

Write your name here

Surname

Other names

Centre Number

Candidate Number

**Edexcel GCSE**

# Mathematics A

## Paper 1 (Non-Calculator)

**Foundation Tier**

Sample Assessment Material  
**Time: 1 hour 45 minutes**

Paper Reference  
**1MA0/1F**

**You must have:**

Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators must not be used.**



### Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed – *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

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Turn over ►

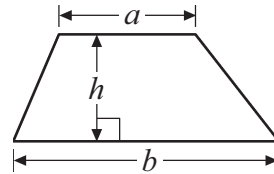
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## GCSE Mathematics 1MA0

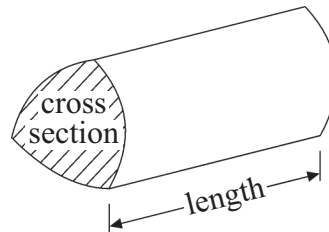
Formulae: Foundation Tier

**You must not write on this formulae page.  
Anything you write on this formulae page will gain NO credit.**

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



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



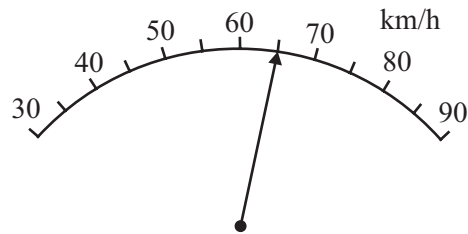
**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

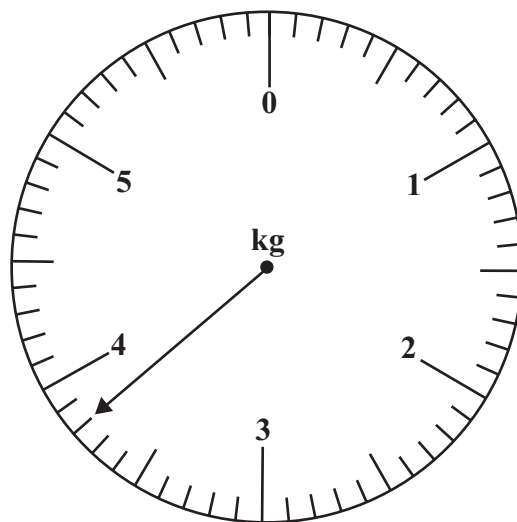
1 (a) Write down the reading on this scale.

(1)



..... km/h

The scale shows the weight of Sam's dog.



Sam's baby brother weighs 5 kg.

(b) Work out the difference in weight between Sam's baby brother and Sam's dog.

(2)

..... kg

**(Total for Question 1 = 3 marks)**

2 A bus seats 47 people.  
Another 6 people can stand.

There are 44 people on the bus.  
The bus stops.

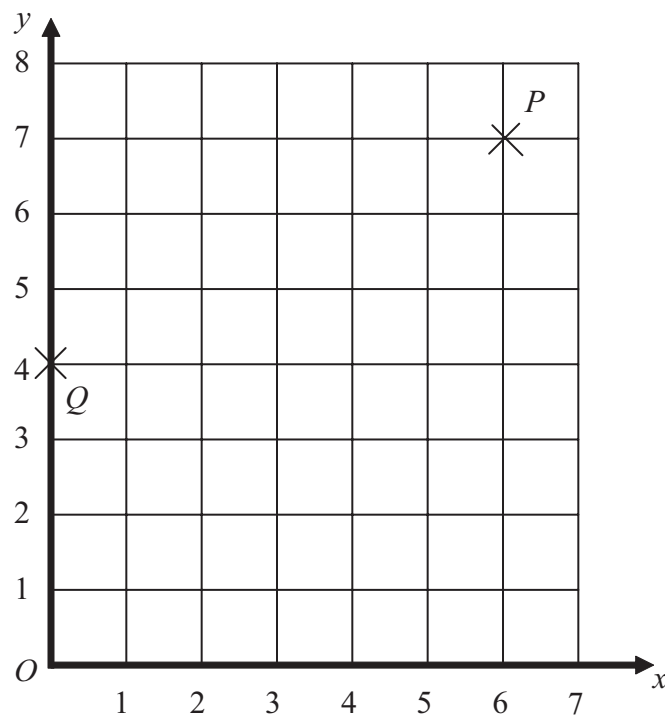
8 people get off the bus.  
19 people want to get on the bus.

Can the bus hold all the people who want to get on the bus?  
Explain your answer.



**(Total for Question 2 = 2 marks)**

3 Here is a coordinate grid.



(a) Write down the coordinates of the point  $P$ .

(1)

(....., .....) )

$R$  is the midpoint of  $PQ$ .

(b) Write down the coordinates of the point  $R$ .

(2)

(....., .....) )

The point  $B$  is on the  $x$ -axis.

The line  $BP$  is parallel to the  $y$ -axis.

(c) Write down the coordinates of the point  $B$ .

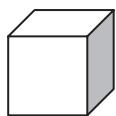
(2)

(....., .....) )

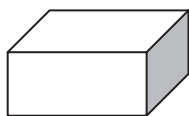
**(Total for Question 3 = 5 marks)**

4 Ben is planning to make some blocks for a child.

The diagram shows some 3-D shapes.



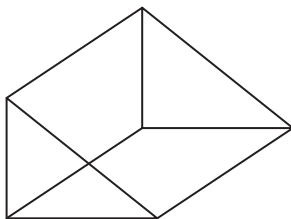
**A**



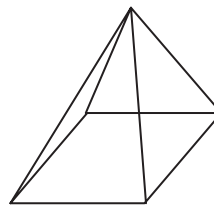
**B**



**C**



**D**



**E**

(a) Write down the mathematical name of the 3-D shape **C**.

(1)

.....

(b) Write down the number of edges on the 3-D shape **D**.

(1)

.....

(c) Write down the letters of all the 3-D shapes that have 5 faces.

(1)

.....

Ben is going to make one of the boxes, the 3-D shape **B**.  
The 3-D shape is to be 4 cm high, 5 cm wide and 6 cm long.

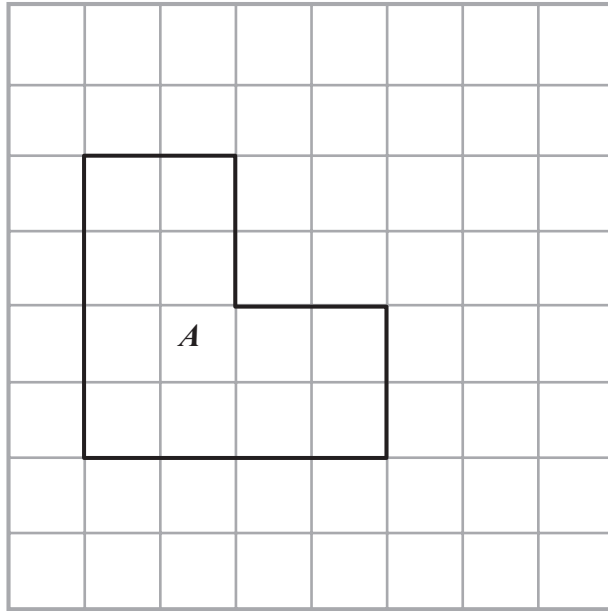
- (d) (i) In the space below draw an accurate net of the solid shape **B**.  
(ii) Find the length and width of the smallest rectangle of card needed for the net. (5)

Smallest width .....

Smallest length .....

**(Total for Question 4 = 8 marks)**

5



Shape *A* has been drawn on a centimetre grid.

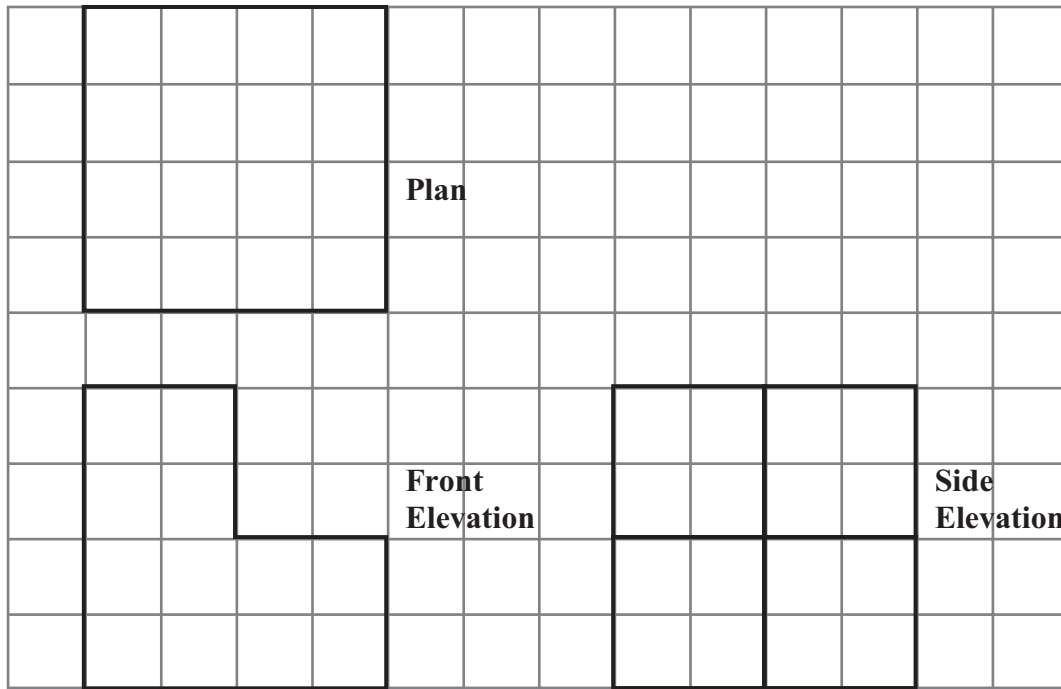
(a) Find the perimeter of shape *A*.

(1)

.....



The diagram shows the plan, the front elevation and the side elevation of a 3-D solid made from one centimetre cubes drawn full size.



(b) Find the volume of the 3-D shape.

(4)

(Total for Question 5 = 5 marks)

6 Laura and Jaz were worried about the amount of traffic in their town.

The town council aims to reduce the percentage of lorries to 25% of the total number of vehicles.

Laura and Jaz carried out a survey of the types of vehicles passing Laura's house during 10 minutes one Saturday morning.

Here is a list of the vehicles they saw.

Car	Van	Lorry	Motorbike	Bus	Car
Van	Car	Car	Van	Lorry	Motorbike
Motorbike	Motorbike	Van	Lorry	Motorbike	Car
Car	Bus	Lorry	Car	Lorry	Motorbike

Laura and Jaz were going to give a talk about the results of their survey.

\*(a) Design a suitable chart or table Laura could use and a different chart or table that Jaz could use to make a summary of the list of vehicles they saw.

Use the space below or the grid provided.

(6)


The council's aim was to reduce the percentage of lorries in the town to be less than 25%.

(b) Did the council succeed? You must explain your answer.

(2)

.....

.....

Laura and Jaz's survey was not a good one.

(c) Explain how Laura and Jaz could design a better survey to investigate the council's plan.

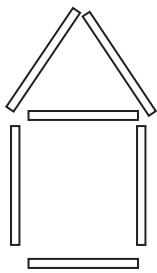
(2)

.....

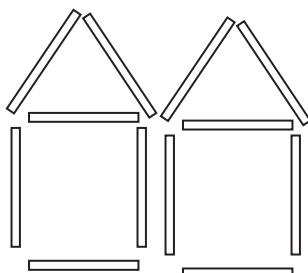
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**(Total for Question 6 = 10 marks)**

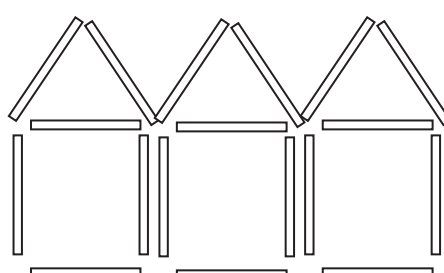
7 Here are some patterns made from sticks.



Pattern number 1



Pattern number 2



Pattern number 3

(a) Draw Pattern number 4 in the space below.

(1)

(b) How many sticks are used for Pattern number 10?

(2)

Jim says there is a pattern with 123 sticks in it.

(c) Is Jim correct? You must explain your answer.

(2)

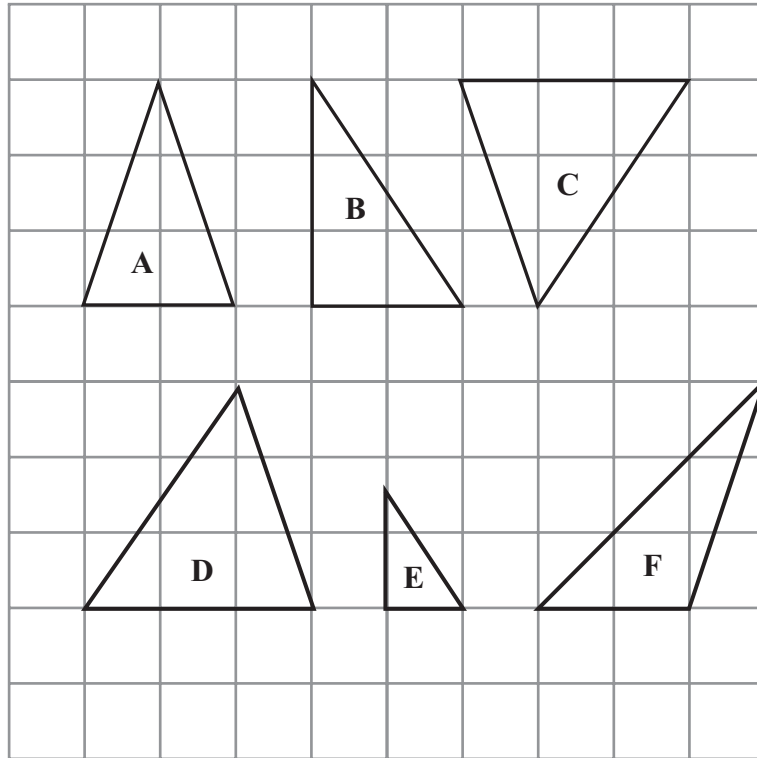
.....

.....

.....

**(Total for Question 7 = 5 marks)**

8 These triangles have been drawn on a centimetre grid.



(a) Write down the letters of the **two** triangles that are congruent.

(1)

..... and .....

(b) Write down the letters of **two different** triangles that are similar.

(1)

..... and .....

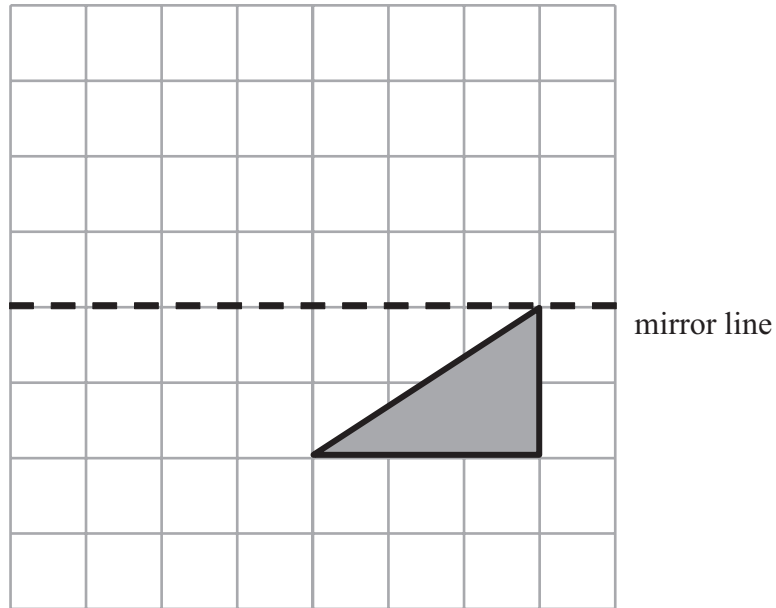
(c) Find the area of triangle **D**.

(1)

.....

**(Total for Question 8 = 3 marks)**

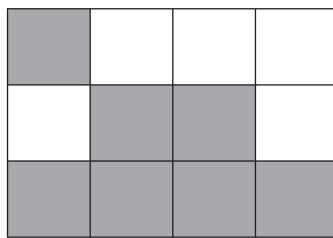
9



(a) Reflect the shaded shape in the mirror line.

(1)

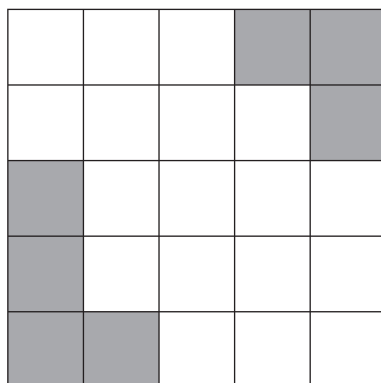
Here is a pattern made with squares.



(b) Shade one square to make a black and white pattern with only **one** line of symmetry.

(1)

Here is another pattern made with squares.



(c) Shade **three** more squares to make a pattern with rotational symmetry of order 2.

(1)

**(Total for Question 9 = 3 marks)**

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10 (a) Simplify  $7x + 3x - 4x$

(1)

(b) Solve  $3y - 2 \geq -8$

(2)

(Total for Question 10 = 3 marks)



**\*11** Chris owns a clothes shop.  
He bought 50 shirts at £12 for each shirt.  
He chose the selling price of each shirt so that he would make a profit of 30% on each shirt.  
He sold 20 shirts at this price.

Chris then reduced the selling price of each shirt by 15%.  
He then sold the remaining shirts at this reduced selling price.

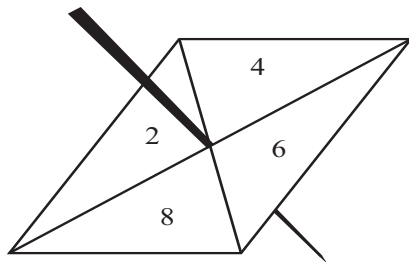
Has Chris made a profit or loss?  
You must explain your answer clearly.



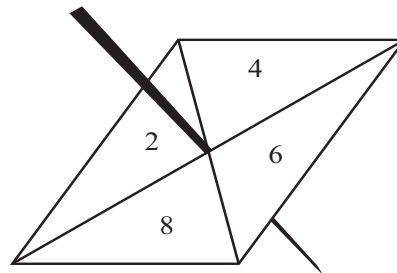
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**(Total for Question 11 = 8 marks)**

12 Here are two **fair** 4-sided spinners.  
One is a Blue spinner and one is a Red spinner.



**Blue Spinner**



**Red Spinner**

Each spinner has four sections numbered 2, 4, 6 and 8.

Each spinner is to be spun once.

Total score = Blue spinner score + Red spinner score

(a) List the different ways that the total score can be 8

(2)

.....

Ali and Shazia play a game.

In each round of the game, Ali spins the Blue spinner once and Shazia spins the Red spinner once.

Ali wins when the Blue spinner score is greater than the Red spinner score.

(b) Work out the probability that Ali will win the first round.

(4)

.....  
**(Total for Question 12 = 6 marks)**

13 Parul has £1.70

She wants to buy a drink and something to eat.

(a) What are the different combinations she can buy?

(2)

<b>Ben's Burger Bar</b>			
<b>Burgers</b>			
Single burger			£0.85
Single burger with cheese			£0.95
Double burger			£1.55
Double burger with cheese			£1.70
<b>Fries</b>		<b>Cola</b>	
Regular	£0.65	Regular	£0.85
Large	£0.99	Large	£1.10
<b>Meal Deals</b>			
<b>Regular</b>			
Single burger with			£2.09
regular fries and regular cola			
<b>Large</b>			
Double burger with cheese			£3.49
large fries and large cola			

Ken buys

2 double burgers with cheese,  
1 large fries  
and 1 large cola.

He pays with a £10 note.

(b) He gets the best price.  
What change should he get?

(3)



£.....

**(Total for Question 13 = 5 marks)**

14 Simon is a salesman.

He gets paid expenses of 40p for every mile that he drives during work.

He also gets £12 expenses as a meal allowance for any day that he drives during work.

The table gives information about the number of miles Simon drove on 5 days in one week.

Day	Number of miles
Monday	48
Tuesday	37
Wednesday	0
Thursday	78
Friday	21

(a) Work out Simon's total expenses.

(4)

£.....

Sasha works for the same company.  
She gets paid expenses of 40p for each mile she drives during work.

Last year she worked for 48 weeks.

Her total **expenses** for driving for the year were £2116.80

(b) Work out an estimate for the average number of miles Sasha drove during work each week last year.

(3)



.....  
**(Total for Question 14 = 7 marks)**

**\*15** Emma says

“Since 3 is half way between 2 and 4 then  $\frac{1}{3}$  will be half way between  $\frac{1}{2}$  and  $\frac{1}{4}$ ”

Emma is wrong.

Show that  $\frac{1}{3}$  is not half way between  $\frac{1}{2}$  and  $\frac{1}{4}$

Show your working here.



**(Total for Question 15 = 3 marks)**



16 (a) Solve  $5p - 16 = 4$

(2)

$p = \dots\dots\dots$

(b) Solve  $2q - 4 = 5q + 5$

(2)

$q = \dots\dots\dots$

$$y = 3(2x - 1) - 2(5 + 3x)$$

(c) Find the value of  $y$ .

(2)

$y = \dots\dots\dots$

**(Total for Question 16 = 6 marks)**

17 A bag contains red, yellow and blue balls.

The probability of drawing a red ball at random is  $\frac{1}{2}$ .

The probability of drawing a yellow ball at random is  $x$ .

The probability of drawing a blue ball at random is  $4x$ .

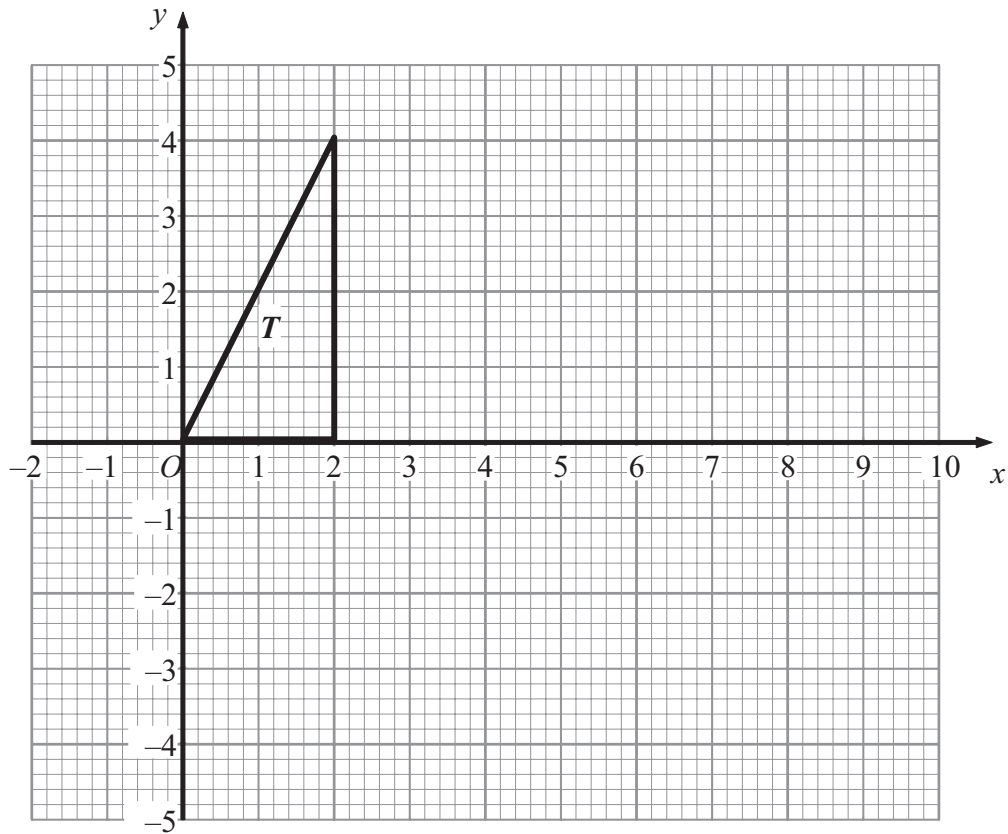
Work out the probability that a blue ball is selected.

Give your answer as a numerical value.



.....  
**(Total for Question 17 = 3 marks)**

18



The shape  $T$  is rotated by  $180^\circ$  about the point  $(3, 0)$  to give the shape  $U$ .

The shape  $U$  is rotated by  $180^\circ$  about the point  $(6, 0)$  to give the shape  $V$ .

Describe fully the single transformation that will map shape  $T$  to shape  $V$ .

.....

.....

**(Total for Question 18 = 3 marks)**

19 This spinner is used at a fairground.

When the spinner lands on a **W**, the customer wins a prize.

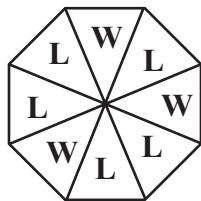


Diagram **NOT**  
accurately drawn

The fairground owner expects a 1000 customers to have a go.  
Estimate the number of prizes the owner should buy.  
Give reasons for your answer.

**(Total for Question 19 = 3 marks)**

20 (a) Factorise

$$5x - 10y$$

(1)

---

(b) Factorise fully

$$3pq - 12p^2$$

(2)

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**(Total for Question 20 = 3 marks)**

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21

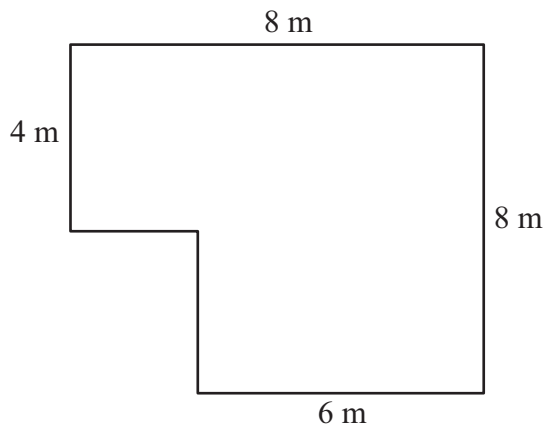


Diagram **NOT**  
accurately drawn

The diagram is a plan of the floor of Nikola's room.  
All the angles are right angles.  
Nikola is going to lay flooring to cover all the floor.

She can choose either carpet tiles or wood strips.

Carpet tiles come in packs of 32 and are square. They measure 50 cm by 50 cm.  
Wood strips come in packs of 10 and are rectangular. They measure 2 m by 25 cm.

She only wants to use one type of flooring and buy as few packs as she can.  
Which type of flooring should she choose?

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(Total for Question 21 = 6 marks)

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**TOTAL FOR PAPER = 100 MARKS**