

**1MA0/2F**

# **Edexcel GCSE**

**Mathematics (Linear) – 1MA0**

Practice Paper 2F (Calculator)

Set B



# **Foundation Tier**

Time: 1 hour 45 minutes

**Materials required for examination**

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

Tracing paper may be used.

**Items included with question papers**

Nil

## **Instructions**

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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 may be used.

## **Information**

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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**

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Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

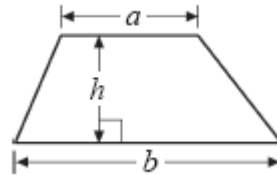
Check your answers if you have time at the end.

# GCSE Mathematics 1MA0

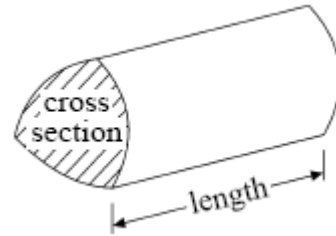
## Formulae: Foundation Tier

**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 TWENTY TWO questions**

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

**You may use a calculator in this paper.**

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

1. The diagram shows the calendar of August 2010

August 2010						
Mon	Tues	Wed	Thurs	Fri	Sat	Sun
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Stuart is going on holiday from the 9th August and will return home on the 28th August.

- (a) For how many days will Stuart be on holiday?

..... days  
**(1)**

He is planning to leave at 09 30

The journey to his holiday destination should take 2 hours 50 minutes.

- (b) At what time should Stuart arrive at his holiday destination?

.....  
**(2)**

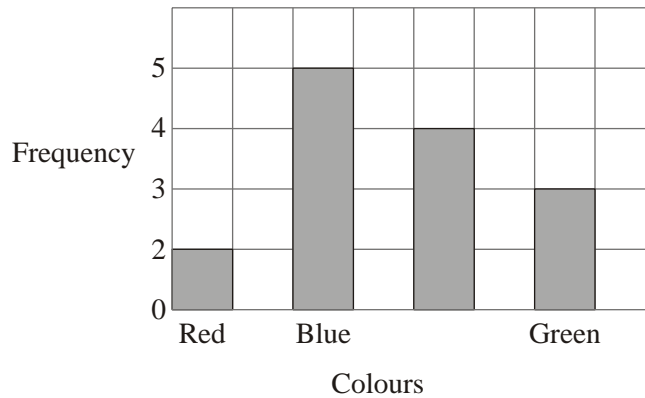
Helen is going to join Stuart on his holiday but she plans to stay for an additional week.

- (c) What date will Helen be due to arrive home?

.....  
**(1)**  
**(Total 4 marks)**

2. Ray and Clare are pupils at different schools.  
They each did an investigation into their teachers' favourite colours.

Here is Ray's bar chart of his teachers' favourite colours.



- (a) Write down two things that are wrong with Ray's bar chart.

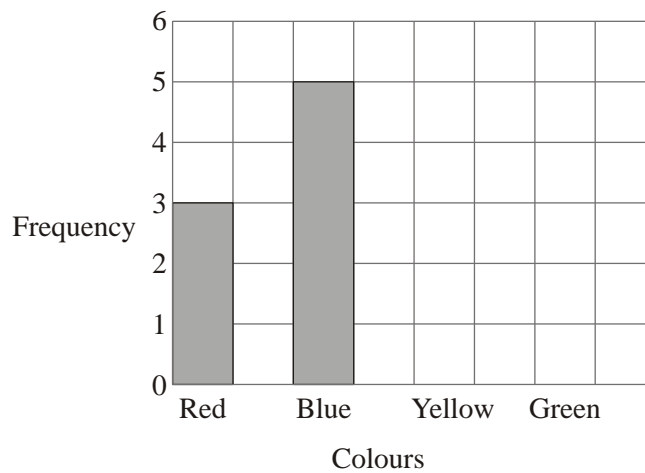
.....

.....

(2)

Clare drew a bar chart of her teachers' favourite colours.

Part of her bar chart is shown below.



4 teachers said that Yellow was their favourite colour.  
2 teachers said that Green was their favourite colour.

- (b) Complete Clare's bar chart.

(2)

(c) Which colour was the mode for the teachers that Clare asked?

.....  
(1)

(d) Work out the number of teachers Clare asked.

.....  
(1)

(e) Write down the fraction of the number of teachers that Clare asked who said Red was their favourite colour.

.....  
(1)  
**(Total 7 marks)**

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3. Here is a list of eight numbers.

5    6    12    16    20    26    27    35

From the list, write down

(i) a square number,

.....

(ii) a number that is a multiple of 7,

.....

(iii) **two** numbers that are factors of 40,

..... and .....

(iv) **two** numbers with a sum of 49.

..... and .....

**(Total 4 marks)**

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4. Complete this table.  
Write a sensible unit for each measurement.

	Metric	Imperial
The weight of a chicken	.....	pounds
The volume of water in a petrol tanker	.....	gallons
The length of a finger	centimetres	.....

**(Total 3 marks)**

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5. Simplify

(a)  $c + c + c$

.....  
**(1)**

(b)  $e + f + e + f + e$

.....  
**(1)**

(c)  $2a + 3a$

.....  
**(1)**

(d)  $2xy + 3xy - xy$

.....  
**(1)**

**(Total 4 marks)**

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6. Use your calculator to work out

(i)  $2.5^3$

.....

(ii) square root of 68.89

.....

**(Total 2 marks)**

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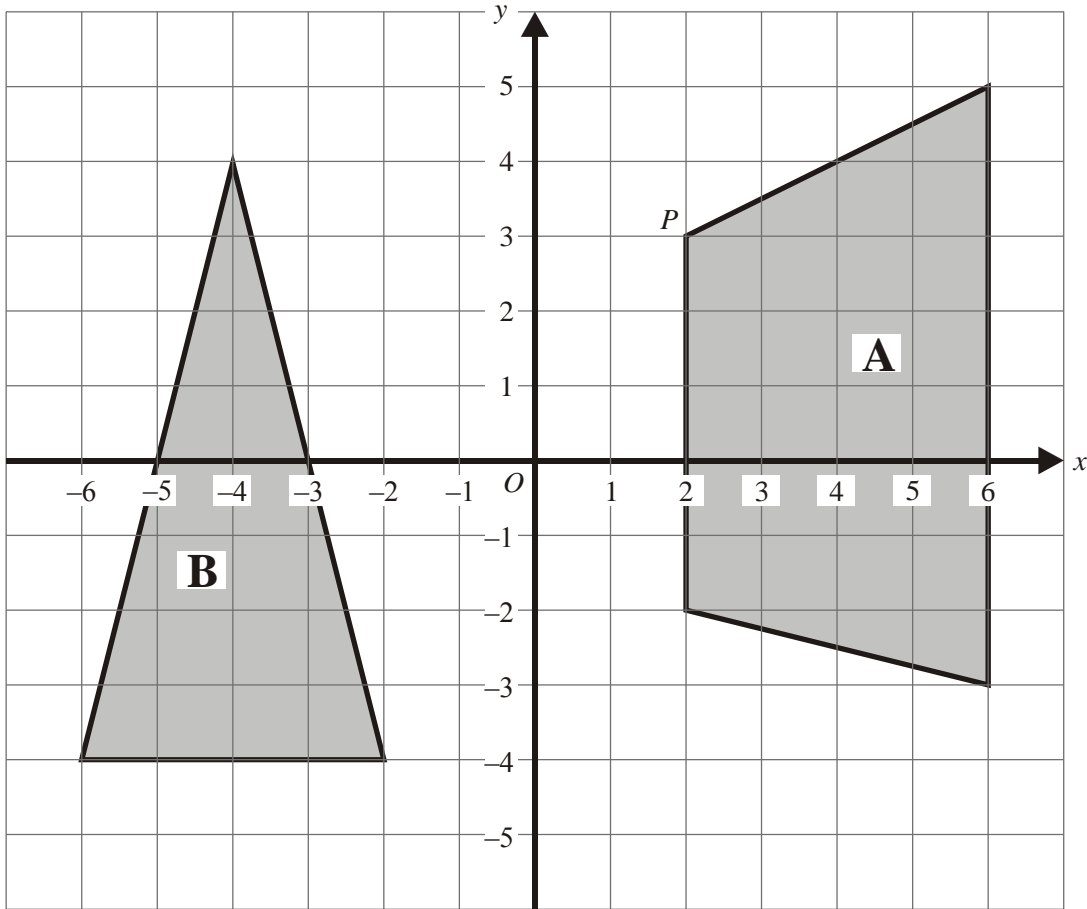
7. Georgina needs 94 carpet tiles to carpet her bedroom floor.  
Carpet tiles are sold in boxes of 8 at £16.95 per box.  
A single carpet tile can be bought for £2.99

Georgina bought the carpet tiles for her bedroom spending the least amount of money.  
Show how Georgina did this.

**(Total 5 marks)**

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8.



The diagram shows two shapes.

(a) Write down the mathematical name for the shape **A**.

.....  
(1)

(b) Write down the coordinates of the point *P*.

(.....,.....)  
(1)

(c) Write down the mathematical name of the triangle **B**.

.....  
(1)

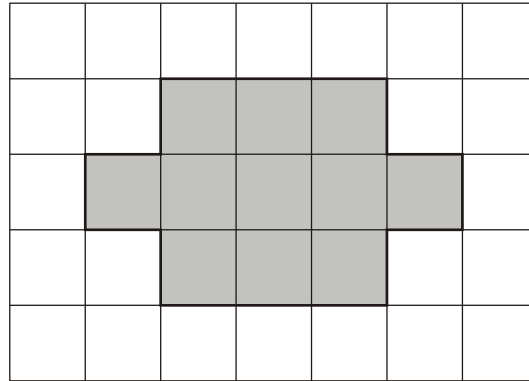
The coordinates of another point are  $(-2, -4)$ .

(d) Mark this point on the grid.  
Label it *Q*.

(1)  
(Total 4 marks)



9. A shaded shape has been drawn on the centimetre grid.



(a) (i) Find the area of the shaded shape.

.....cm<sup>2</sup>

(ii) Find the perimeter of the shaded shape.

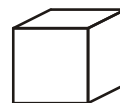
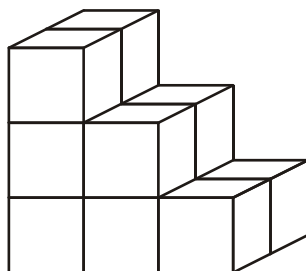
.....cm  
(2)

The shaded shape has **two** lines of symmetry.

(b) Draw the **two** lines of symmetry on the shaded shape.

(2)

(c) Find the volume of this prism.



represents 1 cm<sup>3</sup>

Diagram **NOT**  
accurately drawn

.....cm<sup>3</sup>  
(2)

(Total 6 marks)

10. (a) Solve  $2y = 8$

$y = \dots\dots\dots$   
**(1)**

(b) Solve  $t - 4 = 7$

$t = \dots\dots\dots$   
**(1)**  
**(Total 2 marks)**

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11. Here is a net of a cube.

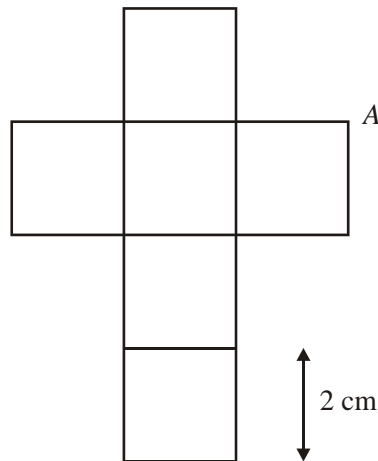


Diagram **NOT** accurately drawn

The net is folded to make the cube.  
Two other vertices meet at  $A$ .

(a) Mark each of them with the letter  $A$ . **(2)**

The length of each edge of the cube is 2 cm.

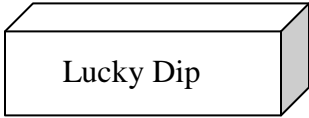
(b) Work out the volume of the cube.  
 $\dots\dots\dots\text{cm}^3$   
**(2)**

**(Total 4 marks)**

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12. Wendy is running a Lucky Dip at the village fair.  
 She has 100 empty match boxes.  
 In each match box, she places either a coin or a note.

- In 50 match boxes, she places a 10p coin.
- In 20 match boxes, she places a 20p coin.
- In 15 match boxes, she places a 50p coin.
- In 10 match boxes, she places a £1 coin.
- In 4 match boxes, she places a £5 note.
- In 1 match box, she places a £10 note.



Each match box in the Lucky Dip is sold for £1 and all monies made will go to charity.

Wendy sells all of the match boxes.

(a) How much money will go to charity?

£ .....  
**(3)**

Finlay buys a match box for £1

(b) (i) Work out the probability that the match box will contain a 20p coin in it.  
 Give your answer in its simplest form.

.....

(ii) Work out the probability that Finlay will find more than £1 in his match box.  
 Give your answer in its simplest form.

.....

**(4)**  
**(Total 7 marks)**

13. Melissa has a bag of marbles.  
She shares them with her friends.

She gives  $\frac{1}{3}$  of the marbles to Jessica.

She gives  $\frac{2}{9}$  of the marbles to Samantha

She has 32 marbles left.

How many marbles did she give to Samantha?

.....  
(Total 4 marbles)

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14. The diagram shows a right-angle triangle drawn inside a rectangle.

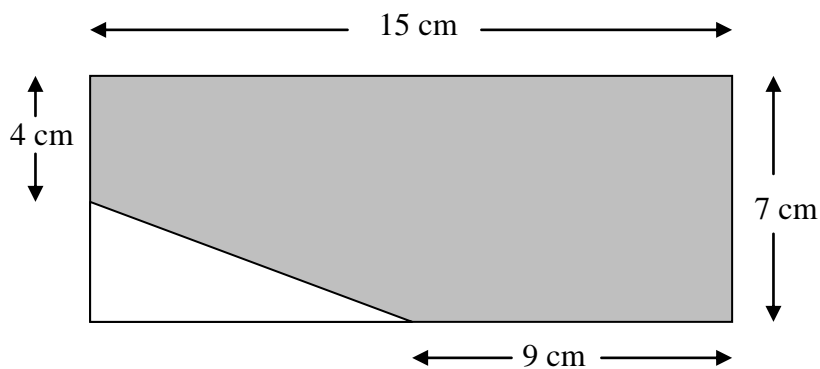


Diagram NOT  
accurately drawn

Work out the area of the shaded region.

.....  
(Total 5 marks)

---

15. The table gives information about how the value of a car has changed with its age.

Age	New	1 year old	2 years old	3 years old	5 years old	8 years old	10 years old
Value	£24 000	£19 000	£16 000	£12 500	£9000	£6000	£5000

(i) Show this information in a graph.

Artist: 2mm graph paper please

(ii) Estimate the value of this car when it was 6 years old.

£ .....

**(Total 4 marks)**

16. Mr and Mrs Ledger took their grandson Harry to Chic's Diner.

<b>Chic's Diner</b>			
<b>Menu</b>			
<b>Starters</b>		<b>Deserts</b>	
Prawn Cocktail	£4.50	Ice cream	£2.80
Pate and toast	£4.95	Apple pie	£3.20
Soup of the day	£3.50	Cheesecake	£3.50
Melon	£2.90		
<b>Main course</b>		<b>Drinks</b>	
Fish and chips	£7.85	White wine	£11.50 per bottle
Steak and chips	£12.25	Red wine	£12.25 per bottle
Gammon and chips	£9.75	Fruit juices	£2.10 per glass
Add 10% service charge			

Mr Ledger started with soup.

He had steak and chips for his main course and ice cream for desert.

Mrs Ledger started with a prawn cocktail and a main course of fish and chips.

She did not have a desert.

Harry didn't have a starter.

He had a main course of fish and chips and ice cream for desert.

Mr and Mrs Ledger shared a bottle of red wine.

Harry had a glass of fruit juice.

(a) Work out the total bill including the service charge.

£ .....

(4)

Chic has now increased all of his prices by 6%.

(b) Work out the new price of fish and chips.

£ .....

**(3)**  
**(Total 7 marks)**

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17. Here are the first five terms of an arithmetic sequence.

-2    1    4    7    10

(a)(i) Write down the next two terms of this sequence.

....., .....

(ii) Explain how you found your answer.

.....  
.....

**(2)**

(b) Find the 12th term of this sequence.

.....  
**(1)**

(c) Write down, in terms of  $n$ , an expression for the  $n$ th term of this sequence.

.....  
**(2)**  
**(Total 5 marks)**

---

**18.** Here are the times, in minutes, taken to solve a puzzle.

5    10    15    12    8    7    20    35    24    15

20    33    15    25    10    8    10    20    16    10

(a) In the space below, draw a stem and leaf diagram to show these times.

**(3)**

(b) Find the range of these times.

..... mins

**(2)**

(c) Find the median time to solve this puzzle.

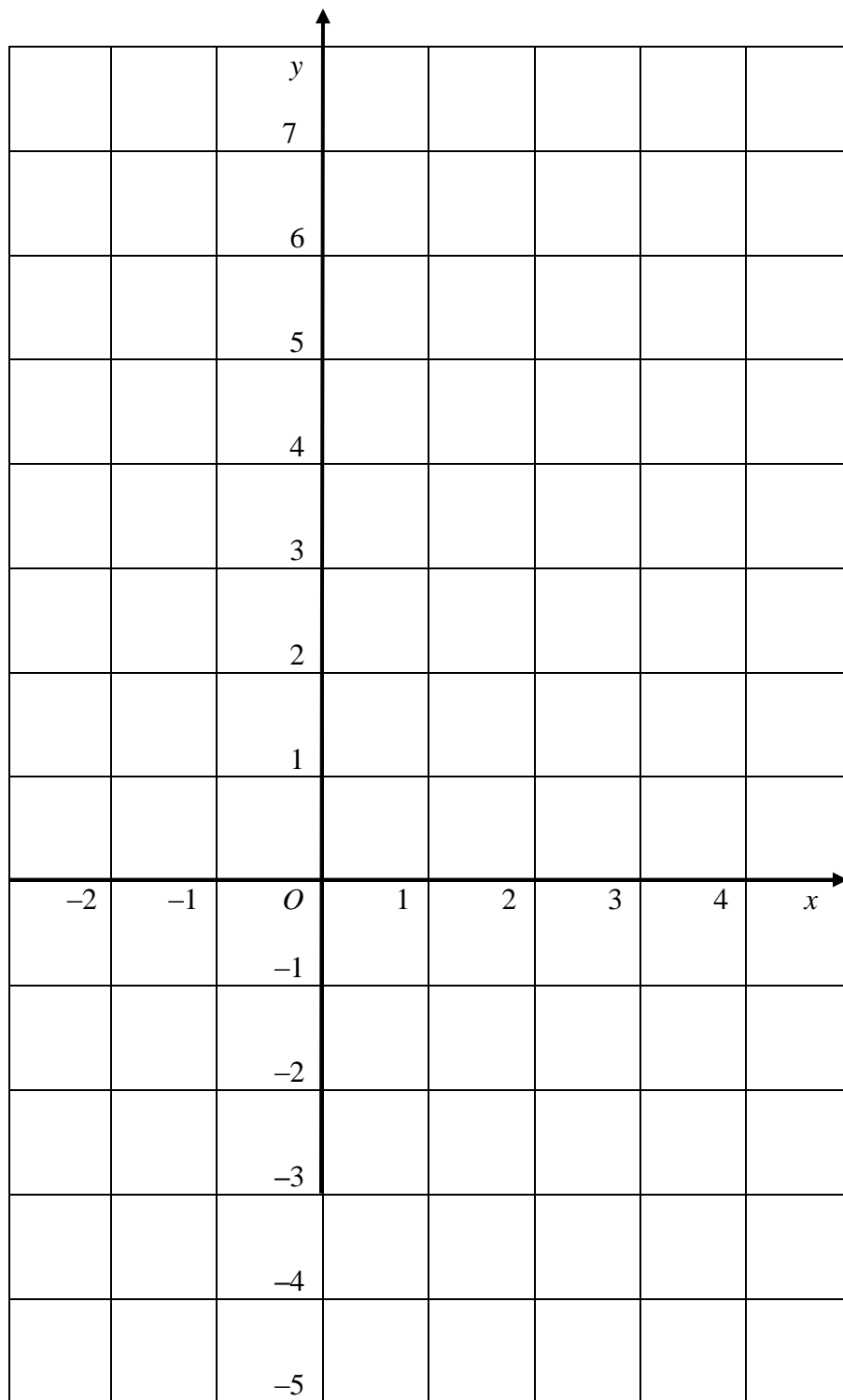
..... mins

**(1)**

**(Total 6 marks)**



19. On the grid, draw the graph of  $y = 3 - 2x$  from  $x = -2$  to  $x = 4$

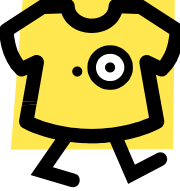


(Total 3 marks)

\*20. T-shirts normally cost £12 each.

Two shops have a special offer on these T-shirts.

**T-Shirts-R-Us**



**Special offer**  
Pay for two T-shirts and get one free.  
Pay for five T-shirts and get three free

**Budget Shirt Company**



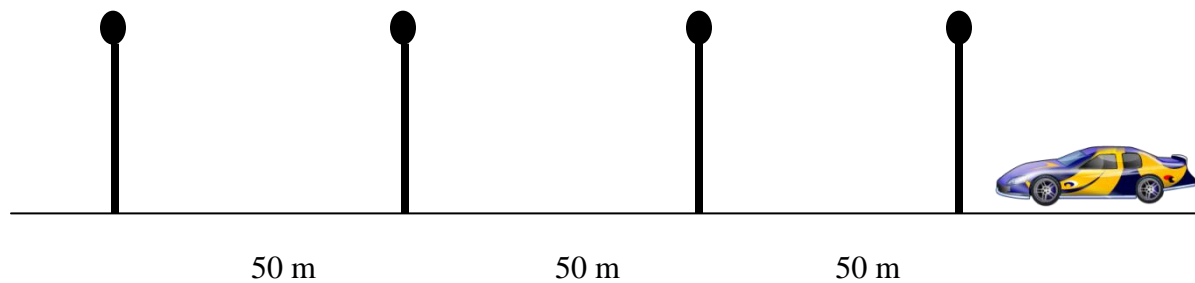
**Special offer**  
1/3 off normal price

Stephen wants to buy 30 T-shirts.

Work out at which shop, Stephen will get the better deal.  
You must show clearly how you got your answer.

**(Total 5 marks)**

- \*21.** Roger lives in the village of Hawkshaw.  
He wants to find out if cars break the speed limit through the village.



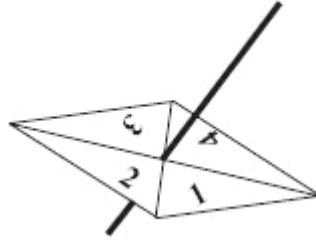
Roger times each car as it goes between four lampposts.  
The distance between each lamppost is 50 m.

The speed limit through the village is 30 mph.  
The first car Roger times takes 12 seconds to go between the four lampposts.

Is this car breaking the speed limit?  
You must show all of your working.

**(Total 5 marks)**

22. Here is a 4-sided spinner.



The sides of the spinner are labelled 1, 2, 3 and 4.

The spinner is biased.

The probability that the spinner will land on each of the numbers 2 and 3 is given in the table.

The probability that the spinner will land on 1 is equal to the probability that it will land on 4.

Number	1	2	3	4
Probability	$x$	0.46	0.28	$x$

Sarah is going to spin the spinner 500 times.

Work out an estimate for the number of times it will land on 4

.....  
(Total 4 marks)

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**TOTAL FOR PAPER: 100 MARKS**

**END**

Question	Working	Answer	Mark	Notes
1(a)		19 or 20	1	B1 for 19 or 20
1(b)	09 30 + 2 50	12 20	2	M1 for 09 30 + 2 50 oe A1 cao
1(c)		4 <sup>th</sup> Oct	1	B1 for 4 <sup>th</sup> Oct (4/10) oe
2(a)		Scale is missing 1 No label on one colour	2	B1 for scale is missing 1 B1 for no label on one colour
2(b)	3 + 5 + 4 + 2	Yellow bar 4 high Green bar 2 high	2	B1 cao B1 cao
2(c)		Blue	1	B1 cao
2(d)		14	1	B1 cao
2(e)		3/14	1	B1 cao
3(i)			16	1
(ii)		35	1	B1 cao
(iii)		5 and 20	1	B1 cao
(iv)		12 and 35 or 20 and 27	1	B1 for 12 and 35 or 20 and 27

Question	Working	Answer	Mark	Notes
4		Kg, litres, inches	3	B1 for each correct unit
5(a)		$5c$	1	B1 cao
5(b)		$4e + 3f$	1	B1 cao
5(c)		$9a$	1	B1 cao
5(d)		$xy$	1	B1 cao
6(i)		15.625	1	B1 cao
(ii)		8.3	1	B1 cao
7	$94 \div 8 = 11.75$ $16.95 \times 12 = 203.40$ $16.95 \times 11 = 186.45$  $94 - 8 \times 11 = 6$ $2.99 \times 6 = 17.94$ $17.94 + 186.45 = 204.39$	203.40 is less than 204.39 so Georgina buys 12 boxes.	5	M1 for $16.95 \times 12 (= 203.40)$ or $16.95 \times 11 (= 186.45)$ M1 for $2.99 \times '94 - 8 \times 11' (= 17.94)$ M1 for $'17.94' + 186.45$ A1 for 203.40 and 204.39 C1 for $'203.40$ is less than $204.39$ so Georgina buys 12 boxes' oe
8(a)		Trapezium	1	B1 cao
8(b)		(2, 3)	1	B1 cao
8(c)		Isosceles	1	B1 cao
8(d)		Btm right vertex of A	1	B1 cao

Question	Working	Answer	Mark	Notes
9(a)(i)		11	2	B1 cao
(ii)		16		B1 cao
9(b)		Vertical and horizontal lines of symmetry	2	B2 for correct lines [B1 for one correct line, condone extra lines]
9(c)		12	2	M1 for $6 \times 2$ oe A1 cao [B1 for 9 if M0 scored]
10(a)	8/2	4	1	B1 cao
10(b)	7 + 4	11	1	B1 cao
11(a)		A at top rt + btm rt	2	B2 for both points correctly labeled and no extra [B1 for 1 correct point, condone 1 incorrect extra point]
11(b)	2 x 2 x 2	8	2	M1 for 2 x 2 x 2 A1 cao
12(a)	100 - [50x0.1 + 20x0.2 + 15x0.5 + 10x1 + 4x5 + 1x10]	43.50	3	M1 for $50 \times 0.1 + 20 \times 0.2 + 15 \times 0.5 + 10 \times 1 + 4 \times 5 + 1 \times 10$ M1 for 100 - '56.50' A1 cao
12(b)(i)	20/100	1/5	4	M1 for 20/100 oe A1 for 1/5 oe
(ii)	(4+1)/100	1/20		M1 for (4+1)/100 A1 for 1/20 oe

Question	Working	Answer	Mark	Notes
13	$1/3 + 2/9 = 3/9 + 2/9 = 5/9$ $1 - 5/9 = 4/9$ $1/9 = 32 \div 4 = 8$ $9/9 = 8 \times 9 = 72$ $72 \div 9 \times 2$	16	4	M1 for $1/3 + 2/9$ M1 for $1 - '5/9'$ (= 4/9) M1 for $'72' \div 9 \times 2$ A1 cao
14	Area of rect = $15 \times 7 = 105$ Area of triangle = $\frac{1}{2} \times (15 - 9)$ $\times (7 - 4) = 9$ $105 - 9$	96	5	M1 for $15 \times 7$ (= 105) B1 for $(15 - 9)$ or $(7 - 4)$ M1 for $\frac{1}{2} \times (15 - 9) \times (7 - 4) = 9$ M1 for $'105' - '9'$ A1 cao
15(i)  (ii)		Graph  7000 to 8000 (not inc.)	4	B1 for all points correctly plotted B1 ft for a smooth curve joining their 6/7 plotted points M1 for line from 6 yrs to meet graph + horizontal line to vertical axis oe A1 for 7000 to 8000 (not inc.)
16(a)	$3.50 + 12.25 + 2.8 + 4.50 + 7.85 + 7.8$ $5 + 2.80 + 12.25 + 2.10 = 55.90$ $55.90 + 5.59$	61.49	4	M1 for $3.50 + 12.25 + 2.8 + 4.50 + 7.85 + 7.85 + 2.80 + 12.25 + 2.10$ M1 for $'55.90' \times 0.1$ oe A1 for 5.59 A1 cao
16(b)	$7.85 \times 1.06$	8.32	3	M2 for $7.85 \times 1.06$ [M1 for $7.85 \times 6/100$ ] A1 for 8.32 or 8.33



Question	Working	Answer	Mark	Notes
17(a)(i) (ii)		13 Add 3	2	B1 cao B1 for 'add' 3 oe
17(b)		31	1	B1 cao
17(c)		$3n - 5$	2	B2 for $3n - 5$ [B1 for $3n \pm k$ , where $k \neq -5$ ]
18(a)		$\begin{array}{r cccccccc} 0 & 5 & 7 & 8 & 8 & & & & \\ 1 & 0 & 0 & 0 & 0 & 2 & 4 & 5 & 5 & 6 \\ 2 & 0 & 0 & 0 & 4 & 5 & & & & \\ 3 & 3 & 5 & & & & & & & \\ \hline \text{Key: } 3 &   & 5 & = & 35 & & & & & \end{array}$	3	B2 for fully correct diagram [B1 for ordered leaves with one error or omission or a complete unordered diagram] B1 for a correct key
18(b)	$35 - 5$	30	2	M1 for $35 - 5$ A1 cao
18(c)	$(14+15)/2$	14.5	1	B1 cao
19		Straight line from (-2, 7) to (4, -5)	3	B3 for a line drawn from (-2, 7) to (4, -5) [B2 for a single line of gradient -2 or passing through (0, 3) or for 6/7 correctly plotted points OR B1 for 2 or 3 correctly plotted points]
20	<p><b>T-Shirts-R-Us</b> 3 lots of 8 @ 12 x 5 per lot + 2 lots of 3 @ 12 x 2 per lot = <math>60 \times 3 + 24 \times 2 = 180 + 48 = 228</math></p> <p><b>Budget Shirt Co</b> <math>12 \times 1/3 = 4</math> <math>12 - 4 = 8</math> <math>30 \times 8 = 240</math></p>	T-Shirts-R-Us since $228 < 240$	5	M1 for $30 = 3 \times 8 + 2 \times 3$ oe M1 for $60 \times 3 + 24 \times 2 (= 228)$ M1 for $12 \times 2/3 \times 30$ oe A1 for 228 and 240 C1 for T-Shirts-R-Us since $228 < 240$ oe

Question	Working	Answer	Mark	Notes
21	$30 \text{ mph} = 30 \times \frac{8}{5} = 48 \text{ km/h}$ Speed of car = $150/12 = 12.5 \text{ m/s}$ $12.5 \times 3600/1000 = 45 \text{ km/h}$  OR Speed of car = $150/12 = 12.5 \text{ m/s}$ $12.5 \times 3600/1000 = 45 \text{ km/h}$ $45 \times \frac{5}{8} = 28.125 \text{ mph}$	No, since $45 < 48$ OR No, since $28.125 < 30$	5	M1 for $30 \times \frac{8}{5} (= 48)$ M1 for $150/12$ M1 for ' $12.5$ ' $\times 3600/1000$ A1 for 48 and 45 C1 for 'No, since $45 < 48$ ' OR M1 for $150/12$ M1 for ' $12.5$ ' $\times 3600/1000$ M1 for ' $45$ ' $\times \frac{5}{8}$ A1 for 48 and 45 C1 for 'No, since $28.125 < 30$ '
22	$(1 - 0.46 - 0.28) \div 2 \times 500$	65	4	M1 for $1 - 0.46 - 0.28$ A1 for $x = 0.13$ M1 for $0.13 \times 500$ A1 cao