

Surname					Other Names				
Centre Number					Candidate Number				
Candidate Signature									

Leave blank
-------------

General Certificate of Secondary Education  
June 2005



**MATHEMATICS (SPECIFICATION A) 3301/1F**  
**Foundation Tier**  
**Paper 1 Non-Calculator**

**F**

Tuesday 7 June 2005 1.30 pm to 3.00 pm

<p><b>In addition to this paper you will require:</b> mathematical instruments. You must <b>not</b> use a calculator.</p>	
---	--

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

Time allowed: 1 hour 30 minutes

**Instructions**

- Use blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions in the spaces provided.
- Do all rough work in this booklet.

**Information**

- The maximum mark for this paper is 100.
- Mark allocations are shown in brackets.
- Additional answer paper, graph paper and tracing paper will be issued on request and must be tagged securely to this answer booklet.
- The use of a calculator is **not** permitted.

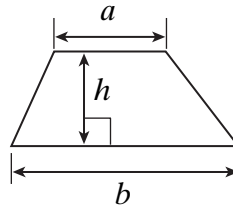
**Advice**

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

**Formula Sheet: Foundation Tier**

You may need to use the following formula:

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



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

1 Here is a list of numbers.

17 28 36 45 57 68 72 86

From this list, write down

(a) two numbers which have a total of 100,

.....

Answer ..... (1 mark)

(b) two numbers which have a difference of 50,

.....

Answer ..... (1 mark)

(c) the number which is a multiple of 7,

Answer ..... (1 mark)

(d) the number which is the product of 5 and 9.

Answer ..... (1 mark)

2 Complete the table below.

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	
	0.7	70%
$\frac{3}{100}$		3%

(3 marks)

$\frac{7}{7}$

Turn over ►

3 Here is a list of words connected with angles.

Acute

Full-turn

Obtuse

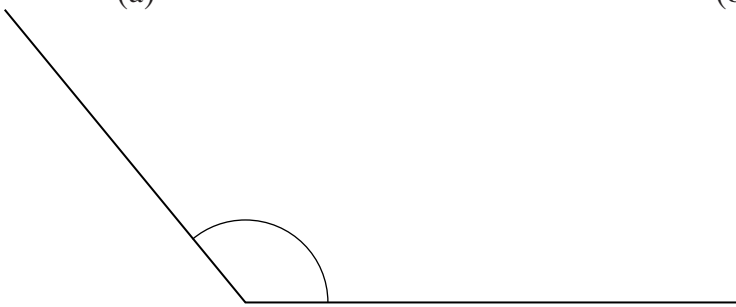
Reflex

Right

Straight

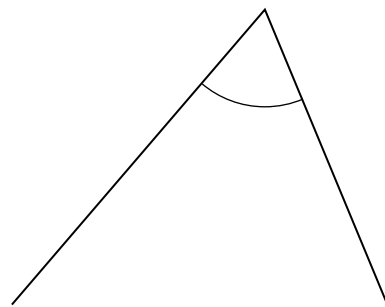
Choose the correct word to describe each of these angles.

(a)



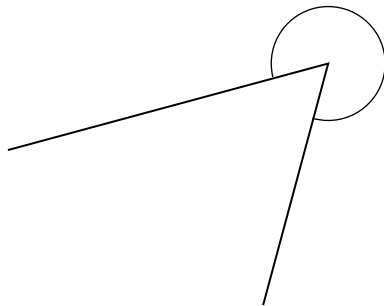
Answer ..... angle

(b)



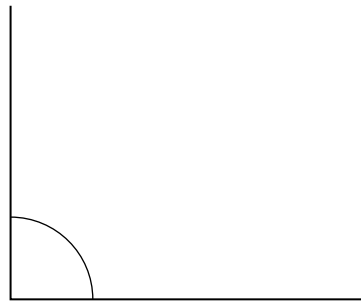
Answer ..... angle

(c)



Answer ..... angle

(d)

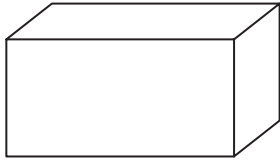


Answer ..... angle

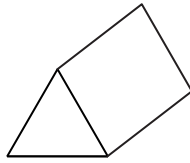
(3 marks)

4 (a) Write down the name of each of these 3-D shapes.

(i)



(ii)



(iii)



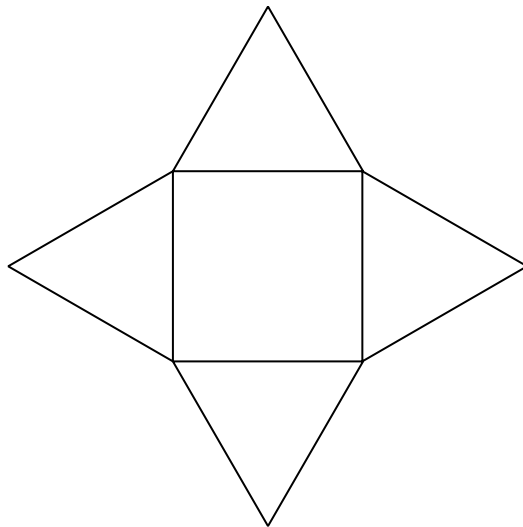
Answer (i) .....

(ii) .....

(iii) .....

(3 marks)

(b) Here is a net for another 3-D shape.



Write down the name of this 3-D shape.

Answer ..... (1 mark)

5

**ELECTRICITY BILL**

<i>Time</i>	<i>Cost per unit</i>	<i>Units used</i>
Day	10p	600
Night	4p	200

Anne uses this information to work out her electricity bill.

Work out the total amount of her bill.

You **must** show all your working.

.....

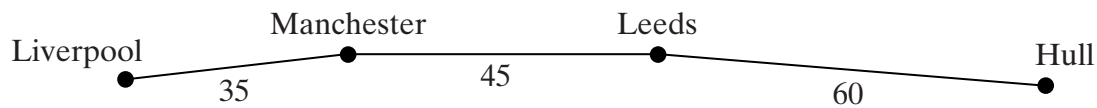
.....

.....

.....

Answer £ ..... (4 marks)

- 6 Here is a route map of the M62 motorway.  
The distances, in miles, between four cities are shown on the map.



Complete the following table to show the distances between these cities.

<b>Liverpool</b>			
35	<b>Manchester</b>		
80		<b>Leeds</b>	
		60	<b>Hull</b>

.....

.....

.....

(3 marks)

7 The cost, in pounds, to hire a conference centre is calculated by using this formula.

$$\text{Cost} = 4 \times \text{number of people attending} + 250$$

(a) Find the cost of hiring the conference centre when 200 people attend.

.....  
 .....

Answer £ ..... (2 marks)

(b) A company pays £650 to hire the conference centre.  
 How many people attend the conference?

.....  
 .....

Answer ..... (2 marks)

8 (a) Here is a sequence of numbers.

30    25    20    15    10    .....    .....

Write down the next two numbers in the sequence.

.....  
 (2 marks)

(b) Here is another sequence of numbers.

160    80    .....    20    10    .....    2.5

Write down the two missing numbers in this sequence.

.....  
 (2 marks)

Turn over ►

9 The data shows the shoe sizes of 20 students.

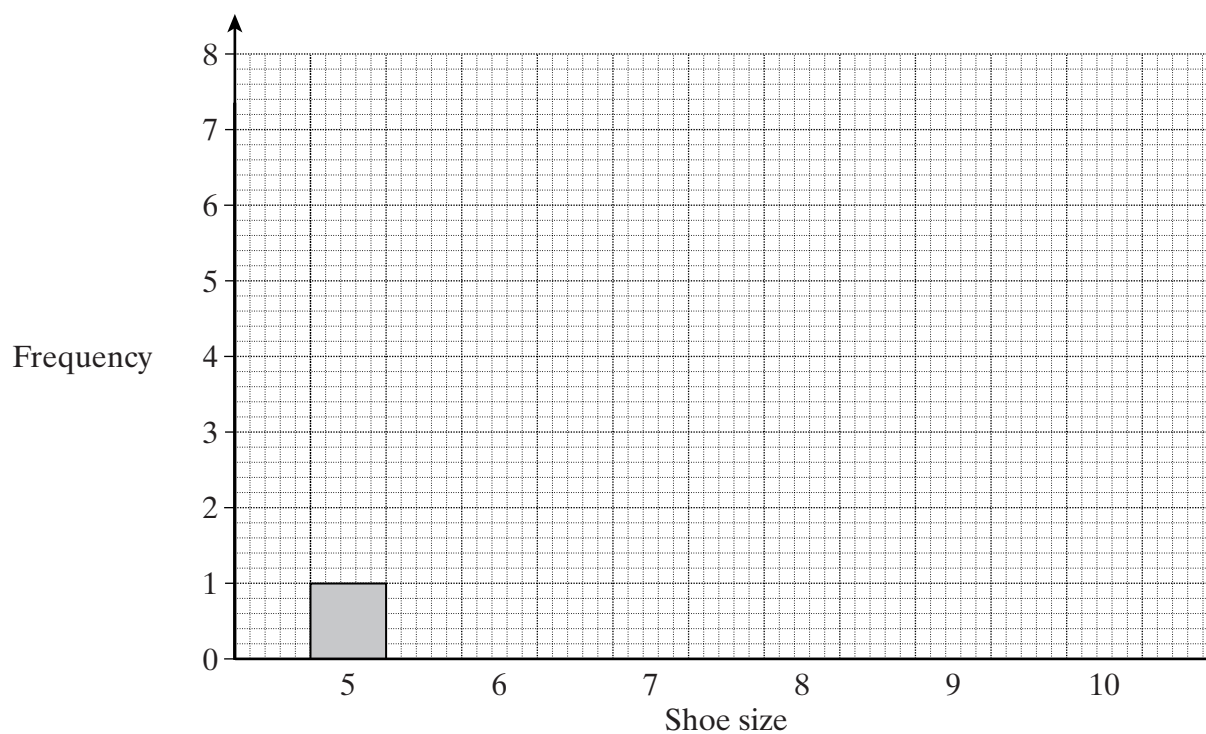
~~5~~ 7 6 7 10 8 6 7 9 10  
10 8 6 6 7 8 7 9 7 6

(a) Complete the frequency table below.

Shoe size	Tally	Frequency
5		1
6		
7		
8		
9		
10		

(2 marks)

(b) Complete the bar chart to show this information.



(2 marks)

(c) Write down the mode of the shoe sizes.

Answer ..... (1 mark)

- 10** (a) A box of pencils costs £2.50  
Mr Hebson orders 48 boxes for the Mathematics Department.  
Find the total cost.

.....

.....

.....

.....

.....

Answer £ ..... (3 marks)

- (b) Pens are sold in boxes of 12.  
Mr Hebson requires 250 pens.  
How many boxes does he need to order?

.....

.....

.....

.....

Answer ..... boxes (3 marks)

- 11** 100 tickets are sold in a raffle.  
There is one prize.

- (a) Dave buys one ticket.  
What is the probability that he wins the prize?

Answer ..... (1 mark)

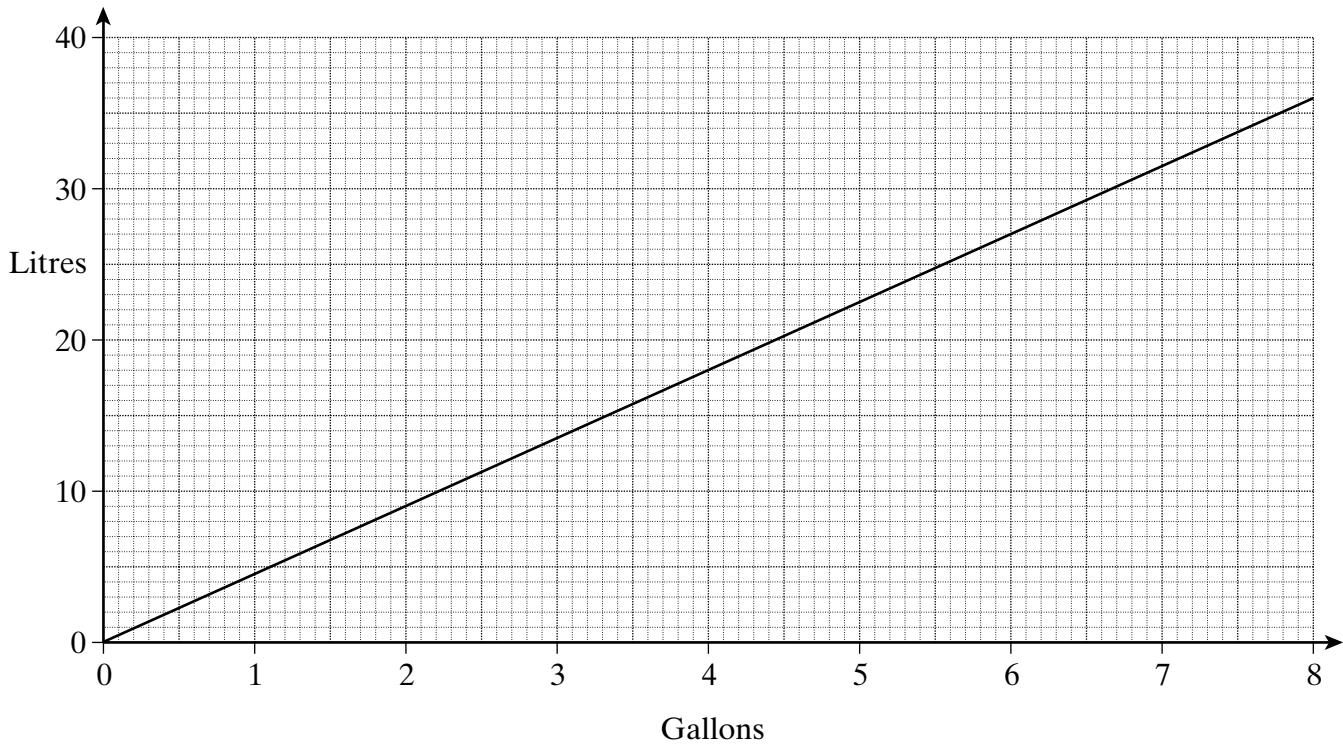
- (b) Joanna buys five tickets.  
What is the probability that she wins the prize?  
Give your answer as a fraction in its simplest form.

.....

Answer ..... (2 marks)

Turn over ►

12 This is a conversion graph for gallons and litres.



(a) Use the graph to convert

(i) 4 gallons to litres,

Answer ..... litres

(ii) 30 litres to gallons.

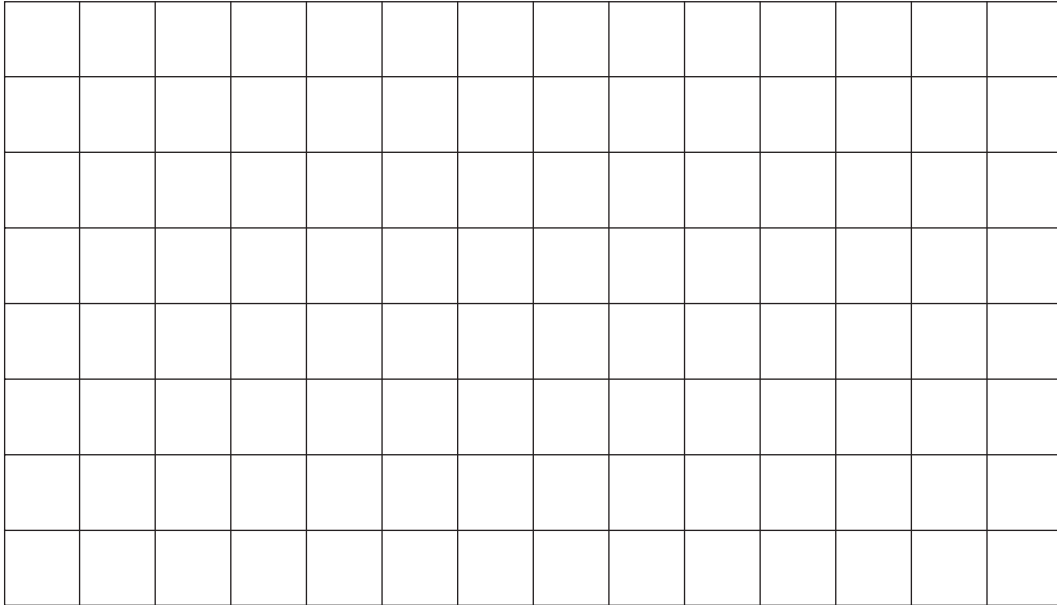
Answer ..... gallons (2 marks)

(b) 50 gallons is approximately 225 litres.  
Explain how you can use the graph to show this.

.....  
.....  
.....

(1 mark)

- 13** Draw, on the centimetre square grid below, a rectangle that has an area of  $12 \text{ cm}^2$ .



(2 marks)

- 14** Here is a number machine.



Use the number machine to complete the table.

<b>Input</b>	2	5	8	10	$n$
<b>Output</b>	11				

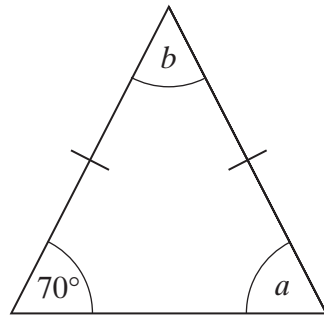
(4 marks)

**TURN OVER FOR THE NEXT QUESTION**

Turn over  $\blacktriangleright$



16 This triangle has two equal sides.



Not drawn accurately

(a) What name is given to this type of triangle?

Answer ..... (1 mark)

(b) Find the values of  $a$  and  $b$ .

.....  
.....  
.....

Answer  $a =$  ..... degrees,  $b =$  ..... degrees (3 marks)

**TURN OVER FOR THE NEXT QUESTION**

Turn over 

17 Jim's class and Rosie's class go on a trip to the zoo.  
Each pupil pays the same amount.

There are 30 pupils from my class on the trip. The total cost for my class is £90.



Jim

There are 25 pupils from my class on the trip.



Rosie

What is the total cost for Rosie's class?

.....

.....

.....

.....

Answer £ ..... (3 marks)

**18** (a) Use the formula  $a = 5b + 2c$  to work out  $a$  when  $b = 3$  and  $c = -4$

.....  
.....

Answer ..... (2 marks)

(b) Use the formula  $a = 5b + 2c$  to work out  $c$  when  $a = 16$  and  $b = 2$

.....  
.....  
.....

Answer ..... (3 marks)

**19** Work out

(a)  $5.4 - 1.28$

.....  
.....  
.....

Answer ..... (1 mark)

(b)  $3.64 \times 2 + 13.7$

.....  
.....  
.....

Answer ..... (3 marks)

(c)  $0.3 \times 100 + 2.4 \times 10$

.....  
.....  
.....

Answer ..... (2 marks)

Turn over 

20 The table shows the races that 60 primary school pupils entered on their Sports Day. They each entered one race.

Race entered	Number of pupils
Egg and spoon	18
3-legged	20
Sack	12
Obstacle	10

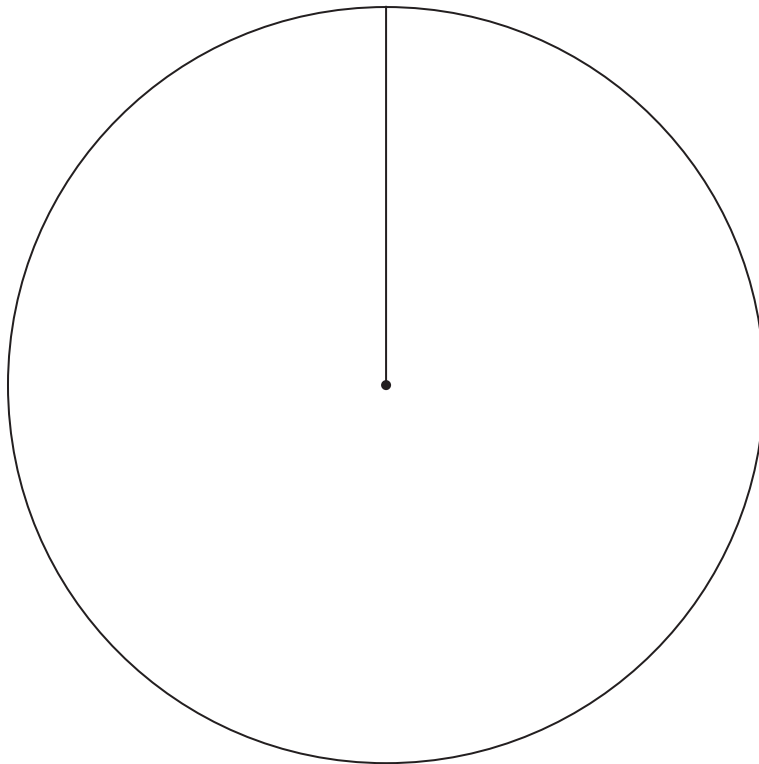
(a) Draw and label a pie chart to represent the information in the table.

.....

.....

.....

.....



(4 marks)

(b) Work out the percentage of pupils who entered the egg and spoon race.

.....

.....

Answer ..... % (2 marks)

(c) The pupils in the obstacle race took these times in seconds.

23 36 18 29 44 39 36 54 43 41

Draw an ordered stem and leaf diagram to show this information.

.....

.....

.....

.....

.....

Key: | 2 | 3 represents 23 seconds

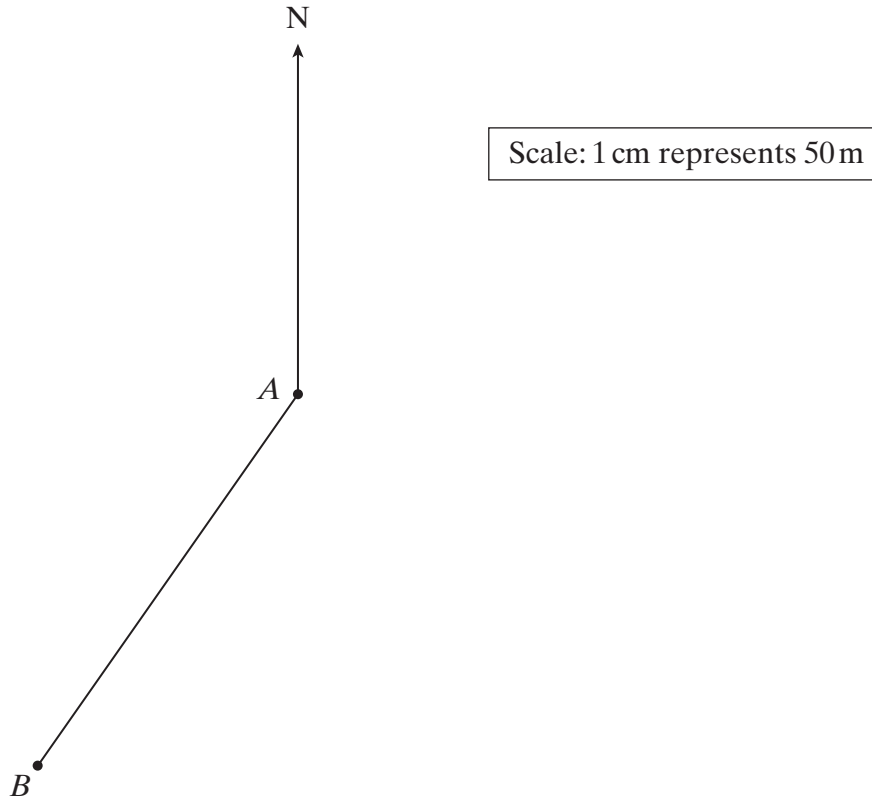
	.....
	.....
	.....
	.....
	.....

(3 marks)

**TURN OVER FOR THE NEXT QUESTION**

Turn over 

21 The diagram shows a scale drawing of one side,  $AB$ , of a triangular field,  $ABC$ .



(a) Use the diagram to calculate the actual distance from  $A$  to  $B$ .

.....  
 .....

Answer ..... metres (2 marks)

(b) Measure and write down the three figure bearing of  $B$  from  $A$ .

Answer ..... ° (1 mark)

(c) The bearing of  $C$  from  $A$  is  $130^\circ$ .  
 The actual distance from  $A$  to  $C$  is 350 metres.  
 Mark the point  $C$  on the diagram.

.....  
 (2 marks)

- 22** Tom works 12 hours each week.  
 He earns £4 per hour.  
 Tom saves  $\frac{1}{3}$  of his earnings each week.  
 How many weeks does it take Tom to save £80?  
 You **must** show all your working.

.....

.....

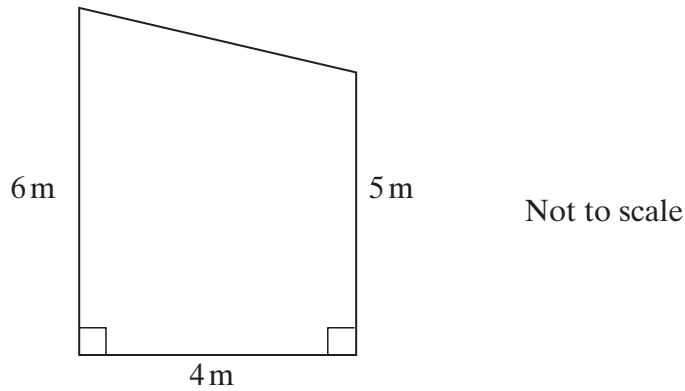
.....

.....

.....

Answer ..... weeks (4 marks)

- 23** The diagram shows the side wall of a building.



Calculate the area of the wall.  
 You **must** show all your working.

.....

.....

.....

.....

.....

Answer ..... (4 marks)

Turn over ►

24  $p$  and  $q$  are odd numbers.

- (a) Is  $p + q$  an odd number, an even number or could it be either?  
Tick the correct box.

odd

even

either

(1 mark)

- (b) Is  $pq$  an odd number, an even number or could it be either?  
Tick the correct box.

odd

even

either

(1 mark)

**END OF QUESTIONS**