

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.

Turn over ►

**S37707A**

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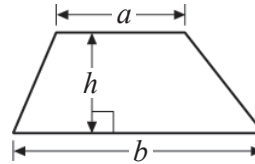
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## GCSE Mathematics 1MA0

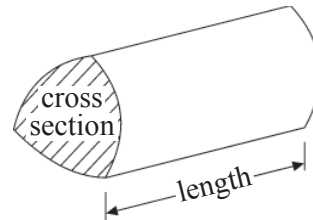
Formulae: Foundation Tier

**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



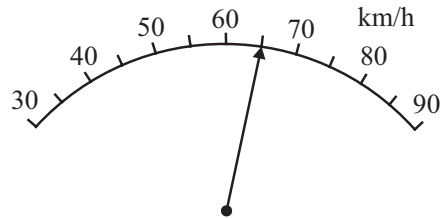
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

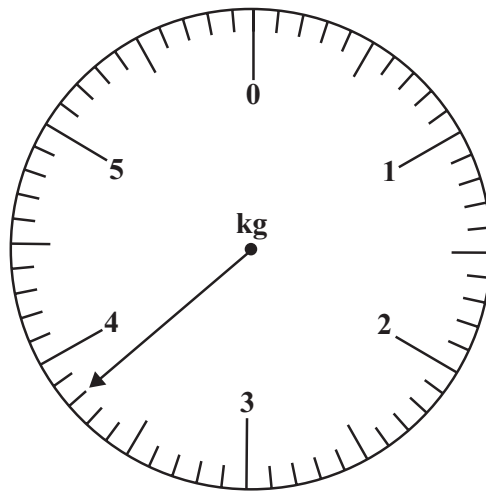
1 (a) Write down the reading on this scale.

(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.

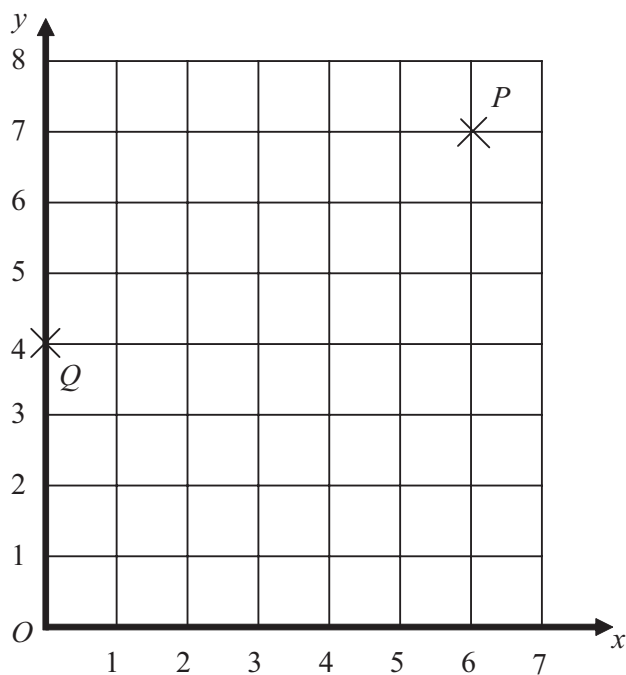
8 people get off the bus.  
19 people want to get on the bus.

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  $B$ .

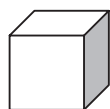
(2)

(....., .....

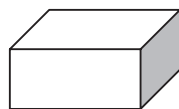
**(Total for Question 3 = 5 marks)**

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

The diagram shows some 3-D shapes.



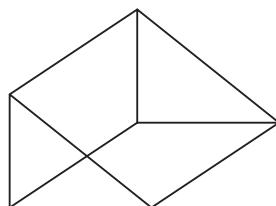
**A**



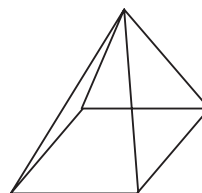
**B**



**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.

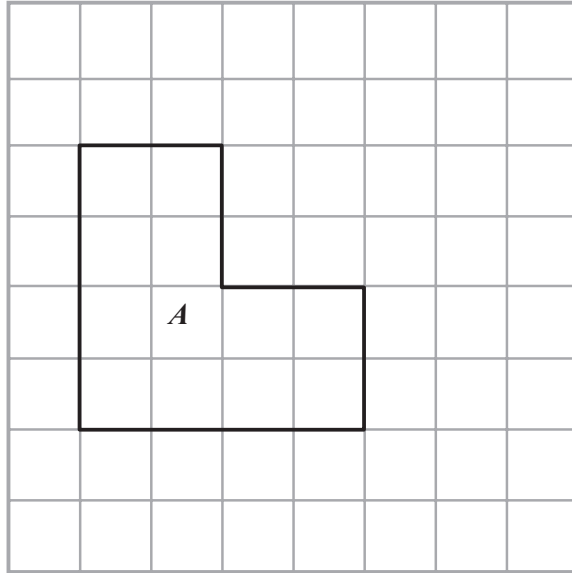
(5)

Smallest width .....

Smallest length .....

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

5



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

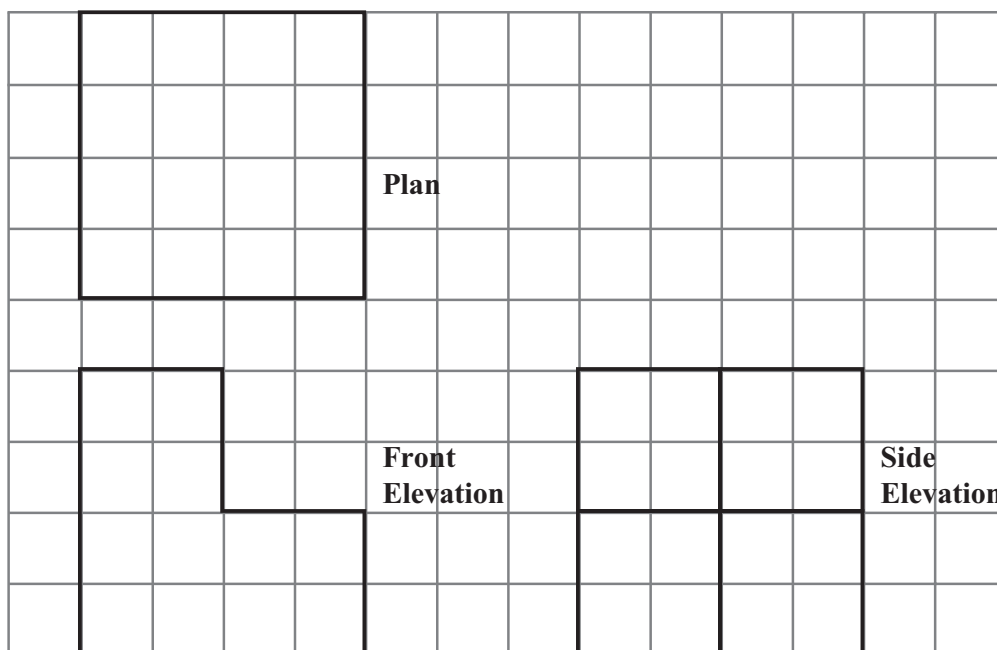
(a) Find the perimeter of shape *A*.

(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.

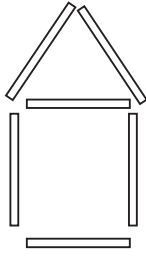
(2)

.....

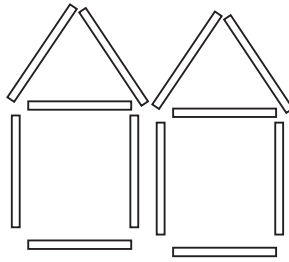
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**(Total for Question 6 = 10 marks)**

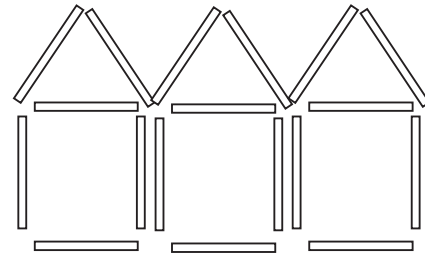
7 Here are some patterns made from sticks.



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)

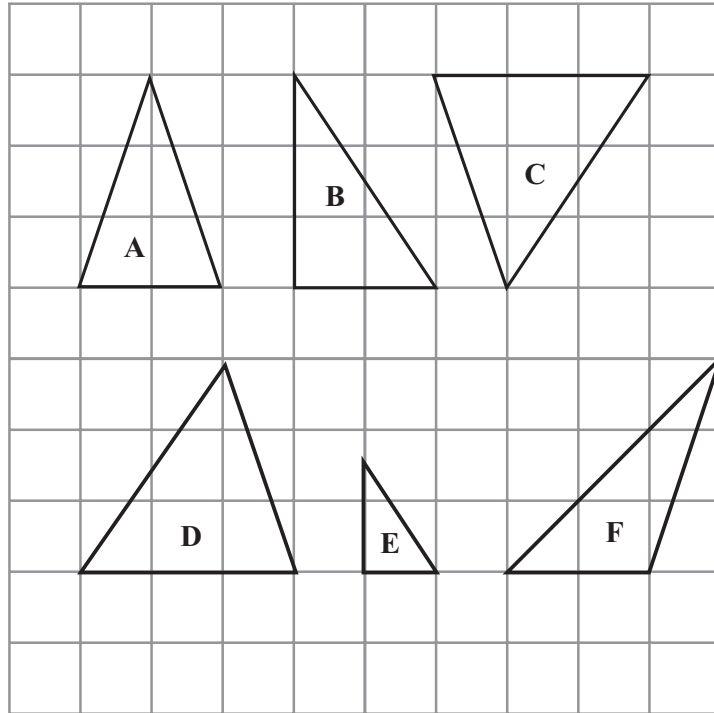
.....

.....

.....

**(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 .....

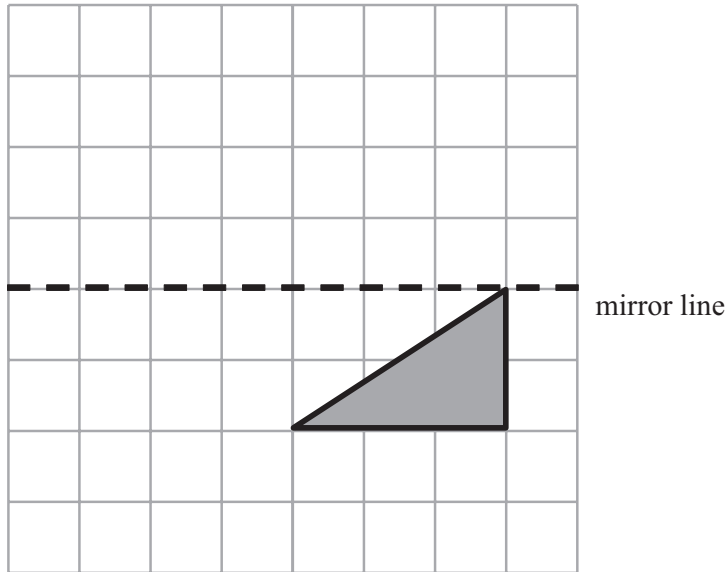
(c) Find the area of triangle **D**.

(1)

.....

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

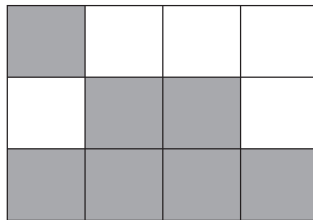
9



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

(1)

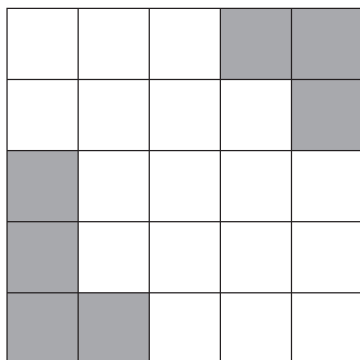
Here is a pattern made with squares.



(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?

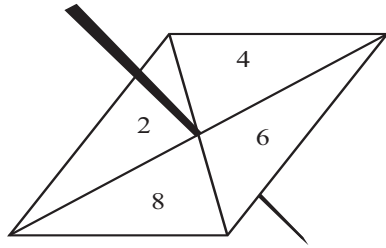
You must explain your answer clearly.



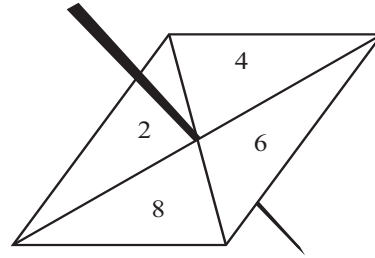
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**(Total for Question 11 = 8 marks)**

**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)

## **Ben's Burger Bar Burgers**

Single burger £0.85

Single burger with cheese £0.95

Double burger £1.55

Double burger with cheese £1.70

### **Fries**

Regular £0.65

Large £0.99

### **Cola**

Regular £0.85

Large £1.10

### **Meal Deals**

#### **Regular**

Single burger with regular fries and regular cola £2.09

#### **Large**

Double burger with cheese large fries and large cola £3.49

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)

£.....

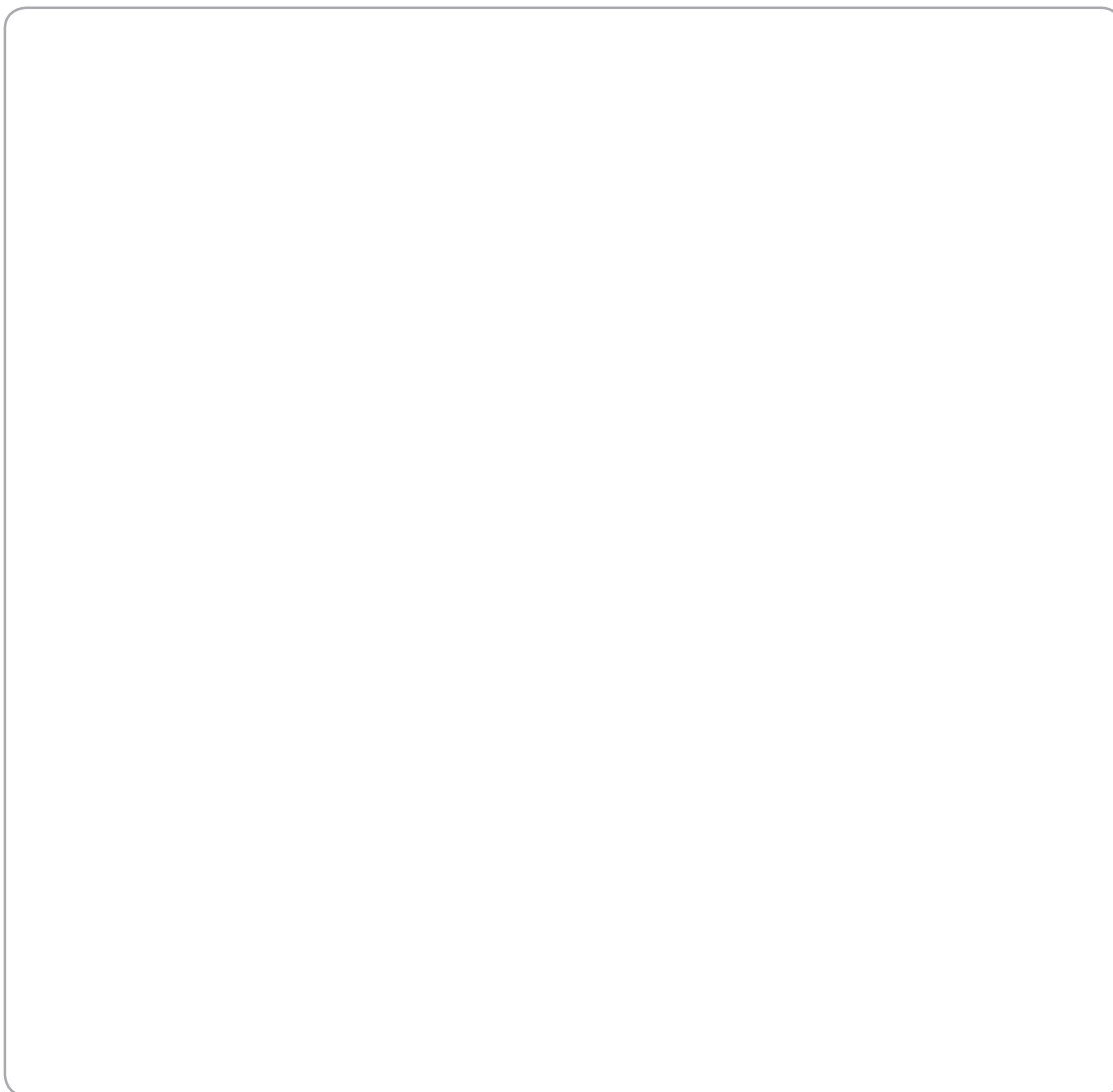
Sasha works for the same company.  
She gets paid expenses of 40p for each mile she drives during work.

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)**

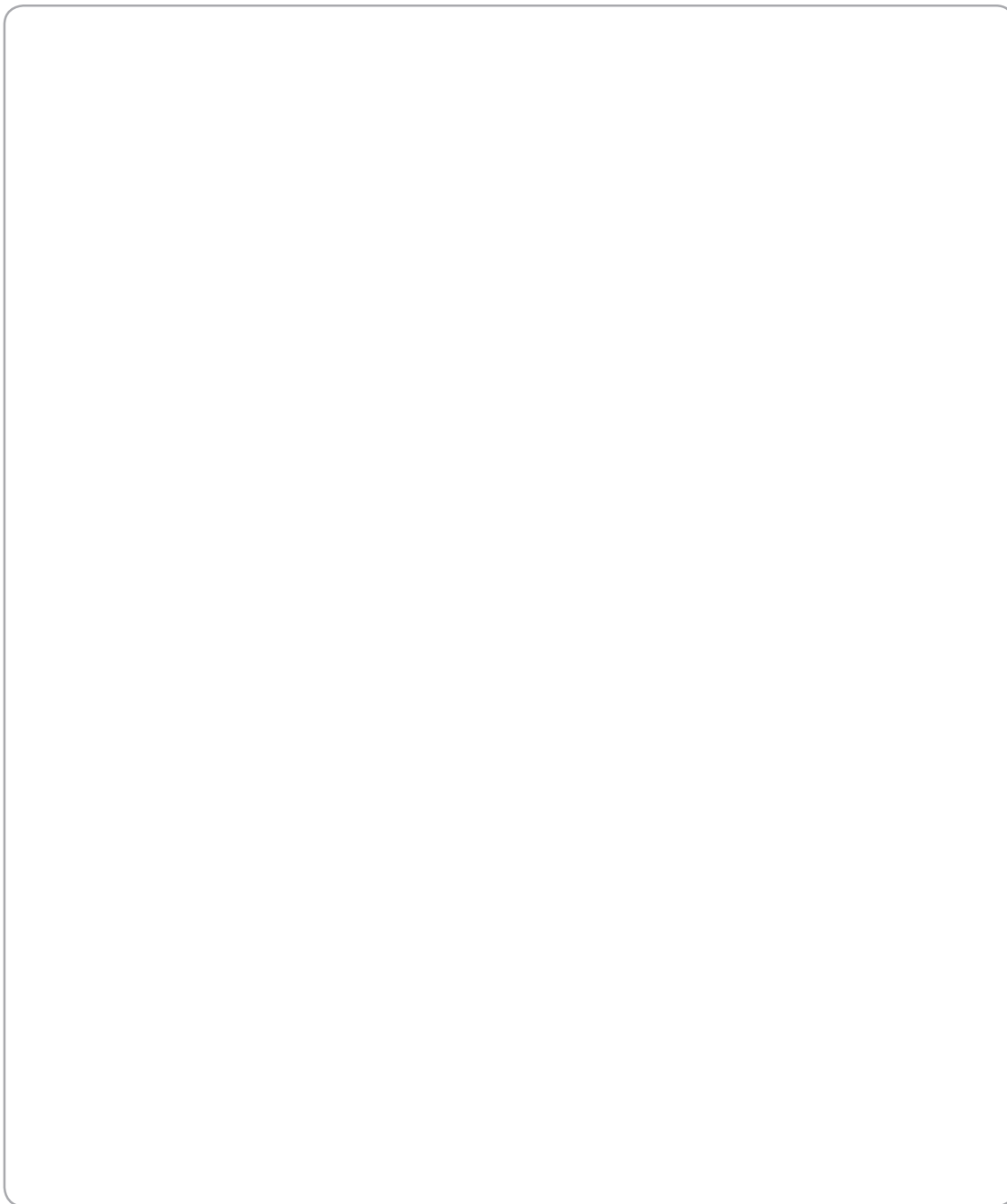
**\*15** Emma says

“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.

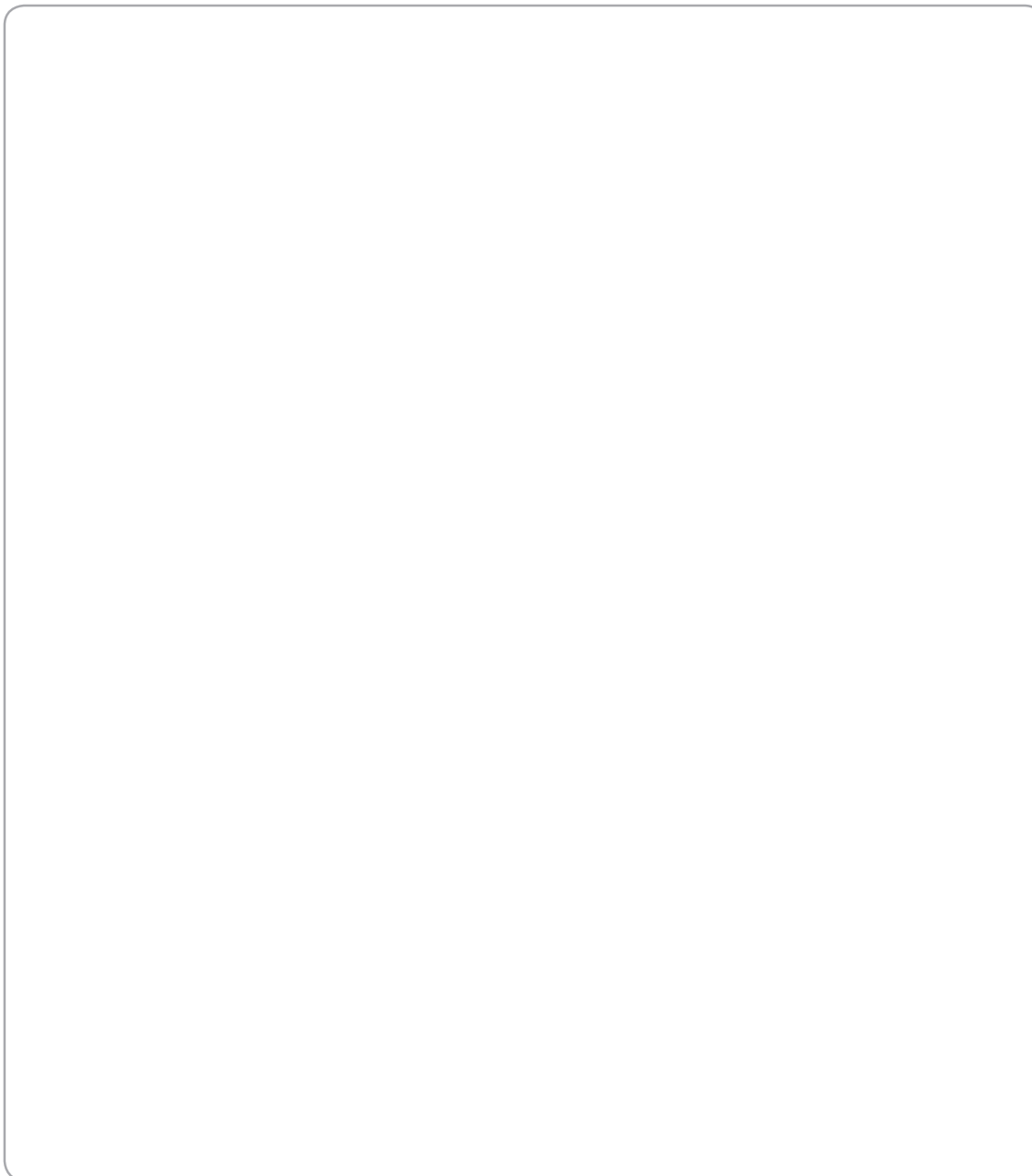
The probability of drawing a red ball at random is  $\frac{1}{2}$ .

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

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

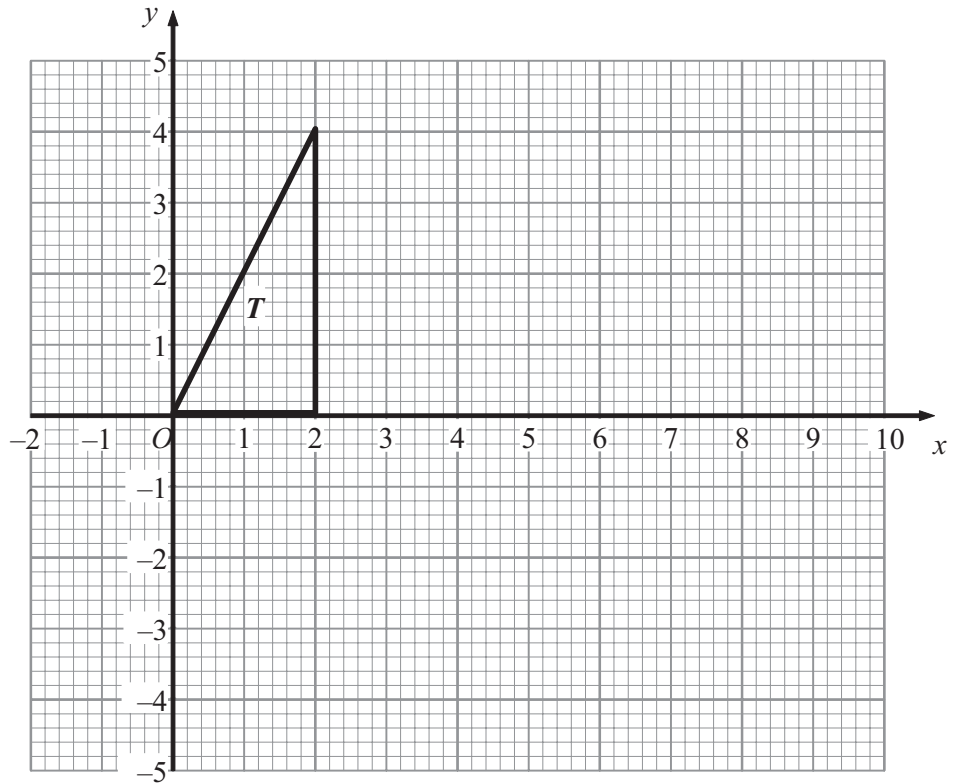
Work out the probability that a blue ball is selected.

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.

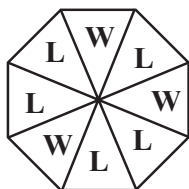


Diagram **NOT**  
accurately drawn

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)

.....

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

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21

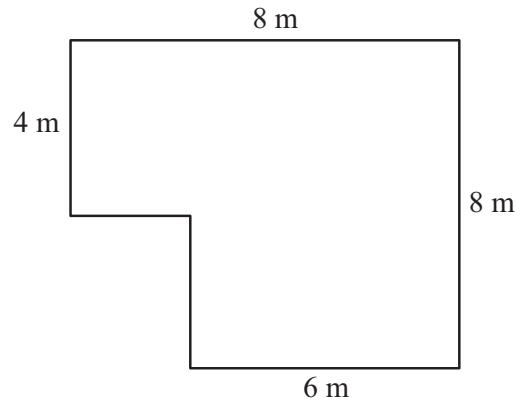


Diagram **NOT**  
accurately drawn

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?

.....  
**(Total for Question 21 = 6 marks)**

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**TOTAL FOR PAPER = 100 MARKS**

Specification A: Paper 1 Foundation Tier

1MA0/1F					
Question		Working	Answer	Mark	Additional Guidance
1.	(a)		65	1	B1 cao
	(b)	5 – 3.8	1.2	2	M1 5 – 3.8 A1 cao
<b>Total for Question: 3 marks</b>					
2.		44 – 8 = 36 36 + 19 = 55 47 + 3 = 53 <b>OR</b> 44 + 19 – 8 = 55 47 + 6 = 53 <b>OR</b> 47 – 44 = 3 3 + 8 = 11 19 – 11 – 6 = 2	2 (with appropriate reason)	2	M1 Clear attempt to find the number of spaces available on the bus after the bus stops A1 reason for answer which must comment on the difference between 55 and 53
<b>Total for Question: 2 marks</b>					

1MA0/1F				
Question	Working	Answer	Mark	Additional Guidance
3.	(a)	(6, 7)	1	B1 cao
	(b)	(3, 5.5)	2	M1 Clear attempt to find the mean of either x or y coordinates of P and Q A1 cao <b>OR</b> M1 identifies the midpoint of PQ on the diagram A1 cao SC B1 for exactly one coordinate correct
	(c)	(6, 0)	2	M1 for B correctly placed on the $x$ axis A1 for (6, 0)
<b>Total for Question: 5 marks</b>				
4.	(a)	cylinder	1	B1 cao
FE	(b)	9	1	B1 cao
	(c)	D, E	1	B1 cao
	(d)(i)	Net	5	B3 fully correct (B2 5 correct faces) (B1 a net of a cuboid)
	(ii)	14 cm $\times$ 18 cm		B1, B1 ft on d(i)
<b>Total for Question: 8 marks</b>				
5.	(a)	16 cm	1	B1 cao (units included)
	(b)	48 cm <sup>3</sup>	4	M1 3-D drawing or sketch M1 $4 \times 4 \times 2$ and $2 \times 2 \times 4$ / $4 \times 4 \times 4$ and $2 \times 2 \times 4$ M1 adding or subtracting A1 cao (units included)
<b>Total for Question: 5 marks</b>				



1MA0/1F					
Question	Working	Answer	Mark	Additional Guidance	
6. FE	(a)	Correct table  <b>WITH EITHER</b>  Bar chart  <b>OR</b>  Pictogram  <b>OR</b>  Pie Chart	6	B1 Table with at least 2 columns with car, lorry, van, motorbike and bus rows M1 tally column completed or headed frequency column with at least two entries correct A1 correct frequencies (7, 4, 5, 6, 2)  <b>WITH EITHER</b>  B1 labelled axes with a uniform scale M1 bars labelled all the same width A1 bars all correct (ft from a)  <b>OR</b>  B1 labelled pictogram M1 5 classes + key A1 all correct (ft from a)  <b>OR</b>  B1 circle with 5 sectors labelled M1 correct calculation of at least one angle A1 all sectors correct (ft from a)	
	(b)	25% of 24 = 6	Yes as $5 < 6$	2	M1 finding 25% of 24 A1 Yes as $5 < 6$ , (ft from a)
	(c)	Survey at different places Survey at different times Do a bigger survey		2	B2 2 or more reasons (B1 1 reason) Ignore irrelevant reasons
				<b>Total for Question: 10 marks</b>	

1MA0/1F					
Question		Working	Answer	Mark	Additional Guidance
7.	(a)		Correct diagram	1	B1 4 identical shapes to the previous patterns
	(b)		60	2	M1 continues pattern 6, 12, 18, as far as the 10th A1 cao  <b>OR</b> M1 indicates that the number of sticks is 6 times the pattern number A1 cao  <b>OR</b> M1 doubles 30 sticks for pattern number 5 A1 cao
	(c)	$123 \div 6$ leaves a remainder of 3, so 'no'	No + justification	2	M1 Attempts to divide 120 by 6 A1 'No' + comment on remainder <b>OR</b> M1 Starts at 6 and builds up to 120 and 126 A1 'No' + sight of 120 and 126
					<b>Total for Question: 5 marks</b>
8.	(a)		C and D	1	B1 cao
	(b)		B and E	1	B1 cao
	(c)		$4.5 \text{ cm}^2$	1	B1 cao
					<b>Total for Question: 3 marks</b>

1MA0/1F					
Question	Working	Answer	Mark	Additional Guidance	
9.	(a)		Correct reflection	1	B1 cao
	(b)		Correct square	1	B1 cao
	(c)	See pattern at end	Correct squares	1	B1 cao
<b>Total for Question: 3 marks</b>					
10.	(a)		$6x$	1	B1 cao
	(b)		$y \geq -2$	2	M1 attempt to isolate $y$ A1 cao
<b>Total for Question: 3 marks</b>					
11. QWC i, ii, iii		50 shirts at £12 each = £600 Selling Price for profit of 30% = $£12 \times 1.3 = £15.60$ 20 shirts at £15.60 = £312 Reduced selling price = $£15.60 \times 0.85 = £13.26$ 30 shirts at £13.26 = £397.80 $£397.80 + £312 > £600$	Yes, together with appropriately set out working which supports answer	8	B1 for price of 50 shirts M1 for $£12 \times 1.3$ A1 for £15.60 A1 for 20 shirts = £312 M1 for $£15.60 \times 0.85$ A1 for £13.26 A1 for 30 shirts = £397.80  C1 Yes stated together with a statement which supports the correct answer QWC: With clear working attributed correctly
<b>Total for Question: 8 marks</b>					

1MA0/1F				
Question	Working	Answer	Mark	Additional Guidance
12.	(a)	(2, 6)(4, 4) (6, 2)	2	M1 lists as ordered pairs or in a table with at least 2 entries A1 all 3 correct entries
	(b)	$\frac{6}{16}$	4	M1 lists the sample space (at least 4 pairs) A1 fully correct M1 identifies cases where Ali wins A1 cao
<b>Total for Question: 6 marks</b>				
13. FE	(a)	2 correct combinations	2	B1 Single burger and regular cola oe B1 Regular fries and regular cola oe -1 for each extra incorrect
	(b)	Best is Cost $3.49 + 1.70 = 5.19$ Change = $10.00 - 5.19$	3	M1 2 correct individual costs found M1 sum and subtract from £10 A1 cao SC B2 5.24 (B1 $2 \times 1.70 + 0.99 + 0.85 = (5.24)$ )
<b>Total for Question: 5 marks</b>				
14. FE	(a)	$48 + 37 + 78 + 21 = 184$ $184 \times 40 = 7360$ $4 \times 12 = 48$ $73.60 + 48$	4	M1 find the total miles M1 total miles $\times 40$ or $\times 0.4(0)$ M1 mileage expenses $+ 4 \times 12$ or $+ 5 \times 12$ A1 cao
	(b)	$2000 \div 50 = 40$ $4000 \div 40 = 100$ <b>OR</b> $2000 \div 0.4 = 50000$ $50000 - 50 = 100$ <b>OR</b> $0.4 \times 50 = 20$ $2000 \div 20 = 100$	3	M1 for sight of 2000 , or 50, or 20000 M1 dep for an attempt to find cost per week or mileage per year A1 100 <b>OR</b> M1 sight of 2000, or 50 M1 dep $0.4 \times 50$ and $2000 \div '20'$ A1 100
<b>Total for Question: 7 marks</b>				

1MA0/1F				
Question	Working	Answer	Mark	Additional Guidance
15. QWC ii, iii	$\frac{1}{2} = \frac{4}{8}; \frac{1}{4} = \frac{2}{8}$ So $\frac{3}{8}$ is half way  OR use of 0.5 and 0.25 to get 0.375 and compare to 0.33  OR $\frac{1}{2} - \frac{1}{3} = \frac{1}{6}$ and $\frac{1}{3} - \frac{1}{4} = \frac{1}{12}$ followed by conclusion  OR use of 0.5 and 0.25 and differences of 0.5 – 0.33(3,...) and 0.33(3...) – 0.25	Coherent and well structured argument with appropriate reason	3	M1 to change both fractions to equivalent fractions M1 (dep on at least one correct equivalent fraction) to find midpoint C1 conclusion following correct work by stating that $\frac{3}{8}$ is not equal to $\frac{1}{3}$ QWC: Decision should be stated with supporting reason given OR M1 use of 0.5 and 0.25 M1 (dep on at least correct decimal one find midpoint) C1 conclusion following correct work and sight of 0.37(5) and 0.33(3..) QWC: Decision should be stated with supporting reason given OR M1 for working out differences M1 For a correct method of calculating differences of fractions using equivalent fractions C1 conclusion following from $\frac{1}{6}$ and $\frac{1}{12}$ QWC: Decision should be stated with supporting reason given OR M1 for working out differences M1 for a correct method of calculating differences of fractions using equivalent fractions C1 conclusion following from $\frac{1}{6}$ and $\frac{1}{12}$ QWC: Decision should be stated with supporting reason given OR M1 use of 0.5 and 0.25 M1(dep on at least one correct decimal) for working out differences C1 for conclusion based on 0.17(or better) and 0.08(23...) QWC: Decision should be stated with supporting reason given
				<b>Total for Question: 3 marks</b>

1MA0/1F					
Question		Working	Answer	Mark	Additional Guidance
16.	(a)	$5p = 20$	4	2	M1 add 16 to both sides A1 cao
	(b)	$-4 - 5 = 5q - 2q$	-3	2	M1 for correct method isolate $\pm 3q$ A1 cao
	(c)	$6x - 3 - 10 - 6x =$	-13	2	M1 at least one expansion correct A1 cao
<b>Total for Question: 6 marks</b>					

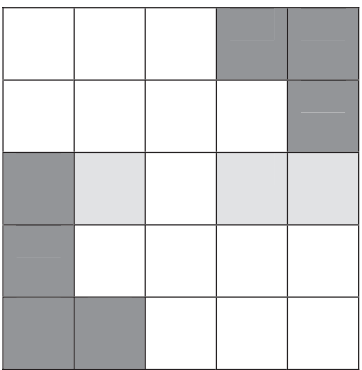
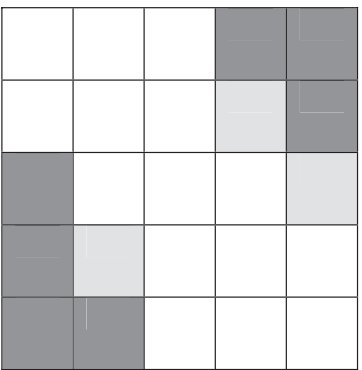
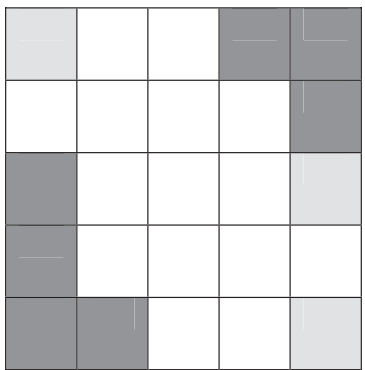
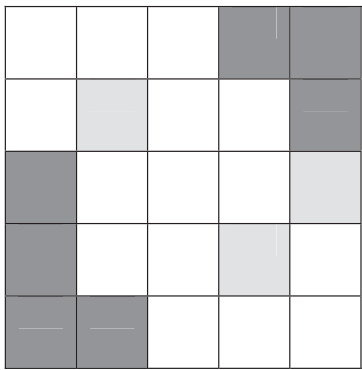
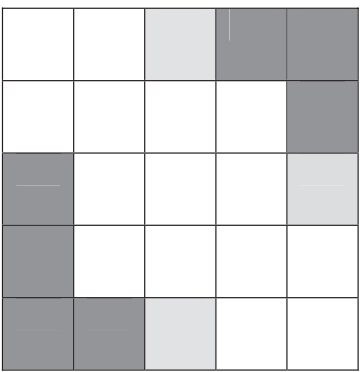
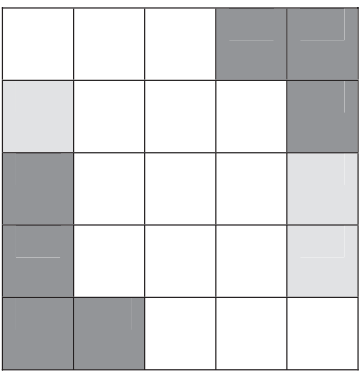
1MA0/1F				
Question	Working	Answer	Mark	Additional Guidance
17.	$x + 4x + \frac{1}{2} = 1$ $5x = \frac{1}{2}, \quad x = \frac{1}{10}$ <p><b>OR</b></p> <p>Choose a suitable number of balls ( say 10) 5 will be red The other 5 need to be shared out in the ratio 1:4, hence 1 yellow and 4 blue</p>	$\frac{4}{10}$	3	<p>M1 <math>x + 4x + \frac{1}{2} = 1</math></p> <p>A1 <math>x = \frac{1}{10}</math></p> <p>A1 <math>\frac{4}{10}</math> oe</p>
				<b>Total for Question: 3 marks</b>
18.	<p>Rotates shape about (3,0) by <math>180^\circ</math> to give <i>U</i> Rotates <i>U</i> about (6, 0) to give <i>V</i></p> <p>(see graph at end)</p>	Translation by $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$	3	<p>B3 Translation by <math>\begin{pmatrix} 6 \\ 0 \end{pmatrix}</math></p> <p>(B2 translation by 6 to the right or just <math>\begin{pmatrix} 6 \\ 0 \end{pmatrix}</math> on its own ) (B1 translation or move to the right 6) If no marks earned from a description then B1 <i>U</i> correctly placed B1 <i>V</i> correctly placed</p>
				<b>Total for Question: 3 marks</b>

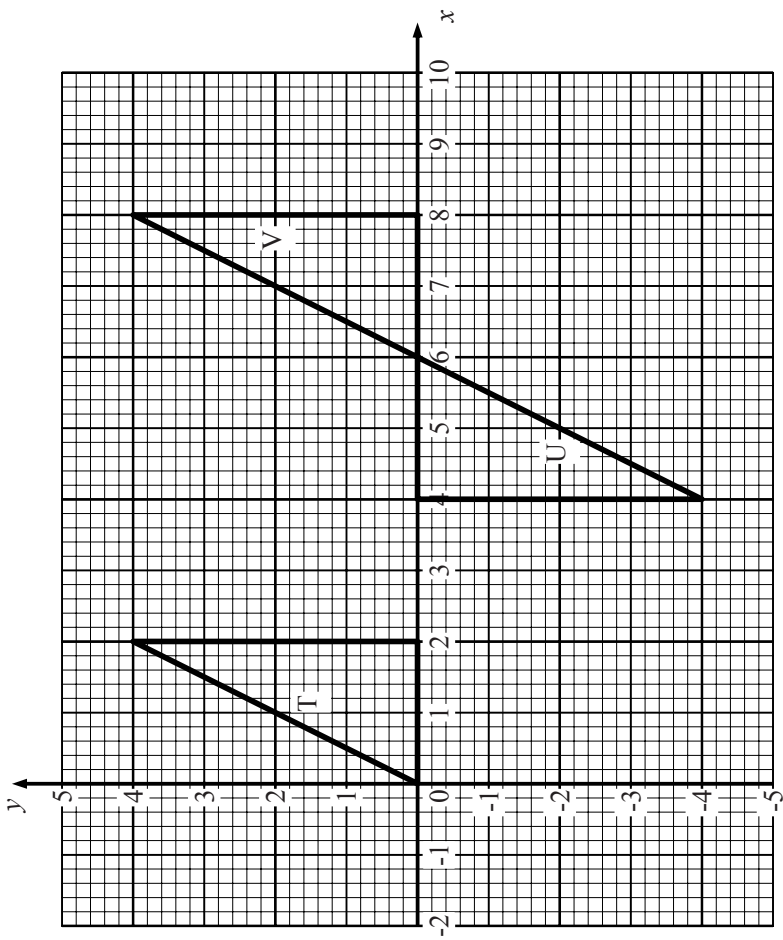
1MA0/1F				
Question	Working	Answer	Mark	Additional Guidance
19.	Number of prizes should buy $\frac{3}{8} \times 1000$  = 375  <b>OR</b>  Each triangle should win $1000 \div 8$ times (=125) So $3 \times 125 = 375$	(376) and justification that matches answer	3	M1 estimate of probability  A1 for answer $> \frac{3}{8}$ of 1000  C1 for justification that matches answer Number of prizes between 376 and 500  <b>OR</b>  M1 $1000 \div 8$  A1 for answer $> \frac{3}{8}$ of 1000  C1 for justification that matches answer  Number of prizes between 376 and 500
				<b>Total for Question: 3 marks</b>
20.	(a)	$5(x - 2y)$	1	B1 cao
	(b)	$3p(q - 4p)$	2	B2 $3p(q - 4p)$ (B1 correct partial factorisation, for example, $p(3q - 12p)$ , $12p(\frac{1}{4}q - p)$ , $p(aq + bp)$ where $a$ and $b$ are numbers
				<b>Total for Question: 3 marks</b>



1MA0/1F				
Question	Working	Answer	Mark	Additional Guidance
21  FE	Area of the room = $4 \times 8 + 4 \times 6 = 56$ Area of a tile = $0.5 \times 0.5 = 0.25$ Number of tiles = $56 \div 0.25 = 224$ Cost = $4 \times 224$  OR  No of tiles around room = $2 \times$ lengths of room = 8, 16, 16, 12 Total number of tiles = $8 \times 16$ + $8 \times 12 = 224$ Cost = $4 \times 224$	£ 896	6	M1 for full method for finding the area of the room A1 at least one area correct B1 for area of tile = $0.25\text{m}^2$ or $2500\text{ cm}^2$ or 4 tiles = $1\text{m}^2$ M1 for area of room $\div$ area of a tile M1 for $4 \times$ number of tiles A1 cao  OR  M1 for doubling each length to show number of tiles for each side B1 for 8, 16, 16 and 12 M1 for a full method of finding the number of tiles ( $12 \times 16 + 8 \times 4$ ) A1 for at least one 'section' correct M1 for $4 \times$ '224' A1 cao
				<b>Total for Question: 6 marks</b>

9 (c)





18.

