

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
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4 – 5	
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24 – 25	
26	
TOTAL	



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

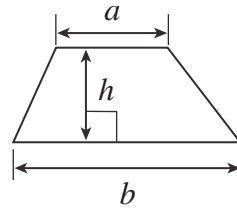
- In all calculations, show clearly how you work out your answer.



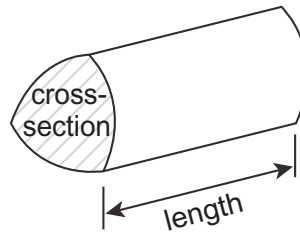
Formulae Sheet: Foundation Tier

You may need to use the following formulae:

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

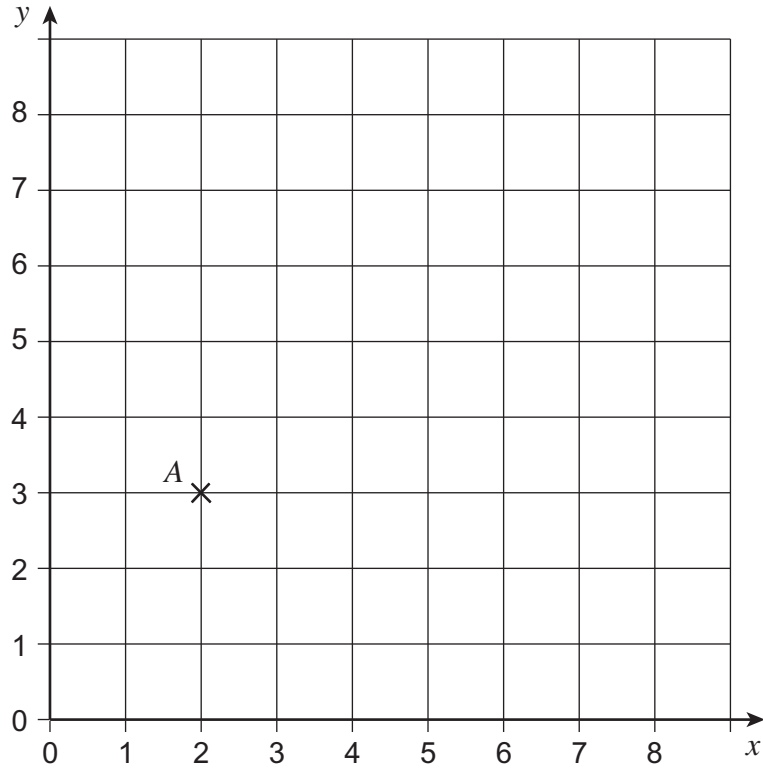


Volume of prism = area of cross-section \times length



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

1



1 (a) Write down the coordinates of A.

Answer (.....,

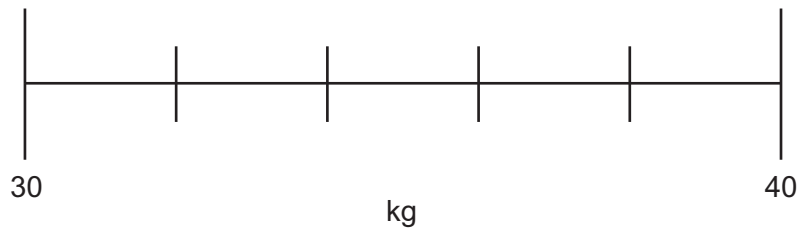
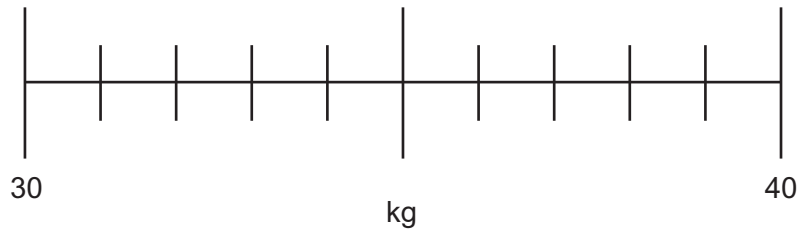
(1 mark)

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

(1 mark)



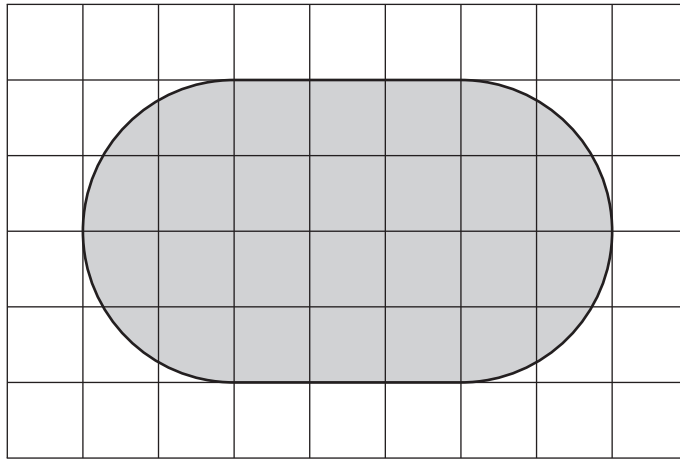
2 On each scale, mark 34 kg with an arrow.



(2 marks)



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

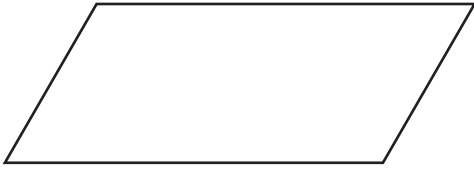


Work out an estimate for the area of his lawn.

Answer m² (3 marks)



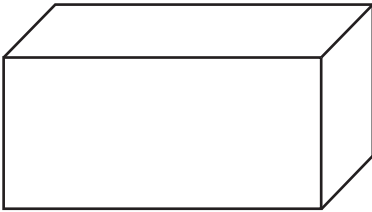
4 (a) Write down the mathematical name of this shape.



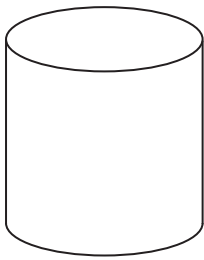
.....

(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?

.....
.....

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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.....
.....
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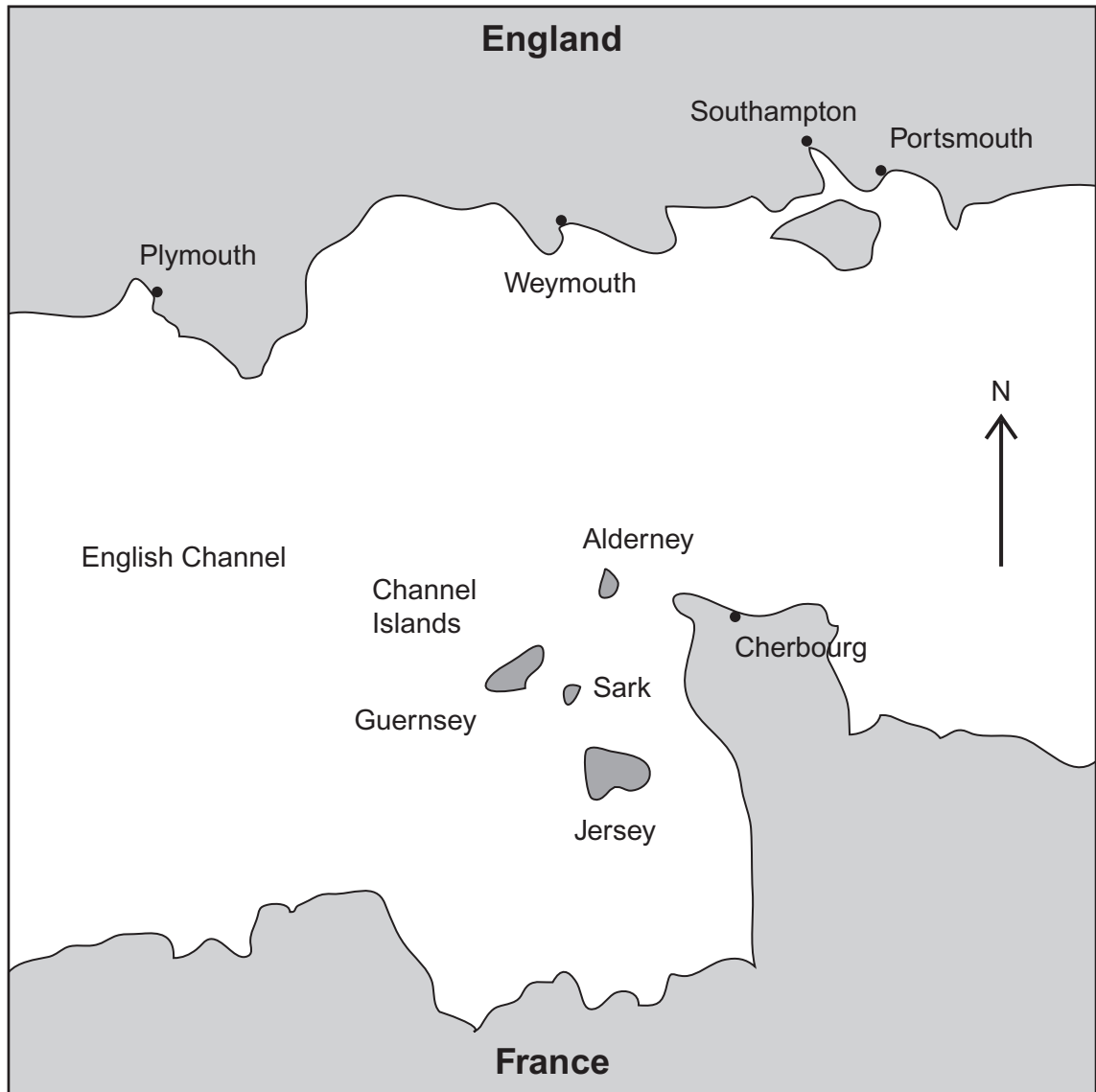
(2 marks)

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

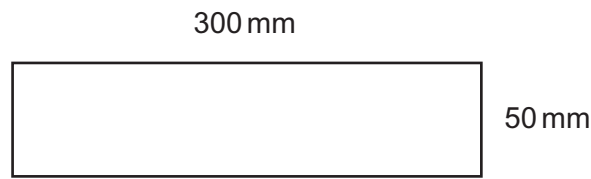
Alderney

(1 mark)

Turn over for the next question

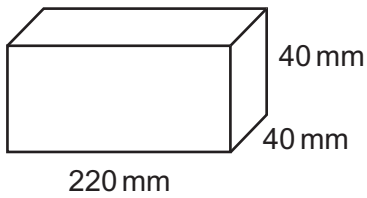


8 (a) The diagram shows a letterbox.

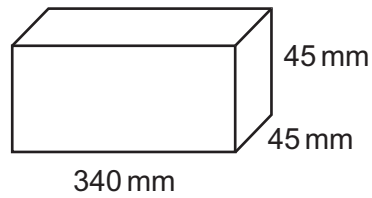


Not drawn
accurately

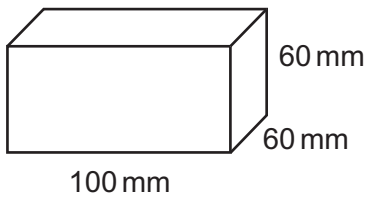
Which of these parcels will fit through the letterbox?
Circle Yes or No for each parcel.



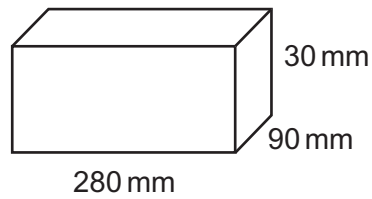
Yes No



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?

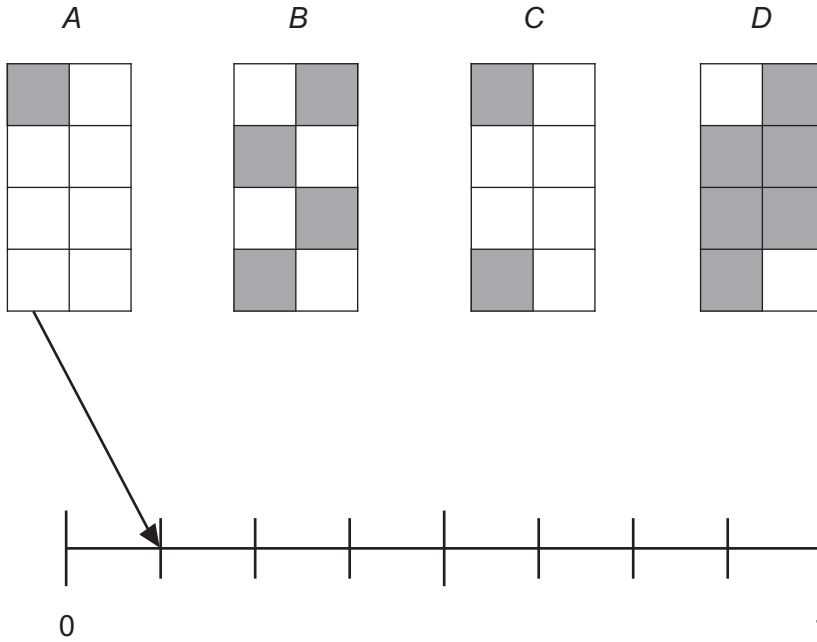
Width = mm

Height = mm (3 marks)

Turn over for the next question

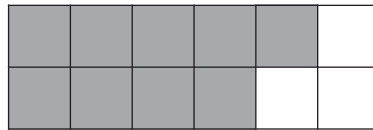


9 (a) Join each shape to the number line to show the fraction shaded.
The first one has been done for you.



(3 marks)

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



Give your answer in its simplest form.

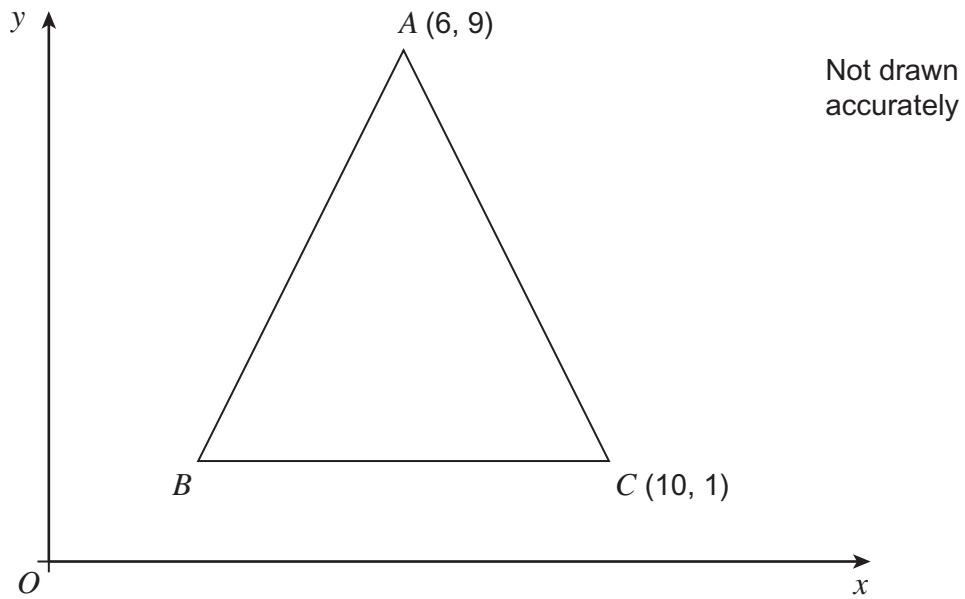
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Answer (2 marks)



10

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



Work out the coordinates of B .

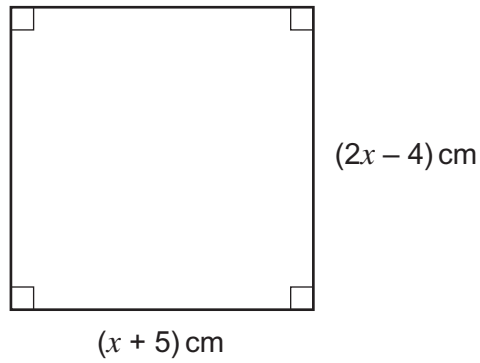
Answer (..... ,)

(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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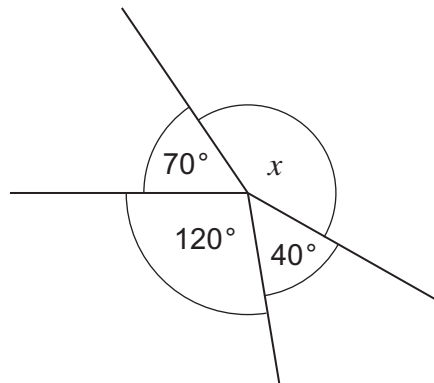
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Answer £ (5 marks)

Turn over for the next question



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



Not drawn
accurately

.....

.....

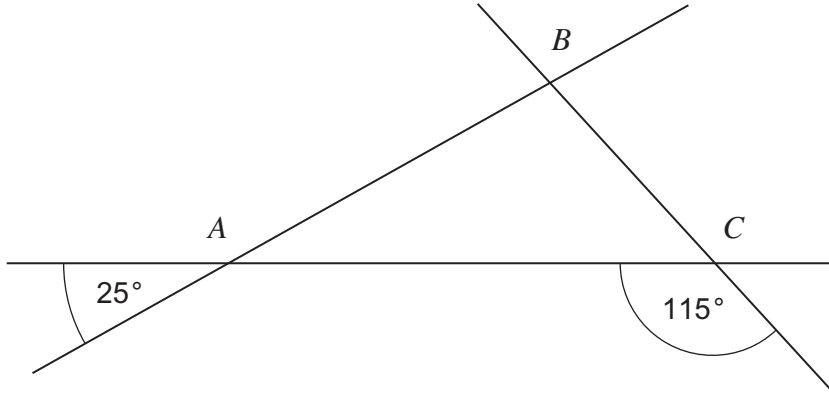
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Answer degrees (3 marks)



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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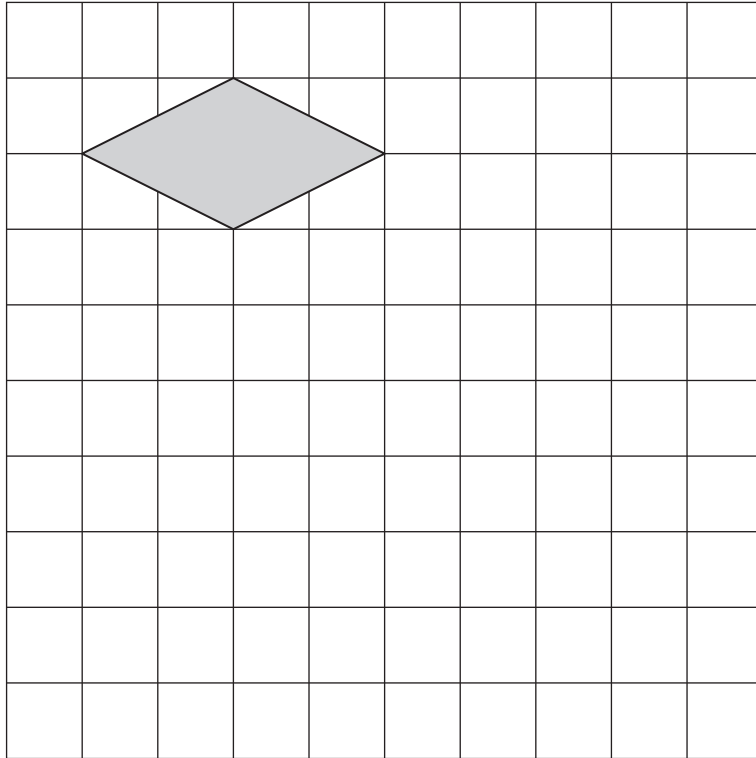
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Answer (4 marks)

Turn over for the next question



14 Enlarge this shape by scale factor 2.



(2 marks)



15 You are given 2.2 pounds = 1 kilogram
1 kilogram = 1000 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.

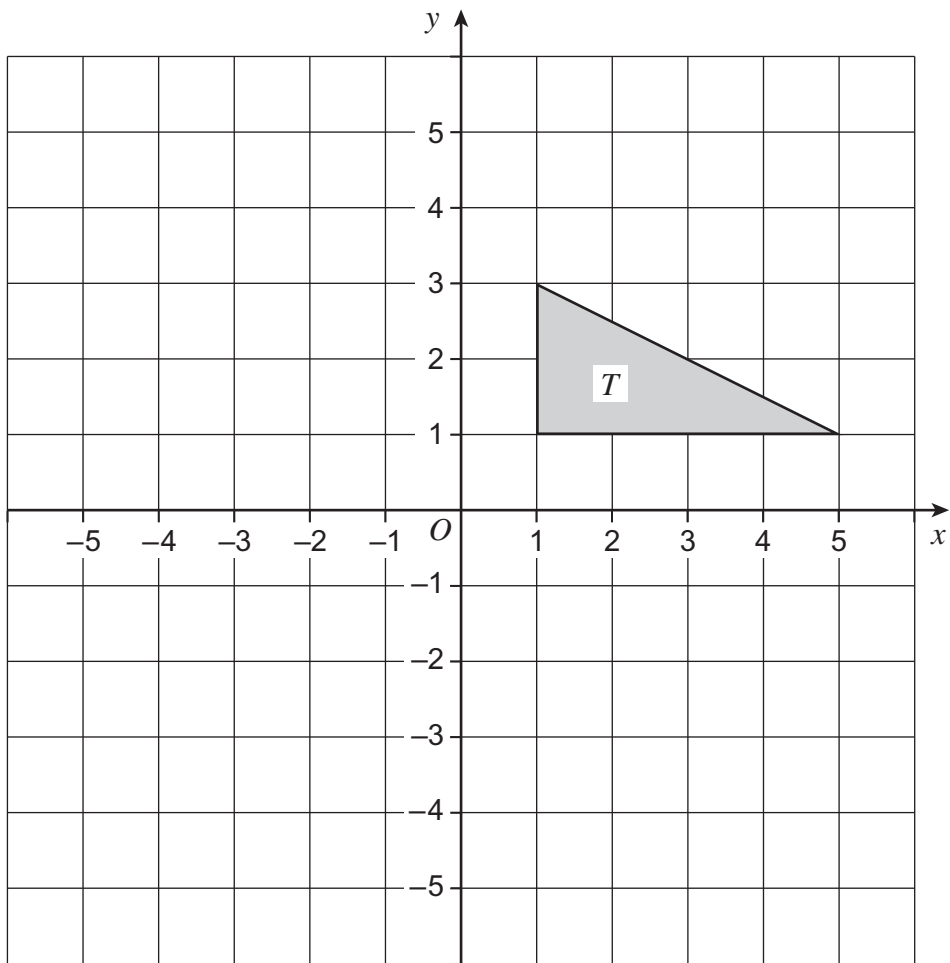
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Answer g (4 marks)

Turn over for the next question



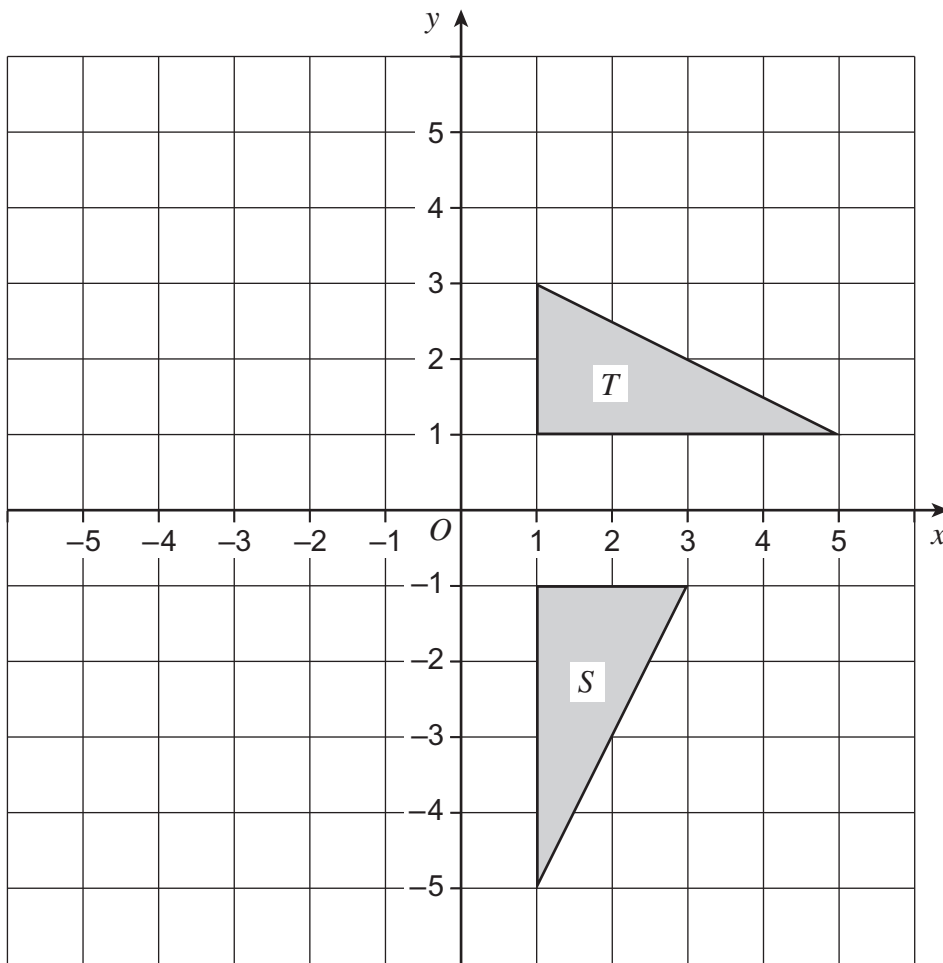
16 (a) Reflect triangle T in the line $y = -1$



(2 marks)



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



.....
..... (3 marks)



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

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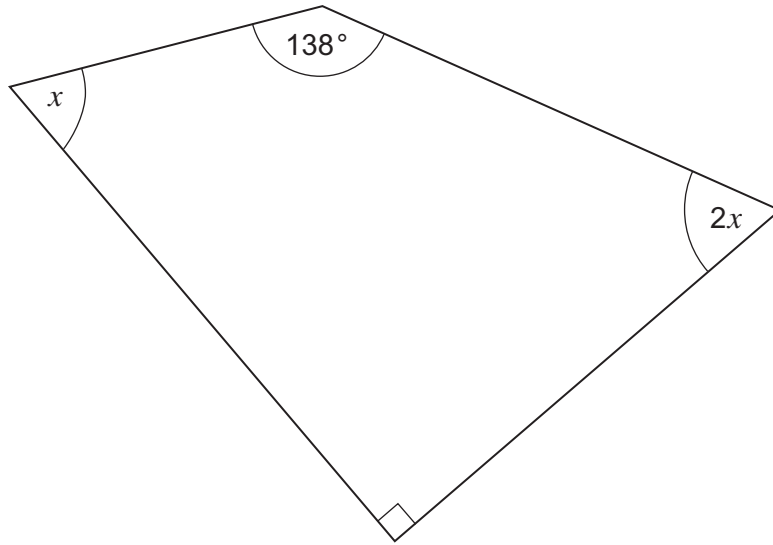
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Answer cm² (3 marks)



18

Work out the value of x .Not drawn
accurately

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Answer degrees (4 marks)

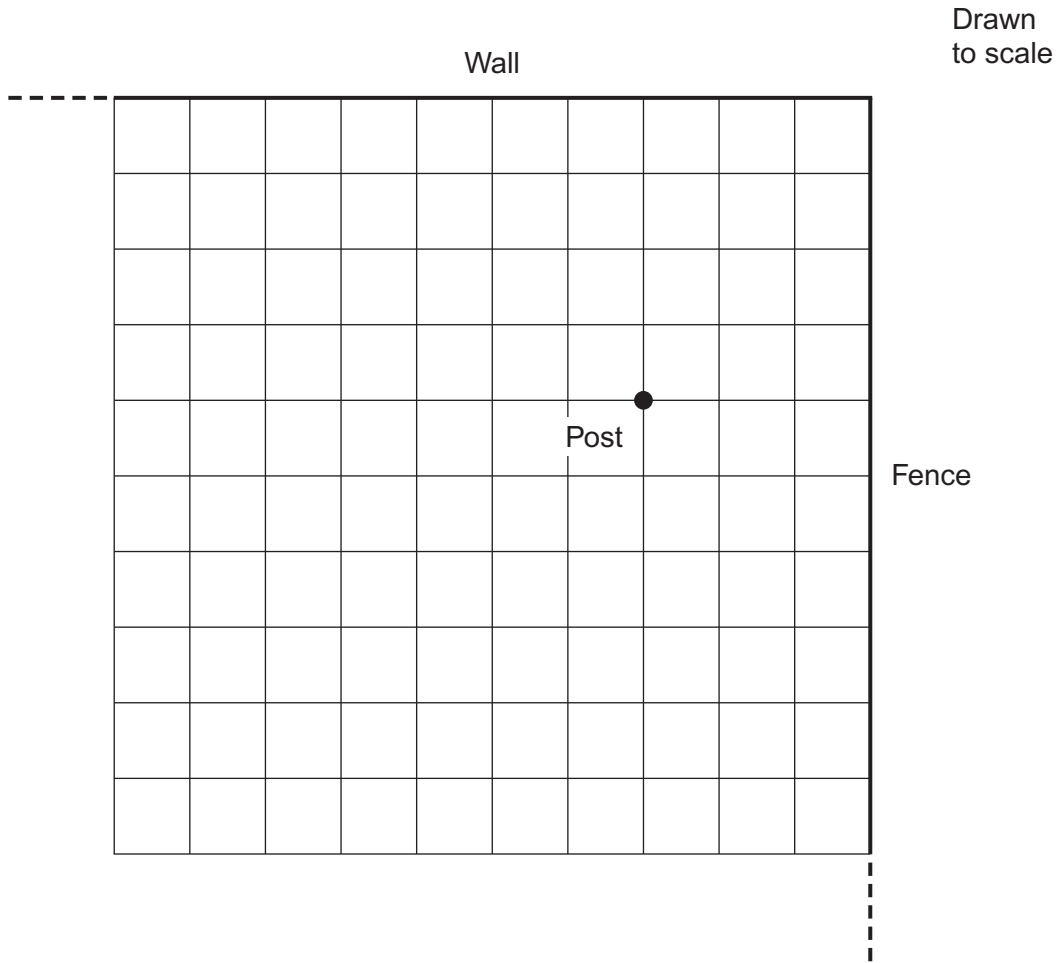
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7

Turn over ►



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



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.

.....
.....

Scale :

(3 marks)

Turn over for the next question

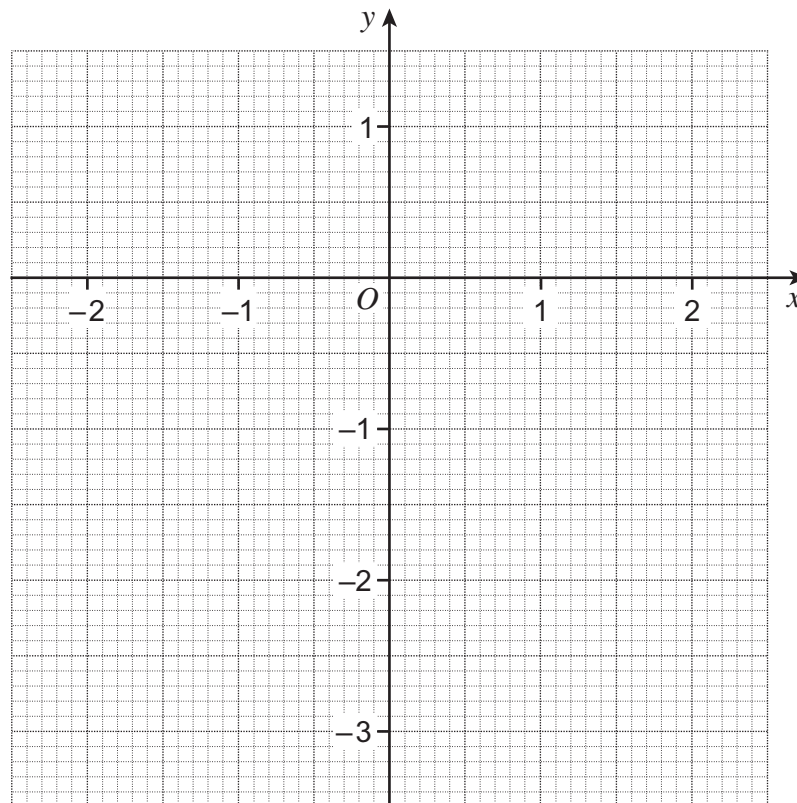


20 (a) Complete the table of values for $y = x^2 - 3$

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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