

1MA0/1F

# Edexcel GCSE

Mathematics (Linear) – 1MA0  
Practice Paper 1F (Non-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 must not 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.

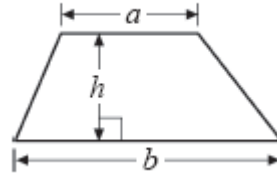
Check your answers if you have time at the end.

## GCSE Mathematics 1MA0

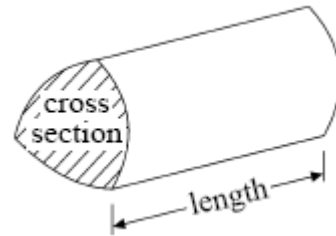
Formulae: Foundation Tier

**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





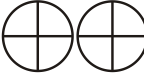
Answer ALL TWENTY FOUR questions


Write your answers in the spaces provided.

You must write down all the stages in your working.

You must NOT use a calculator.

1. The pictogram shows the number of loaves of bread sold by a shop in January, February and March.

January	
February	
March	
April	
May	

Key  represents 12 loaves of bread.

- (a) Write down the number of loaves of bread sold in January.

.....  
(1)

- (b) Work out how many **more** loaves of bread were sold in March than in February.

.....  
(2)

18 loaves of bread were sold in April.

27 loaves of bread were sold in May.

- (c) Use this information to complete the pictogram.

(2)

(Total 5 marks)

2. (a) Write **twelve hundred and seven** in figures.

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

(b) Write 40 010 in words.

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

(c) Write down the value of the **6** in 16 534

.....  
**(1)**  
**(Total 3 marks)**

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3. Farah buys

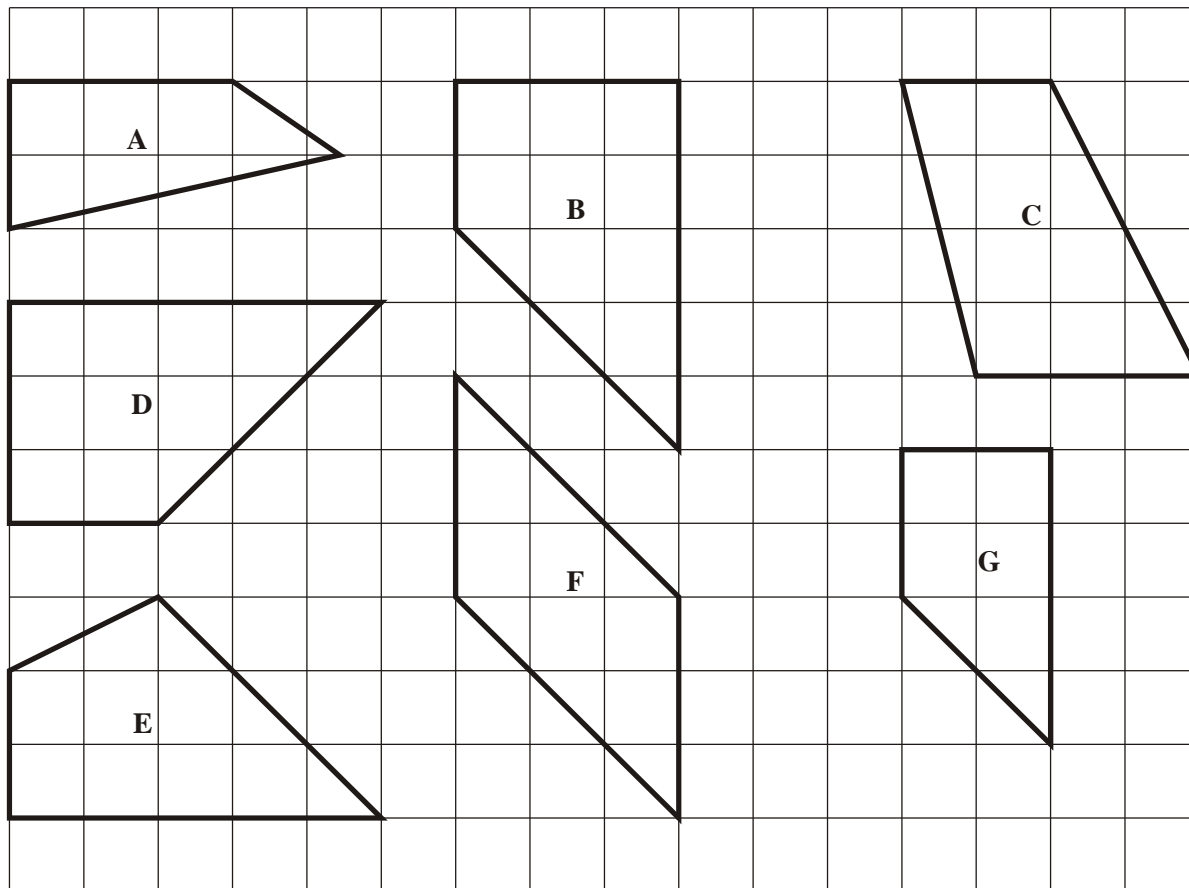
- 2 pens at 90p each
- 3 folders at £1.40 each
- 1 pencil case at £1.50

She pays with a £10 note.

Work out how much change Farah should get from £10.

£ .....  
**(Total 3 marks)**

4. Here are 7 quadrilaterals.



(a) Write down the letter of a parallelogram.

.....  
(1)

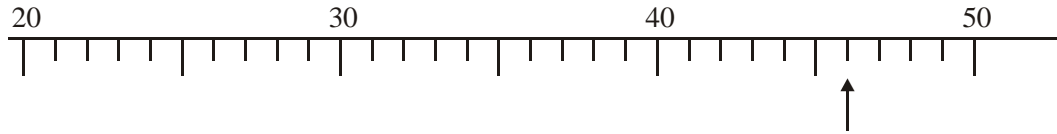
Two of the quadrilaterals are congruent.

(b) Write down the letters of these quadrilaterals.

..... and .....

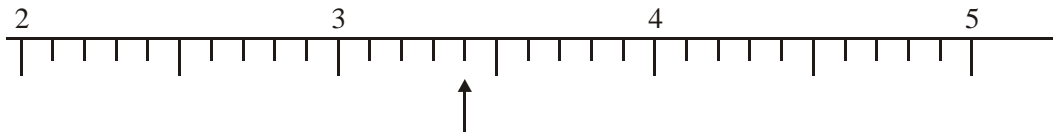
(1)  
(Total 2 marks)

5.



(a) Write down the number marked with an arrow.

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



(b) Write down the number marked with an arrow.

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



(c) Find the number 430 on the number line.

Mark it with an arrow (↑).

**(1)**



(d) Find the number 3.7 on the number line.

Mark it with an arrow (↑).

**(1)**

**(Total 4 marks)**

6. The table shows the temperature in each of 6 cities on 1st January 2010.

City	Temperature
Cairo	12 °C
Copenhagen	-3 °C
Helsinki	-8 °C
Manchester	0 °C
Moscow	-18 °C
Sydney	16 °C

(a) Write down the name of the city which had the **highest** temperature.

.....  
(1)

(b) Work out the difference in temperature between Copenhagen and Helsinki.

.....°C  
(1)

On 2nd January 2010, the temperature in Moscow had dropped by 3 °C.

(c) Work out the new temperature in Moscow.

.....°C  
(1)

(d) Work out the temperature halfway between the temperature in Cairo and the temperature in Copenhagen.

.....°C  
(2)

**(Total 5 marks)**

7. The table shows information about the weather at fourteen places on July 7th 2007

Weather in England			
	Hours of Sunshine	Maximum Temperature ( $^{\circ}\text{C}$ )	Rain (mm)
Birmingham	0.2	16	4.4
Bristol	2.5	18	0.4
Ipswich	2.8	19	5.0
Leeds	4.9	16	5.0
Leicester	2.6	17	0.7
Lincoln	4.9	18	2.6
London	1.6	20	0.2
Manchester	0.1	17	5.6
Nottingham	2.0	16	3.4
Oxford	3.5	18	0.4
Peterborough	3.0	18	3.0
Portland	10.0	17	0.0

(Source: Times and Telegraph newspapers)

(a) Write down the name of **one** place which had more than 5 hours of sunshine.

.....  
(1)

(b) Complete the frequency table for the Maximum Temperatures at these 14 places.

Maximum Temperature ( $^{\circ}\text{C}$ )	Tally	Frequency

(2)

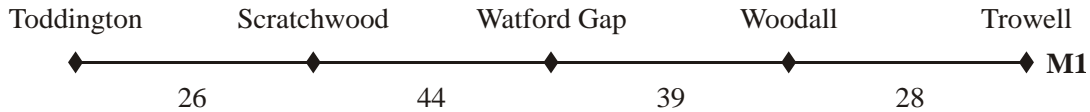
(c) Write down the number of places that had a Maximum Temperature of **18  $^{\circ}\text{C}$  or more**.

.....  
(2)

**(Total 5 marks)**



8. The diagram shows the distances, in miles, between some service areas on the M1 motorway.



For example, the distance between Toddington and Watford Gap is 70 miles.

Complete the table.

Toddington				
26	Scratchwood			
70		Watford Gap		
	83	39	Woodall	
	111		28	Trowell

(Total 3 marks)

9. (a) Work out

$$15.9 \times 100$$

.....  
(1)

- (b) Work out

$$0.3 \times 0.8$$

.....  
(1)

- (c) Write 25 327 correct to 2 significant figure.

.....  
(1)

- (d) Write 0.00675 correct to 1 significant figure.

.....  
(1)

(Total 4 marks)

\*10. Here are two fractions,  $\frac{2}{3}$  and  $\frac{5}{8}$

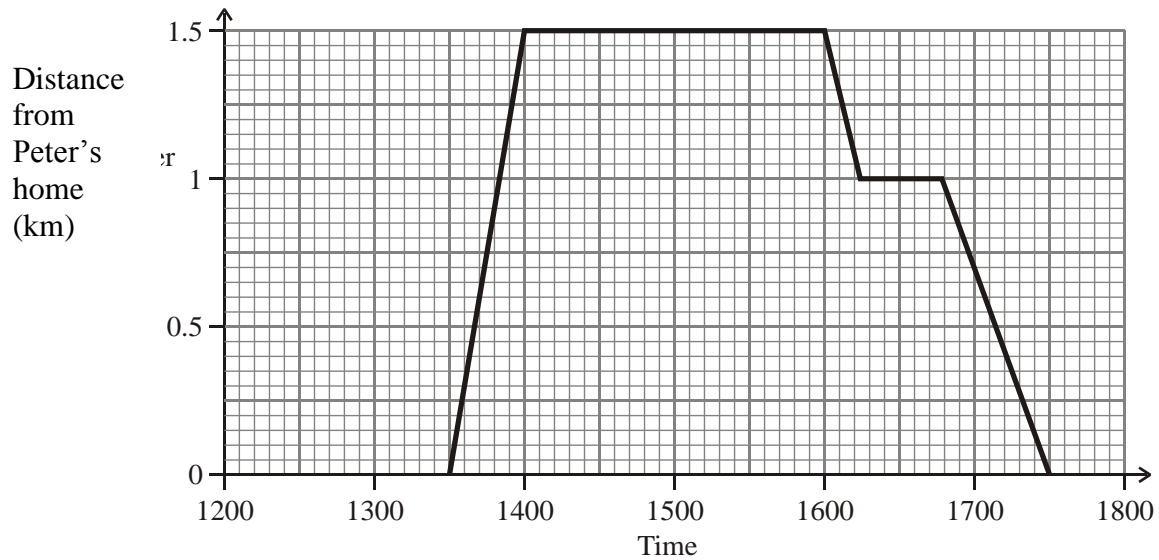
Which fraction has the lower value?

You must show clearly how you got your answer.


**(Total 3 marks)**

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11. The graph shows Peter's journey to town yesterday.



(a) At what time did Peter leave his home?

.....  
(1)

The distance from Peter's home to town is 1.5 km.

(b) For how long did Peter stay in town?

.....  
(1)

(c) Describe fully Peter's return journey home.

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

(2)

(Total 4 marks)

**\*12.** A supermarket manager wants to find out information about the vehicles going into the supermarket car park.

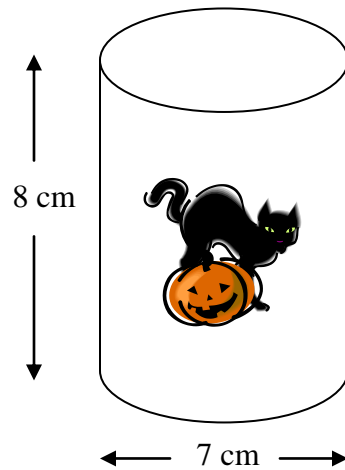
The vehicles are to be classified as Small cars, Large cars, Vans, or Other.

Design a data collection sheet which could be used to record how many of each of these types of vehicles go into the car park.

**(Total 3 marks)**

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\*13. The diagram shows a tin of cat food.



The tin is in the shape of a cylinder.  
The height of the tin is 8 cm.  
The diameter of the tin is 7 cm.

The tins have to be packed into boxes.

- (a) Design a box that could be used to pack just 72 tins.  
Give the dimensions of the box.

(3)

In a warehouse there are 140 of these boxes.  
Each box is full with tins of cat food.

- (a) Work out how many of tins are in the warehouse.

(3)

(Total 6 marks)

14. This table is used to find numbers of rolls of insulation material needed for lofts of different floor areas.

Floor area of loft (square feet)	Number of rolls
300	6
350	7
400	8
450	9
500	10
550	11

The floor of a rectangular loft is 30 feet long and 15 feet wide.

- (i) Work out the floor area of this loft.

..... square feet

- (ii) Write down the number of rolls of insulation material needed for this loft.

.....  
**(Total 3 marks)**

---

15. (a) Work out the value of  $(4 + 5) \times 2 + 3$

.....  
(1)

(b) Add brackets ( ) to make each statement correct.  
You may use more than one pair of brackets in each statement.

(i)  $4 + 5 \times 2 + 3 = 29$

(ii)  $4 + 5 \times 2 + 3 = 45$

(2)

**(Total 3 marks)**

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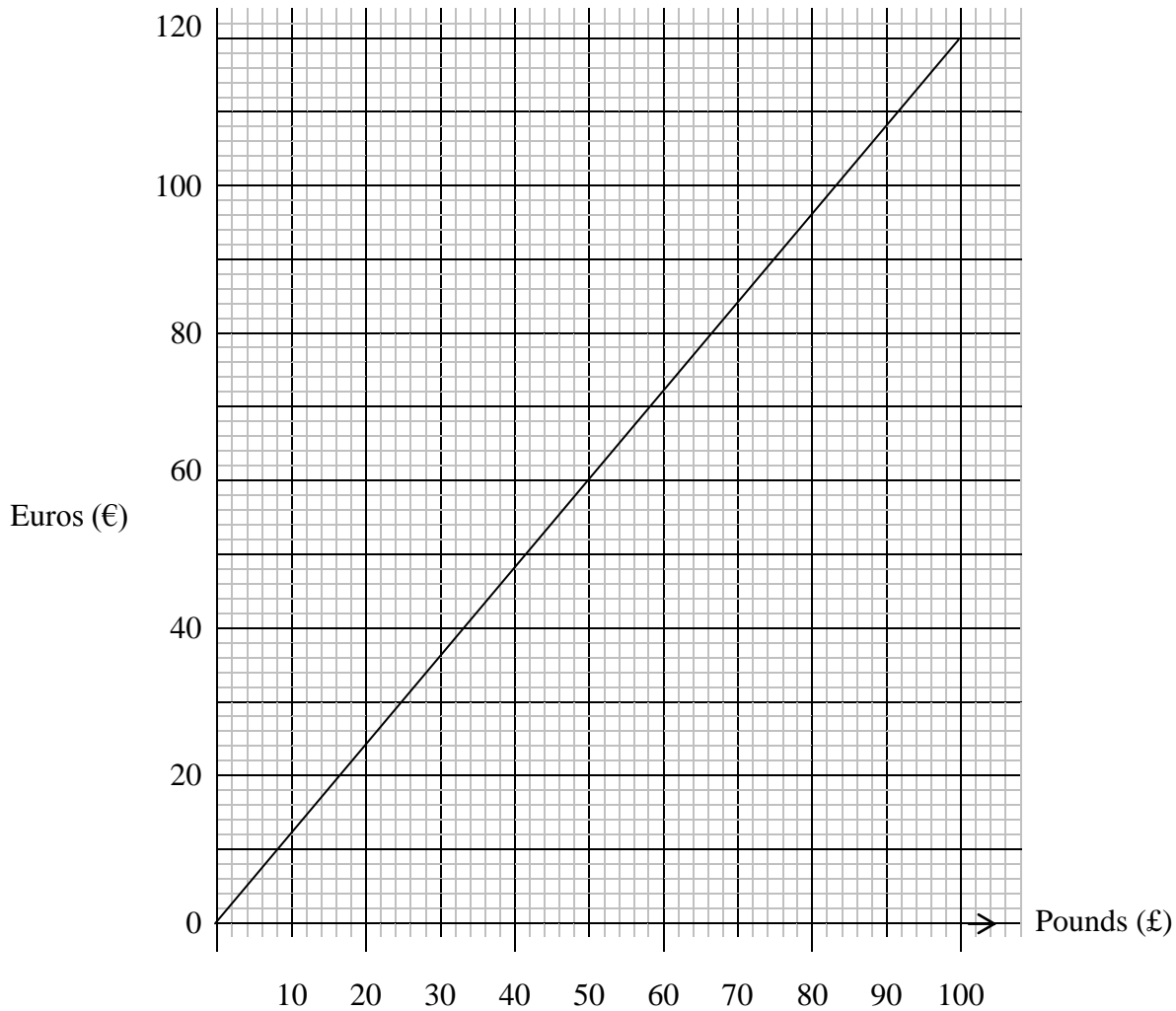
16. Work out the simple interest on £5000 at 4% per annum after 5 years.

£ .....

**(Total 3 marks)**

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- \*17. On these two pages you will find conversion graphs from pounds (£) to Euros (€) and from pounds (£) to dollars (\$).



Jessica is shopping on the internet for a camera.  
The same camera is on two websites.

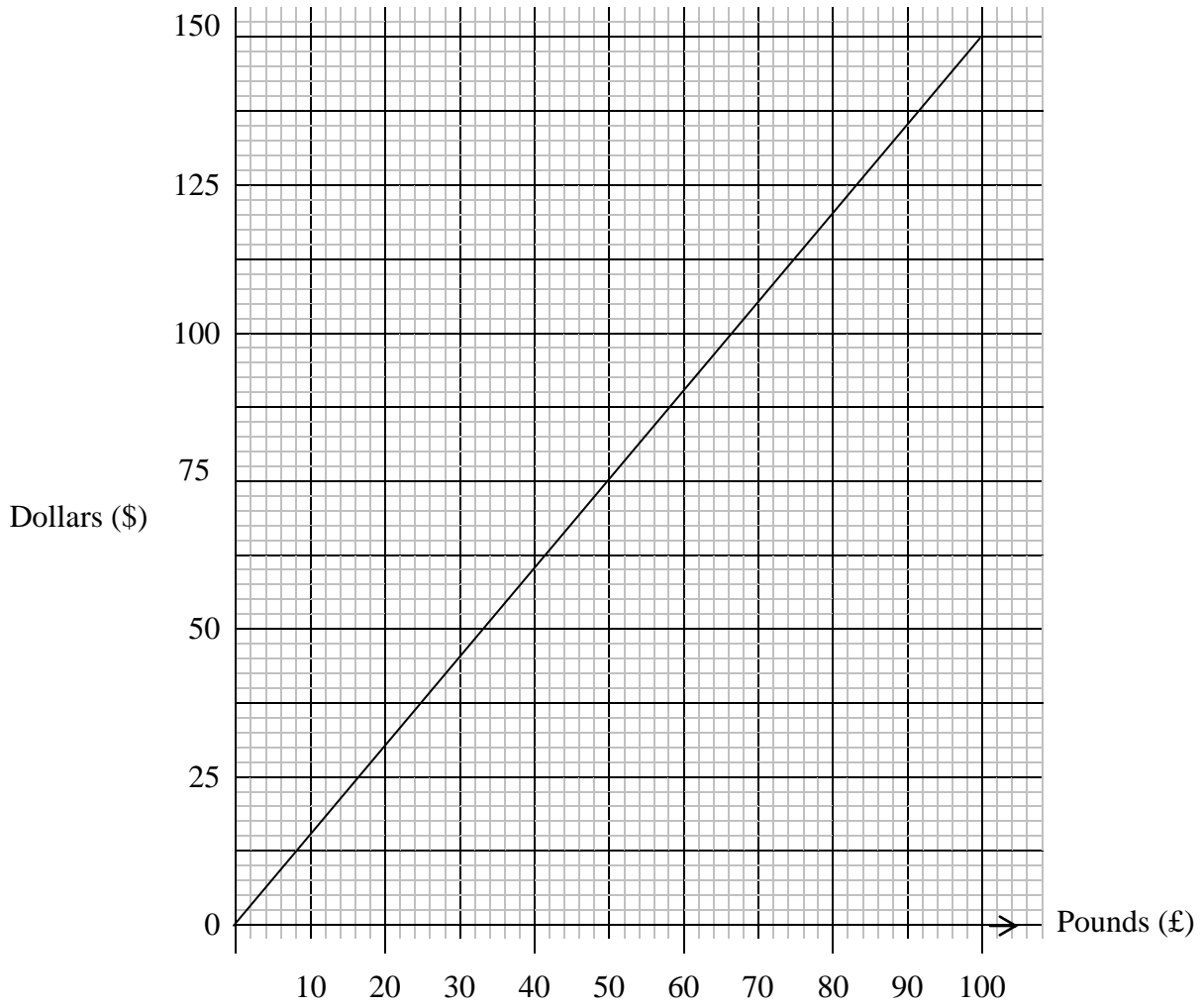
On a Spanish website, the cost of the camera is €239.99

On an American website, the cost of the camera is \$279.95

- (a) From which website should Jessica buy the camera?  
You must show clearly how you found your answer.

.....  
(4)



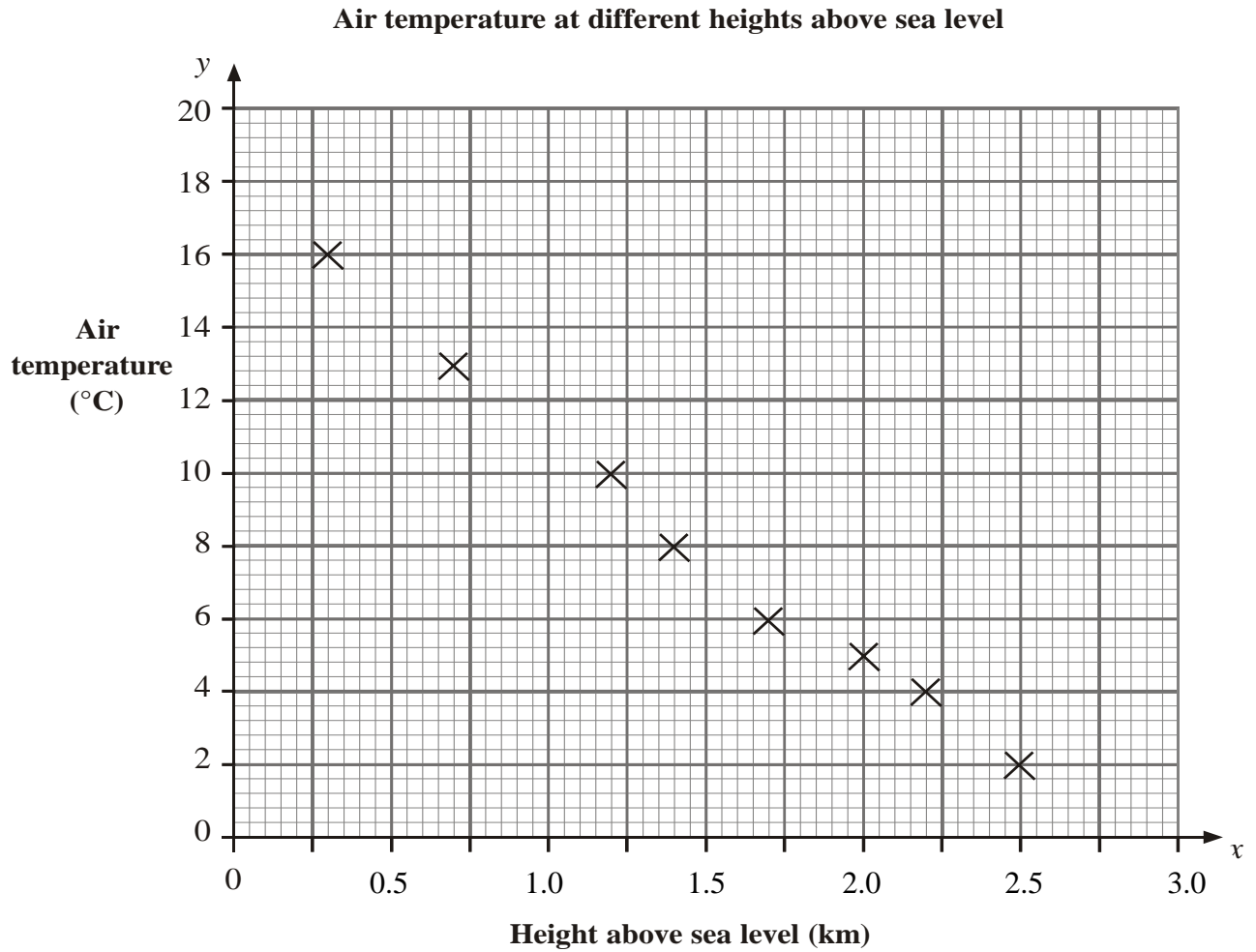


(b) Estimate the exchange rate from the euro (€) to the dollar (\$)

.....

(2)  
(Total 4 marks)

18. On a particular day, a scientist recorded the air temperature at 8 different heights above sea level. The scatter diagram shows the air temperature,  $y$  °C, at each of these heights,  $x$  km, above sea level.



- (a) Using the scatter diagram, write down the air temperature recorded at a height of 2.5 km above sea level.

..... °C  
(1)

- (b) Describe the correlation between the air temperature and the height above sea level.

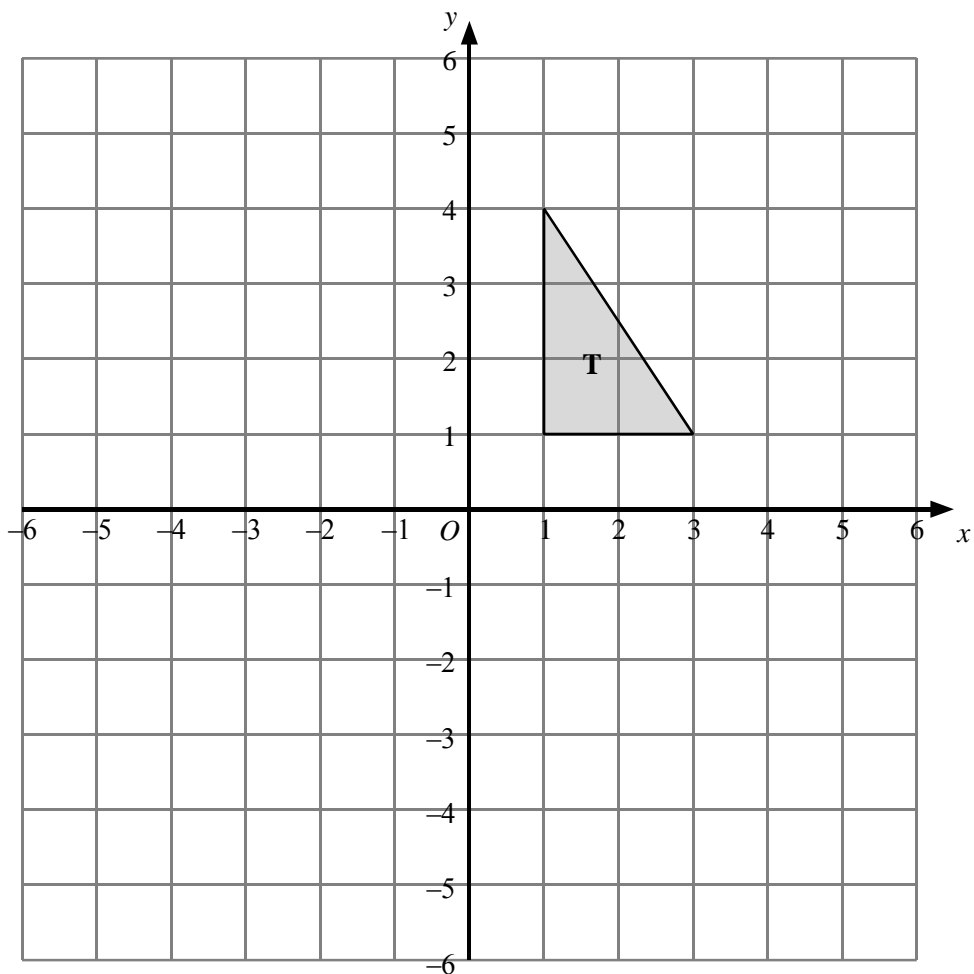
.....  
(1)

- (c) Find an estimate of the height above sea level when the air temperature is 0°C.

..... km  
(2)

**(Total 4 marks)**

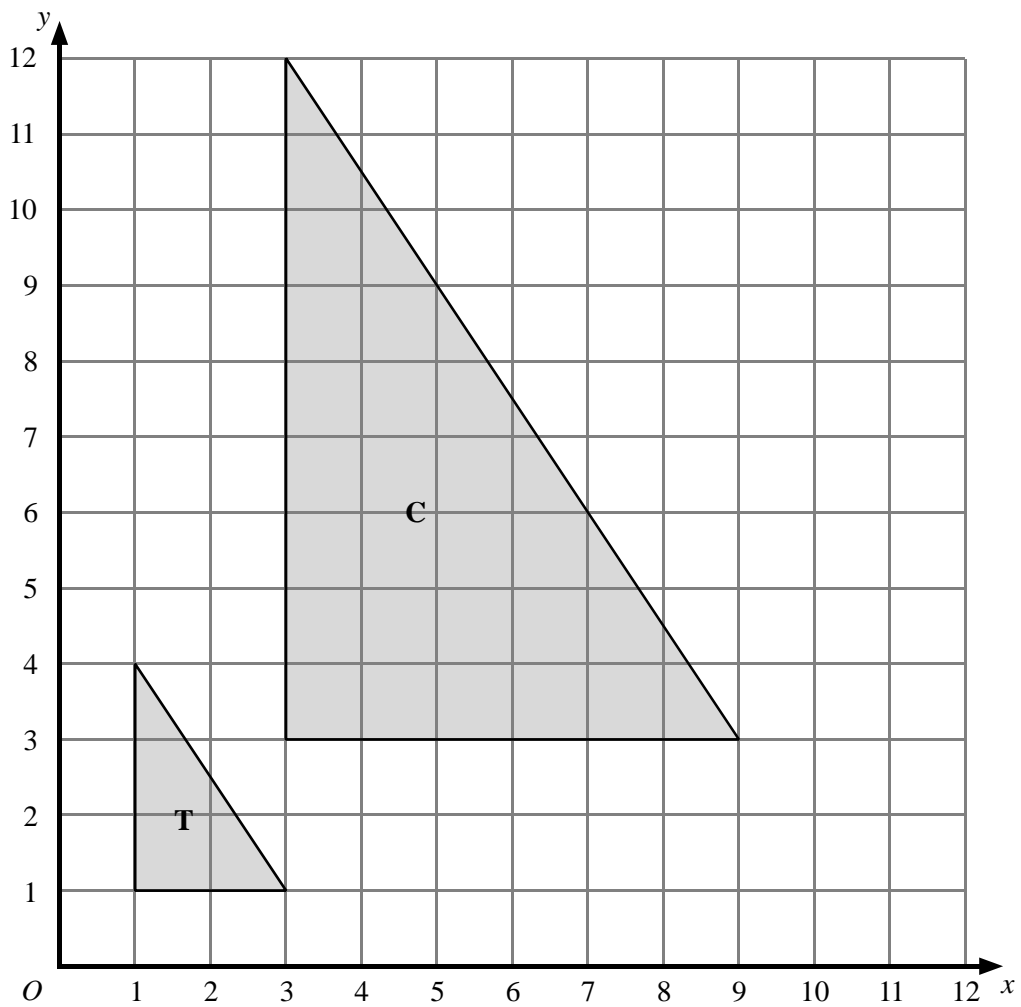
19.



Triangle **T** has been drawn on the grid.

- (a) Reflect triangle **T** in the  $x$ -axis.  
Label the new triangle **A**.

(1)



(b) Describe fully the single transformation which maps triangle **C** onto triangle **T**.

.....  
 .....

**(3)**

**(Total 4 marks)**

20. Ken has a car hire business.  
The cost, in pounds, of hiring a car from Ken can be worked out using this rule.

Add 6 to the number of day's hire  
Multiply your answer by 12

Michelle wants to hire a car from Ken for 9 days.

- (a) Work out how much Michelle will have to pay.

£ .....  
(2)

Angela hired a car from Ken and paid £156

- (b) Work out how many days Angela hired a car for.

..... days  
(2)

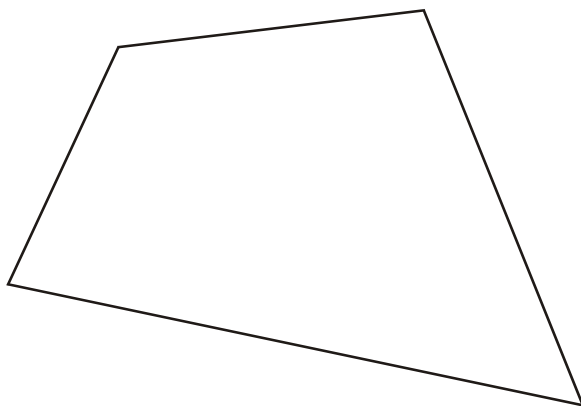
The cost of hiring a car for  $n$  days is  $C$  pounds.

- (c) Write down a formula for  $C$  in terms of  $n$ .

.....  
(3)

**(Total 7 marks)**

21. (a)



The sum of the angles of a triangle is  $180^\circ$ .

Prove that the sum of the angles of any quadrilateral is  $360^\circ$ .

(2)

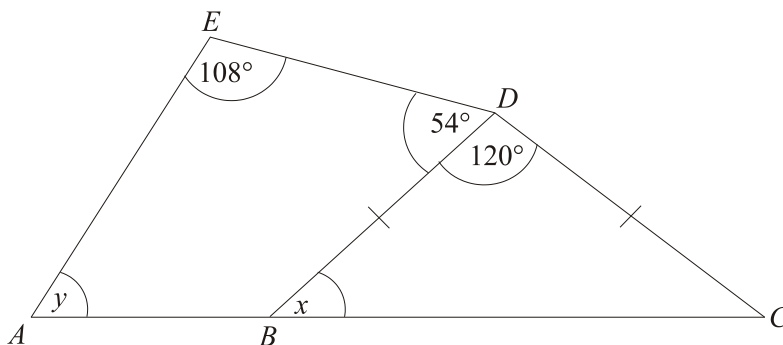


Diagram **NOT** accurately drawn

In the diagram,  $ABC$  is a straight line and  $BD = CD$ .

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

.....<sup>o</sup>  
(2)

(b) Work out the size of angle  $y$ .

.....<sup>o</sup>  
(2)

**(Total 6 marks)**

22. The local council is planning to build a new swimming pool.

The councillors want to get the views of the local people.

Councillor Smith suggests taking a sample from the people who attend the local sports centre.

(a) Explain why this would not be a good sample.

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

**(1)**

Councillor Singh suggests taking a simple random sample of 100 people.

(b) Describe how the council could take a simple random sample.

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

**(1)**

The council decided to use a questionnaire to find out how often people would use the swimming pool.

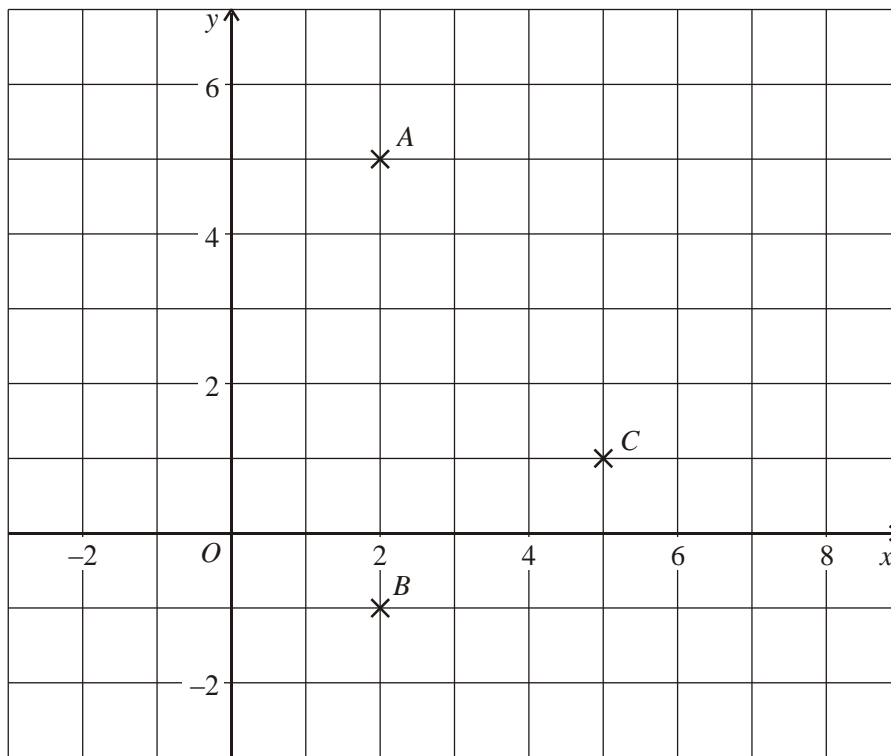
(c) Design a question the council could use on their questionnaire.

**(1)**

**(Total 4 marks)**

---

23. The diagram shows three points  $A$ ,  $B$  and  $C$  on a centimetre grid.



On the grid, shade the region in which points are,

nearer to  $A$  than  $B$ ,

and also less than 3 cm from  $C$ .

**(Total 3 marks)**

---



24. Ann and Bob shared £240 in the ratio 3 : 5  
Ann gave a **half** of her share to Colin.  
Bob gave a **tenth** of his share to Colin.  
What fraction of the £240 did Colin receive?

.....  
(Total 4 marks)

---

25. (a) Expand  $6(2x + 3)$

.....  
(1)

- (b) Simplify  $2y - 3z + y + 5z$

.....  
(2)

(Total 3 marks)

---

**TOTAL FOR PAPER: 100 MARKS**

**END**

Question	Working	Answer	Mark	Notes
1(a)		36	1	B1 cao
1(b)	24 – 15	9	2	M1 for 24 – 15 A1 cao [B1 for either 24 or 15 vseen if M0 scored]
1(c)		1 ½ patterns 2 ¼ patterns	2	B1 for April B1 for May
2(a)		1207	1	B1 cao
2(b)		Forty thousand and ten	1	B1 cao
2(c)		6000 6 thousand	1	B1 cao
3	10 – (0.90x2 + 1.4x3 + 1.5) 10 – 7.50	2.50	3	M1 for 0.90x2 + 1.4x3 + 1.5 M1 for 10 – “7.50” A1 cao
4(a)		F	1	B1 cao
4(b)		B, D	1	B1 cao
5(a)		46	1	B1 cao
5(b)		3.4	1	B1 cao
5(c)		Diagram	1	B1 cao
5(d)		Diagram	1	B1 cao

Question	Working	Answer	Mark	Notes																									
6(a)		Sydney	1	B1 cao																									
6(b)		5	1	B1 cao																									
6(c)		-21	1	B1 cao																									
6(d)		4.5	2	M1 for $(12 + -3)/2$ or for a drawn number line from at least $-3$ to $12$ A1 cao																									
7(a)		Portland	1	B1 cao																									
7(b)		Frequencies of 3, 3, 4, 1, 1	2	B2 for a fully correct tally chart (condone omission of tallies) [B1 for 2 correct frequencies]																									
7(c)		Bristol, Ipswich, Lincoln, London, Oxford, Peterborough	2	B2 for all 6 places [B1 for 4 out of no more than 6 places quoted]																									
8		<table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td>T</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>26</td> <td>S</td> <td></td> <td></td> <td></td> </tr> <tr> <td>70</td> <td>44</td> <td>Wg</td> <td></td> <td></td> </tr> <tr> <td>109</td> <td>83</td> <td>39</td> <td>Wo</td> <td></td> </tr> <tr> <td>137</td> <td>111</td> <td>67</td> <td>28</td> <td>T</td> </tr> </tbody> </table>	T					26	S				70	44	Wg			109	83	39	Wo		137	111	67	28	T	3	B3 for fully correct table [B2 for 2 or 3 correct new entries B1 for one new correct entry]
T																													
26	S																												
70	44	Wg																											
109	83	39	Wo																										
137	111	67	28	T																									
9(a)		1590	1	B1 cao																									
9(b)		0.24	1	B1 cao																									
9(c)		25 000	1	B1 cao																									
9(d)		0.007	1	B1 cao																									

Question	Working	Answer	Mark	Notes															
10	$\frac{2}{3} = \frac{16}{24}$ $\frac{5}{8} = \frac{15}{24}$	$\frac{5}{8}$	3	M1 for an attempt to convert to fractions with a common denominator or two identical diagrams with an attempt at shading the fractions A1 for $\frac{16}{24}$ and $\frac{15}{24}$ or correct diagrams C1 for $\frac{5}{8}$ backed up by correct working															
11(a)		13 50	1	B1 cao															
11(b)		2 hours	1	B1 cao															
11(c)		Left town at 16 00, after 0.5 km stopped for 30 mins, then carried on arriving home at 17 30	2	B1 for either 16 00 or 17 30 seen B1 for 'stopped for 30 mins' oe															
12		<table border="1"> <thead> <tr> <th>Veh</th> <th>Tally</th> <th>Freq</th> </tr> </thead> <tbody> <tr> <td>SC</td> <td></td> <td></td> </tr> <tr> <td>LC</td> <td></td> <td></td> </tr> <tr> <td>V</td> <td></td> <td></td> </tr> <tr> <td>O</td> <td></td> <td></td> </tr> </tbody> </table>	Veh	Tally	Freq	SC			LC			V			O			3	B1 for eac of the following aspects: All 4 types shown Tally oe means of recording Frequency oe method of totalling
Veh	Tally	Freq																	
SC																			
LC																			
V																			
O																			
13(a)		Box of dimensions 42cm x 32cm x 24cm	3	B3 for a cuboid box with correct dimensions [B2 for 2 correct dimensions that would just fit the tins, B1 for just one correct dimension]															
13(b)	$\begin{array}{r} 140 \\ \times 72 \\ \hline 280 \\ 9800 \\ \hline \end{array}$	10080	3	M1 for a complete method to work out $140 \times 72$ A1 for correct products, condone one multiplication error (ignore any error in addition) A1 cao															

Question	Working	Answer	Mark	Notes
14(i)	30 x 15 =	450	3	M1 for 30 x 15 A1 cao
(ii)		9		B1 ft for 9
15(a)		6	1	B1 cao
15(b)(i)		4 + 5 x (2 + 3)	2	B1 cao
(ii)		(4 + 5) x (2 + 3)		B1 cao
16	5000 x 4 x 5 ÷ 100	1000	3	M1 for 5000 x 4 ÷ 100 (= 200) M1 for '200' x 5 A1 cao
17(a)	€239.99 ≈ €240 = £200 \$279.95 ≈ \$280 ≈ £185	American website since 185 < 200	4	M1 for reading using either graph to convert any factor of either €240 or \$280 into pounds or an attempt to find either conversion factor A1 for any correct conversion factor or £200 or £185 (±£4) A1 for both £200 and £185 (±£4) C1 for 'American website since 185 < 200' oe
17(b)	£100 = €120 £100 = \$150 150/120	1.25	2	M1 for 150/120 oe A1 for 1.25 (±0.04) [B1 for 0.8 if M0 scored]
18(a)		2	1	B1 cao
18(b)		Negative	1	B1 cao
18(c)		2.6 to 2.9	2	B2 for answer in the range 2.6 to 2.9 [B1 for a line of best fit drawn if answer outside this range]

Question	Working	Answer	Mark	Notes
19(a)		Triangle at (1, -1), (3, -1), (1, -4)	1	B1 cao
19(b)		Enlargement, scale factor 3 about (0, 0)	3	B1 for enlargement B1 for scale factor of 3 B1 for centre (0, 0) oe
20(a)	$(9 + 6) \times 12$	180	2	M1 for $(9 + 6) \times 12$ A1 cao
20(b)	$(156 \div 12) - 6$	7	2	M1 for $(156 \div 12) - 6$ A1 cao
20(c)		$C = 12(n + 6)$	3	B3 for a fully correct formula [B2 for $12(n + 6)$ or $C = 12(n + k)$ Or $C = p(n + 6)$ B1 for $12n$ or $(n + 6)$ seen]
21(a)	$180 \times 2 = 360$	Proof	2	M1 for splitting the quad into two triangles C1 for stating $180 \times 2 = 360$
21(b)	$(180 - 120)/2$	30	2	M1 for $(180 - 120)/2$ A1 cao
21(c)	$360 - 54 - 108 - (180 - 30)$	48	2	M1 for $360 - 54 - 108 - (180 - '30')$ A1 cao

Question	Working	Answer	Mark	Notes
22(a)		Biased sample	1	B1 for 'biased sample' oe
22(b)		Eg: stopping the 1 <sup>st</sup> 100 people in the town centre OR knock on 100 doors in the local area	1	B1 for an acceptable method
22(c)		How many times in a month would you use the swimming pool? 0   1-3   4-5   6+	2	B1 for including a time period in an appropriate question B1 for at least 3 non-overlapping response boxes.
23		Correct region shaded	3	B1 for $y = 2$ draw B1 for a circle, radius 3cm, centre C drawn B1 for correct region
24	$240 \div 8 = 30$ Ann = $30 \times 3 = 90$ Bob = $30 \times 5 = 150$ $90 \div 2 + 150 \div 10 = 60$ OR Ann = $3/8$ Bob = $5/8$ $3/8 \times 1/2 + 5/8 \times 1/10$ $3/16 + 5/80 = 15/80 + 5/80$	$60/240 (= 1/4)$	4	M1 for $240 \div 8 = 30$ M1 for $30 \times 3 (= 90)$ or $30 \times 5 (= 150)$ M1 for '90' $\div 2 +$ '150' $\div 10$ A1 cao OR M1 for $3/8$ or $5/8$ M1 for $3/8 \times 1/2 + 5/8 \times 1/10$ M1 for $3/16 + 5/80$ A1 cao
25(a)		$12x + 18$	1	B1 cao
25(b)		$3y + 2z$	2	B2 cao [B1 for $3y$ or $2z$

