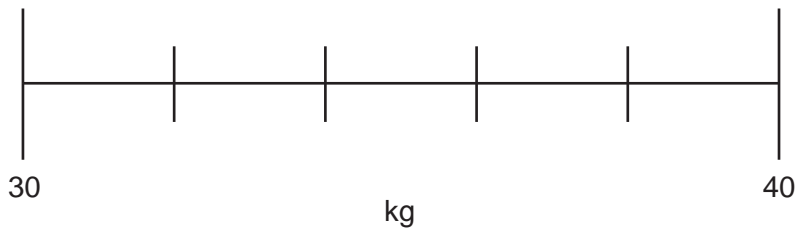
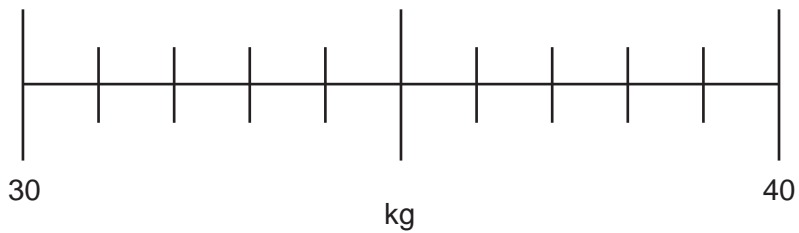
(1 mark)

1 (b) Plot the point $B(8, 3)$ on the grid.

(1 mark)



2 On each scale, mark 34 kg with an arrow.

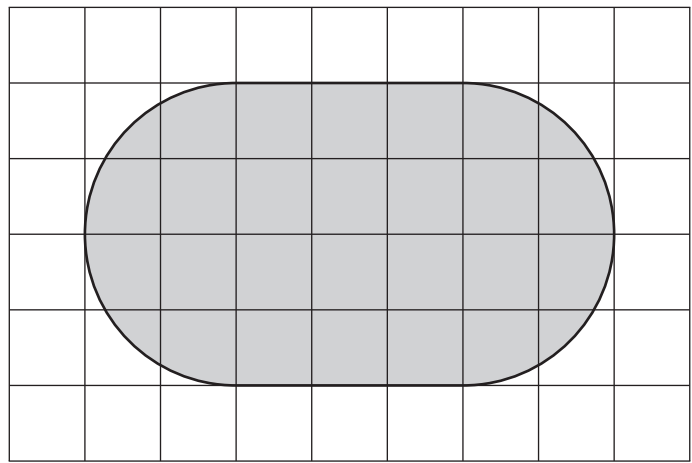


(2 marks)



3

Jack drew this sketch of his lawn on squared paper.
The length of each square represents 1 metre.



Work out an estimate for the area of his lawn.

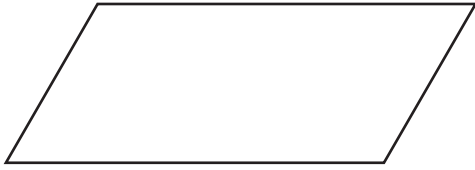
Answer m² (3 marks)

5

Turn over ►



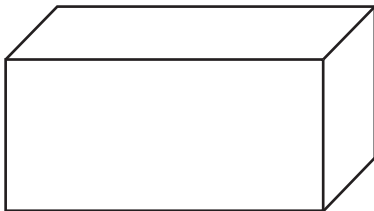
4 (a) Write down the mathematical name of this shape.



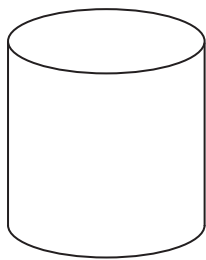
.....

(1 mark)

4 (b) Write down the mathematical names of these solid shapes.



.....



.....

(2 marks)



***5** A builder has a pipe that is 2 metres long.

He wants to cut lengths of 80 cm, 45 cm and 70 cm.

Does he have enough pipe?
You **must** show your working.

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(3 marks)

6 (a) A pack of 8 batteries costs £ 5.99

How much does each battery cost?

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Answer pence (2 marks)

6 (b) A pack of 6 batteries of the same type costs £ 3.99

Is this better value?

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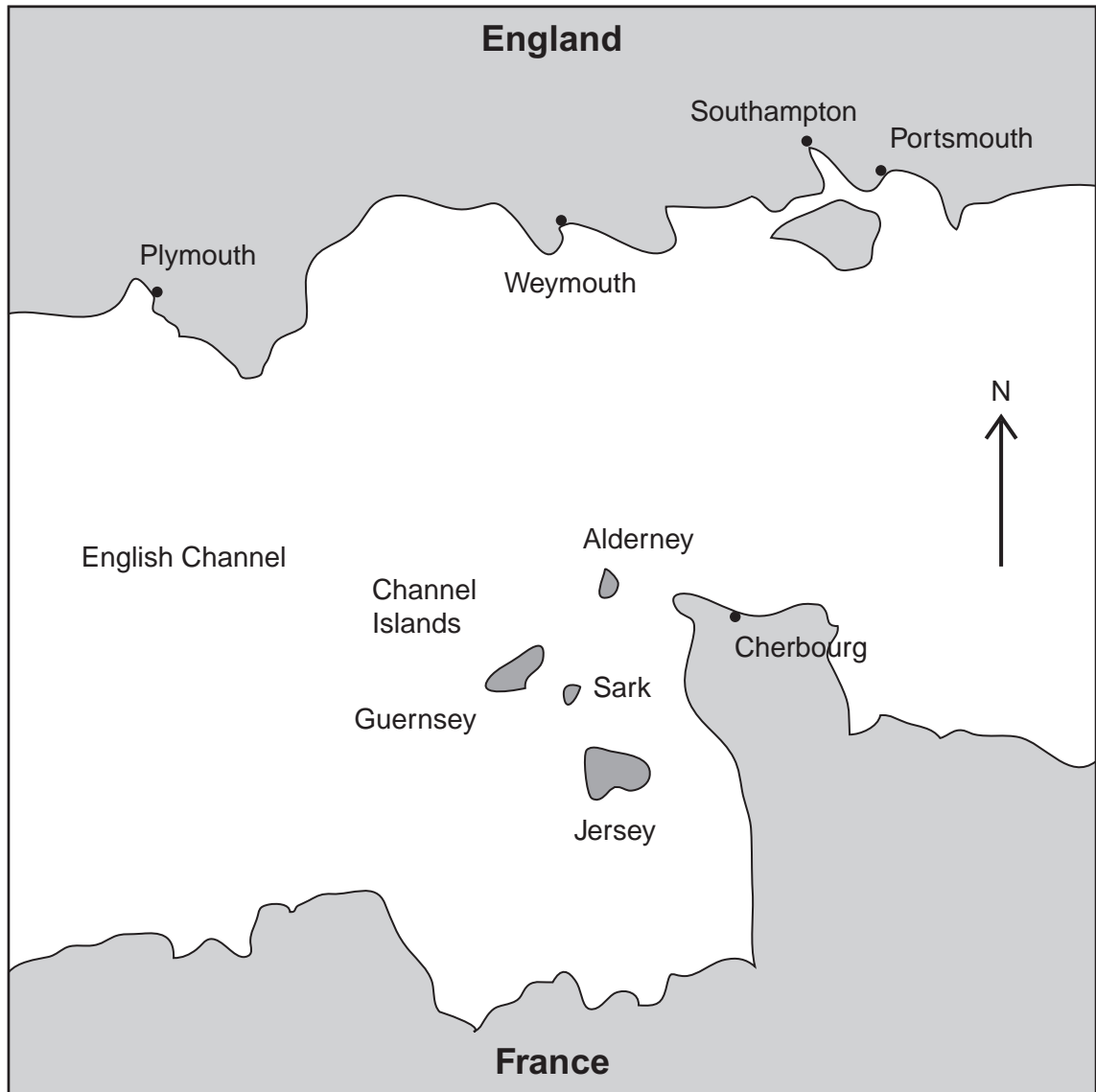
(2 marks)

10

Turn over ►



7 Here is a map.



7 (a) Complete the sentence using one of these words.

- North South East West

France is of England.

(1 mark)



- 7 (b)** Which place **in England** on the map is North-West of Sark?
Circle your answer.

Plymouth

Weymouth

Southampton

Portsmouth

(1 mark)

- 7 (c)** Which of these Channel Islands is closest to Cherbourg?
Circle your answer.

Guernsey

Sark

Jersey

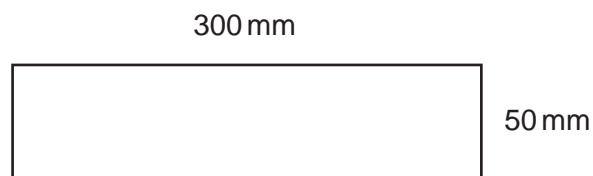
Alderney

(1 mark)

Turn over for the next question

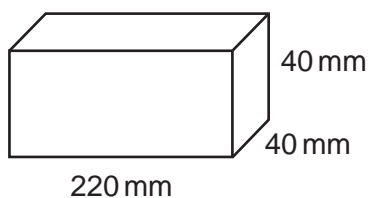


8 (a) The diagram shows a letterbox.

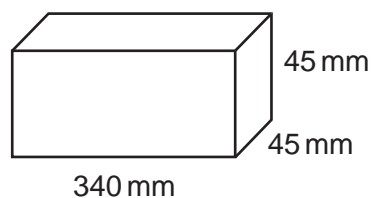


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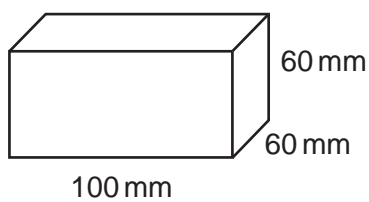
Which of these parcels will fit through the letterbox?
Circle Yes or No for each parcel.



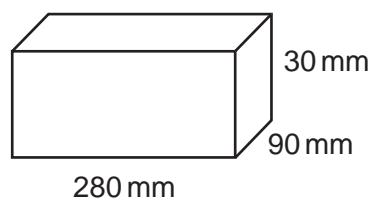
Yes No



Yes No



Yes No



Yes No

(4 marks)



8 (b) Pat wants a letterbox that all four of the parcels will fit through.
What is the width and height of the smallest letterbox possible?

Width = mm

Height = mm (3 marks)

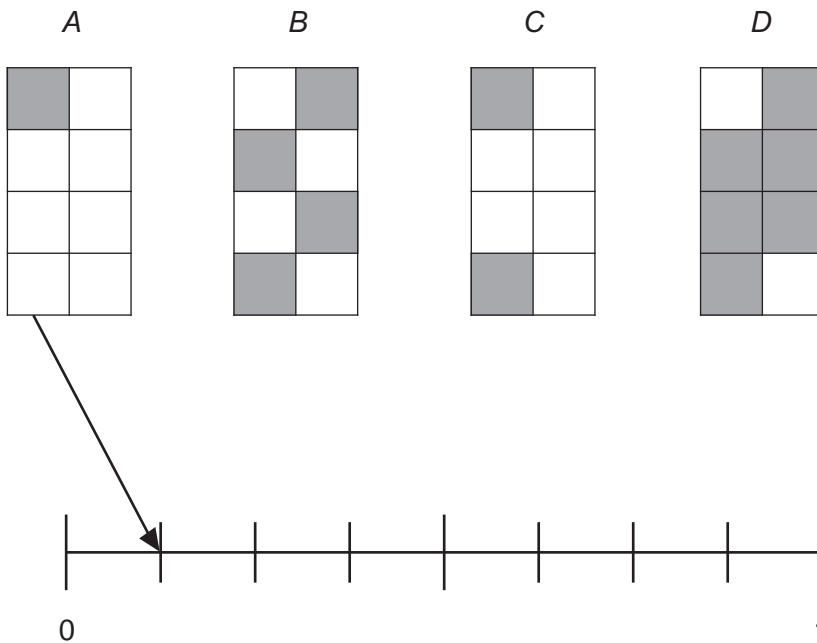
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7

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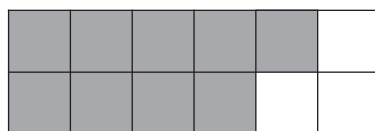


9 (a) Join each shape to the number line to show the fraction shaded. The first one has been done for you.



(3 marks)

9 (b) What fraction of this shape is shaded?



Give your answer in its simplest form.

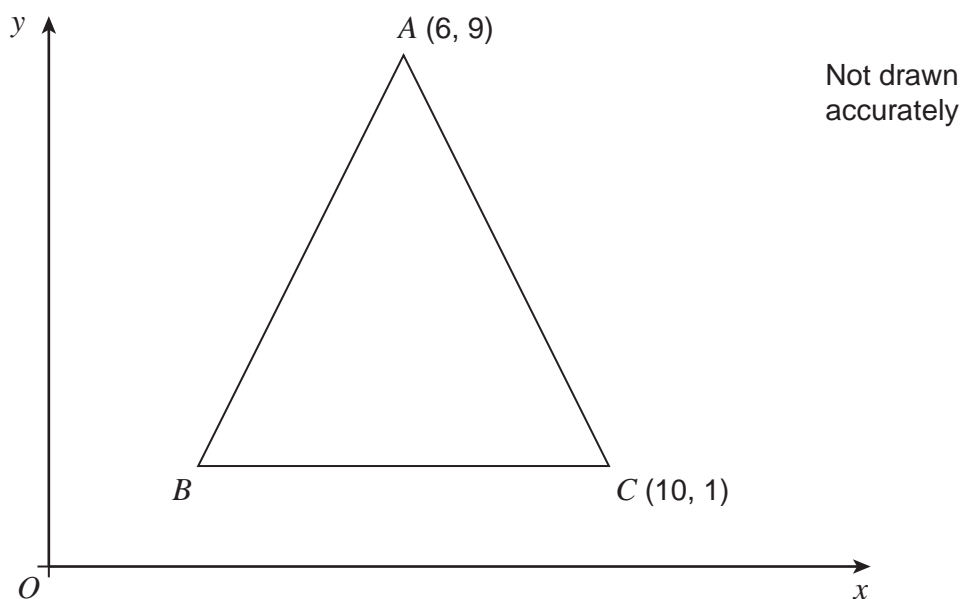
.....

Answer (2 marks)



10

ABC is an isosceles triangle.
 $AB = AC$
 BC is parallel to the x -axis.



Work out the coordinates of B .

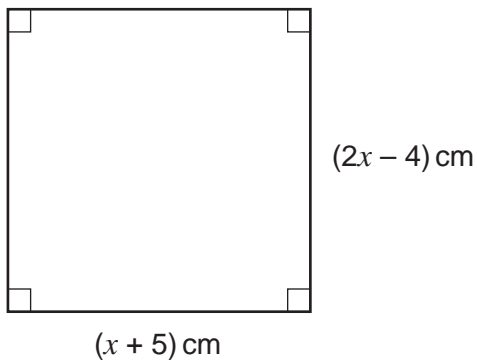
Answer (..... ,)

(2 marks)

Turn over for the next question



***11** Give **two** reasons why this shape is a square when $x = 9$



Not drawn
accurately

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(4 marks)



12 A plasterer uses this method to work out how much she charges (£).

Calculate the area to be plastered in square metres.
Round this value to the nearest whole number.
Multiply by 10.
Add 30.

A rectangular ceiling measures 7.6 m by 2.4 m.

How much does she charge?

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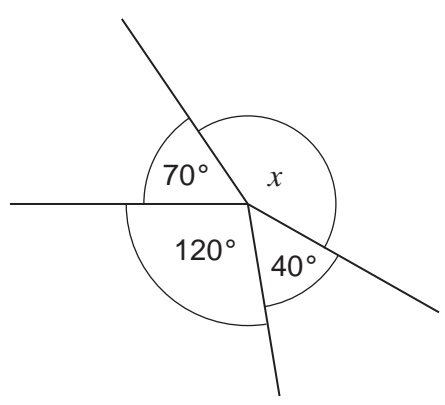
Answer £ (5 marks)

Turn over for the next question



13 (a) Work out the size of angle x .

Not drawn accurately



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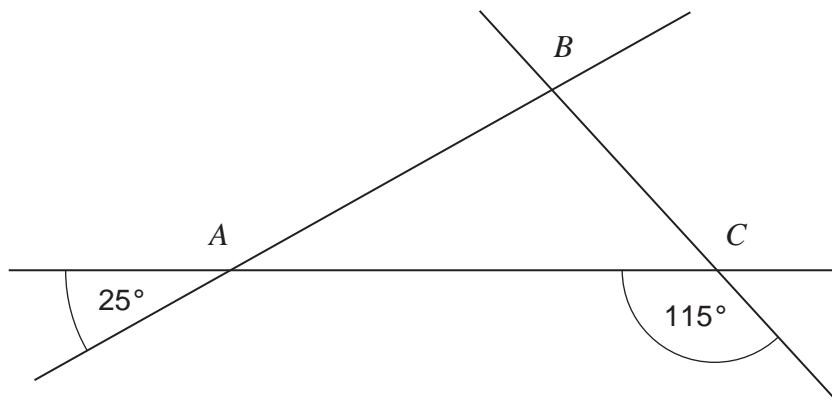
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Answer degrees (3 marks)



13 (b) Three straight lines cross as shown.

Not drawn
accurately



What type of triangle is ABC ?
You **must** show your working, which may be on the diagram.

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Answer (4 marks)

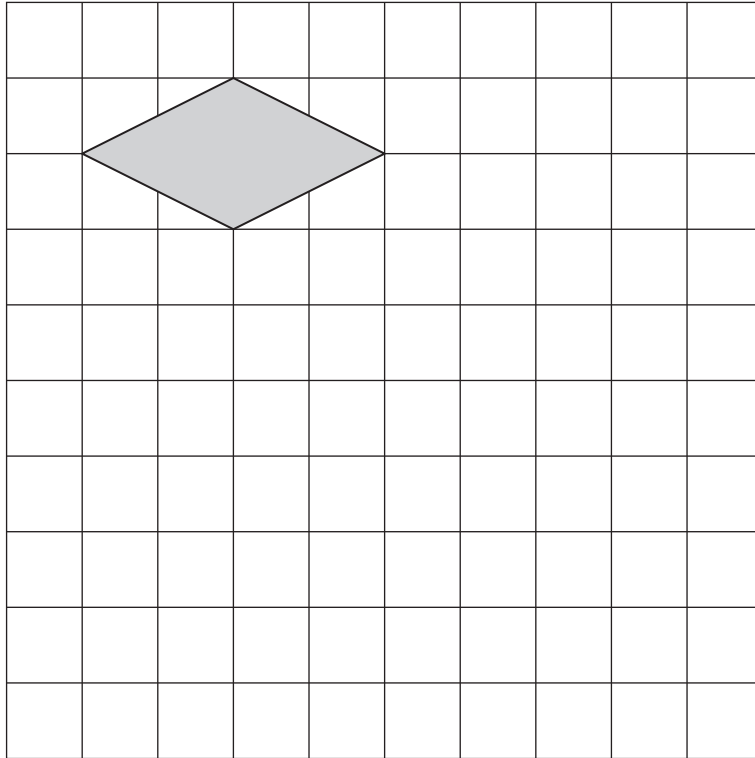
Turn over for the next question

7

Turn over ►



14 Enlarge this shape by scale factor 2.



(2 marks)



15 You are given $2.2 \text{ pounds} = 1 \text{ kilogram}$
 $1 \text{ kilogram} = 1000 \text{ grams}$

Matthew's grandmother asked him to buy $\frac{1}{2}$ pound of cherries.

Cherries are sold in 100 g, 250 g and 500 g packs.

Which pack should he buy to get the nearest amount?
You **must** show your working.

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Answer g (4 marks)

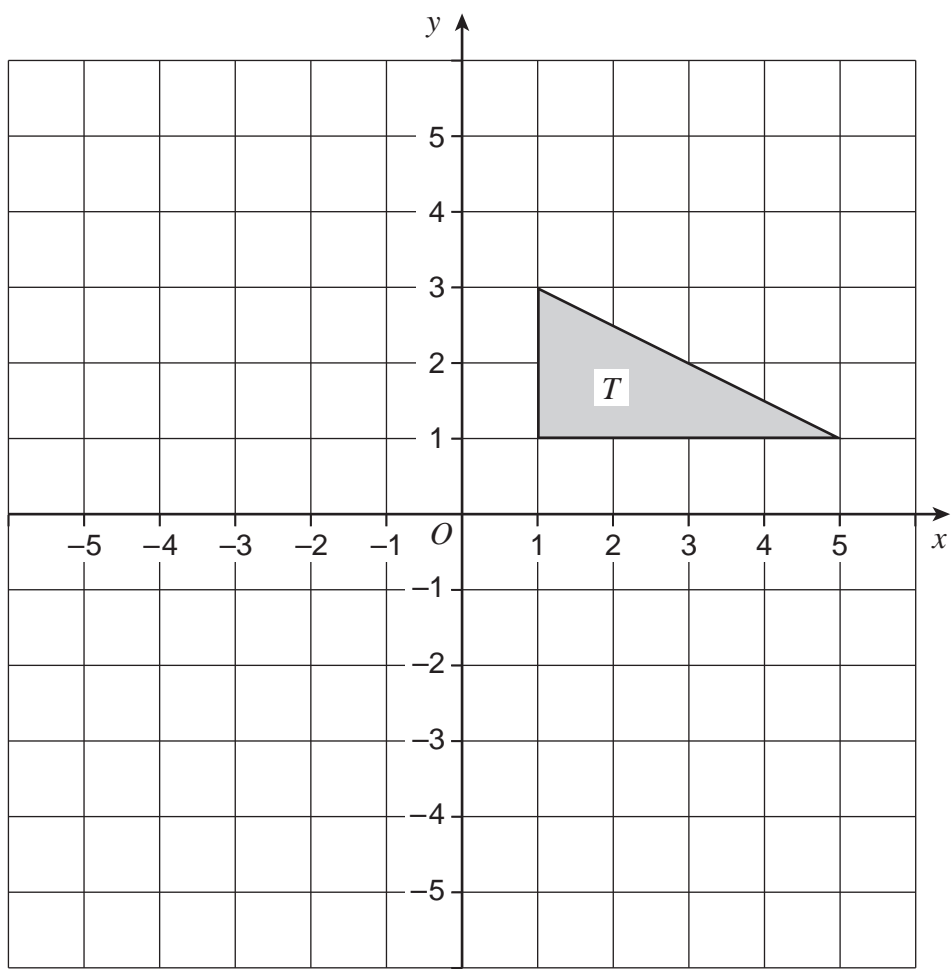
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6

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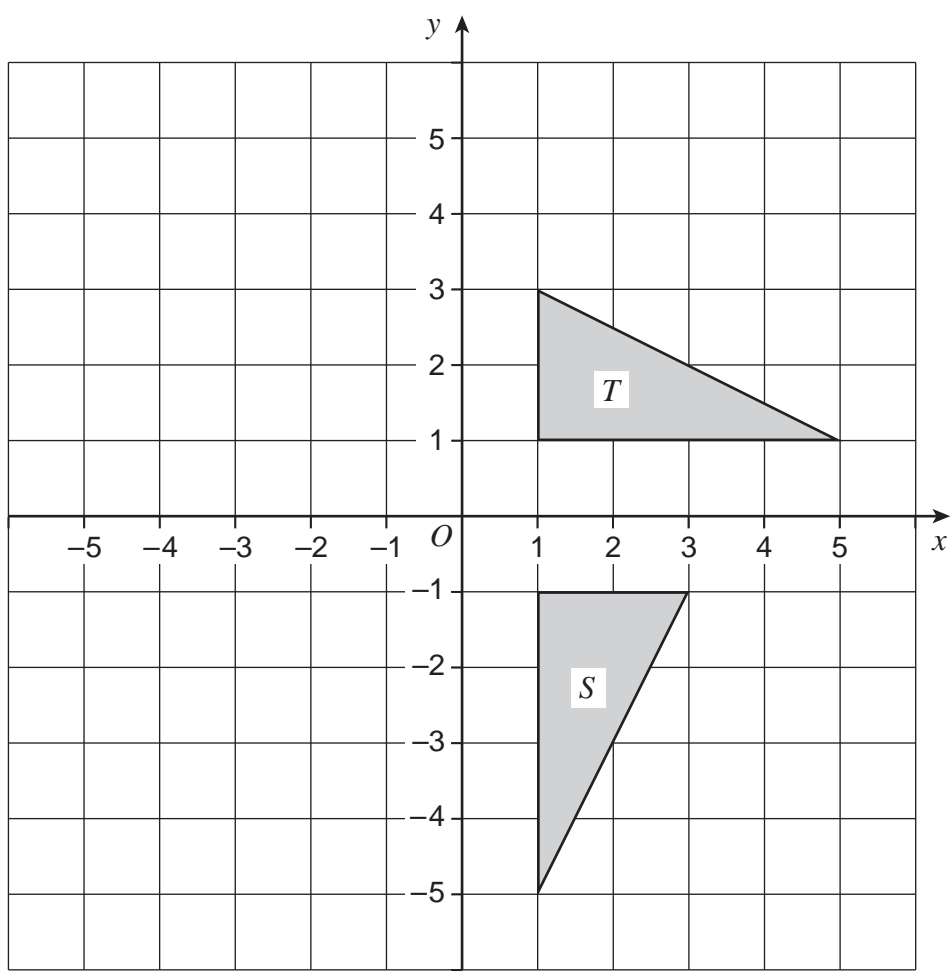
16 (a) Reflect triangle T in the line $y = -1$



(2 marks)



16 (b) Describe fully the **single** transformation that maps triangle T to triangle S .



.....

.....

(3 marks)

5

Turn over ►



17 Work out the area of a circle, radius 3.5 cm.
Give your answer to 1 decimal place.

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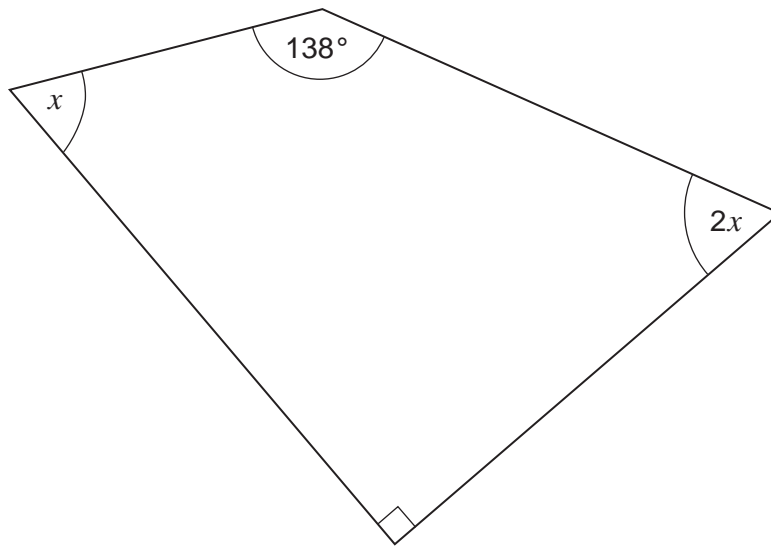
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Answer cm² (3 marks)



18 Work out the value of x .



Not drawn
accurately

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Answer degrees (4 marks)

Turn over for the next question

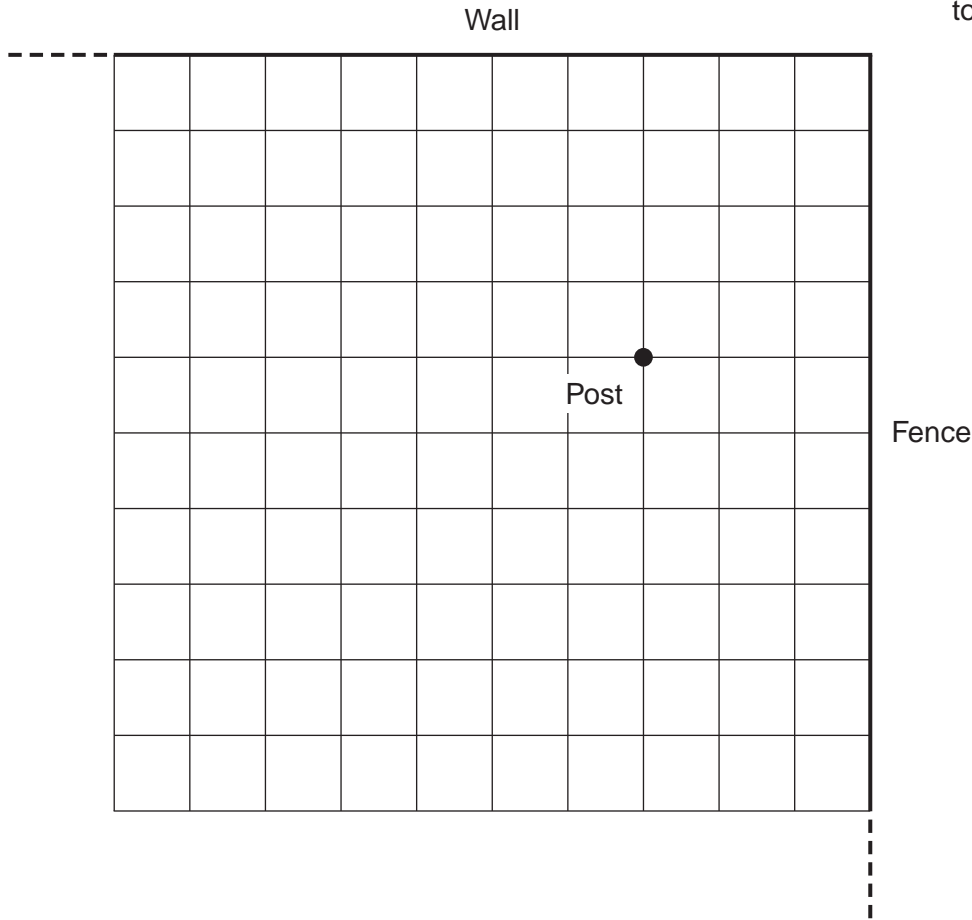
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Turn over ►



19 The scale drawing shows a post which is 1.5 metres from the fence.

Drawn to scale



19 (a) How far is the post from the wall?

.....

.....

Answer metres (1 mark)

19 (b) A pony is tied to the post by a rope. The pony can reach 2.5 metres from the post.

On the scale drawing, show accurately the area that the pony can reach.

(2 marks)



19 (c) Work out the scale of the drawing as a ratio.
Give your answer in its simplest form.

.....
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Scale : (3 marks)

Turn over for the next question

6

Turn over ►

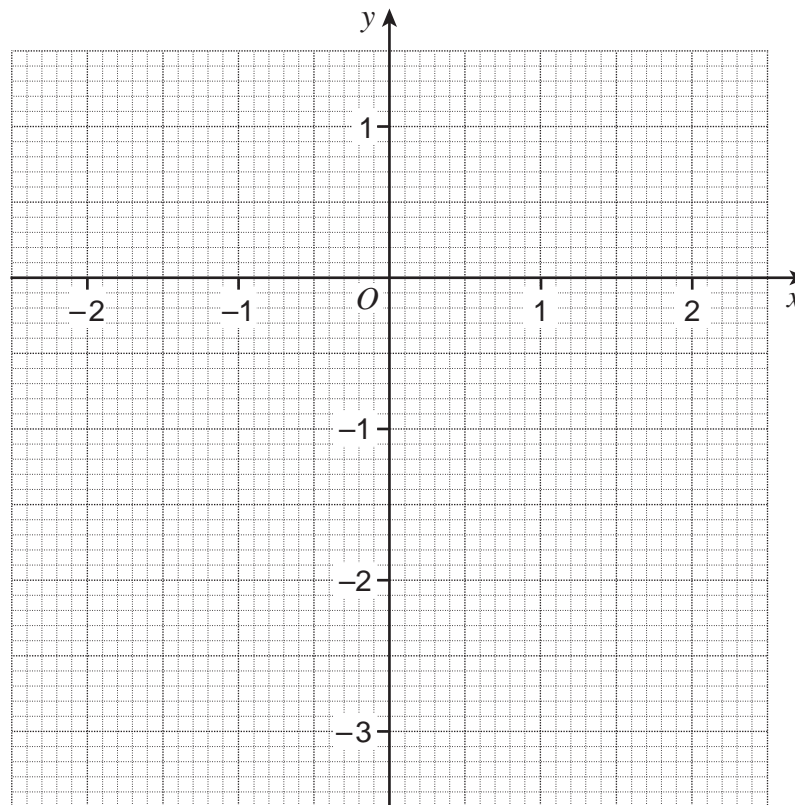


20 (a) Complete the table of values for $y = x^2 - 3$

x	-2	-1	0	1	2
y	1				1

(2 marks)

20 (b) Draw the graph of $y = x^2 - 3$ for values of x from -2 to 2.



(2 marks)

20 (c) Use your graph to work out the values of x when $y = 0.5$

.....

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Answer and (2 marks)

END OF QUESTIONS



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