

Centre No.						Paper Reference						Surname	Initial(s)	
Candidate No.						1	3	8	0	/	1	F	Signature	

Paper Reference(s)

**1380/1F**

# Edexcel GCSE

**Mathematics (Linear) – 1380**

Paper 1 (Non-Calculator)

# Foundation Tier

Friday 2 March 2012 – Afternoon

Time: 1 hour 30 minutes

Examiner's use only

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Team Leader's use only

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**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 to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.

Check that you have the correct question paper.

Answer ALL the questions. Write your answers in the spaces provided in this question paper.

**You must NOT write on the formulae page.**

**Anything you write on the formulae page will gain NO credit.**

If you need more space to complete your answer to any question, use additional answer sheets.

### Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).

There are 25 questions in this question paper. The total mark for this paper is 100.

There are 24 pages in this question paper. Any blank pages are indicated.

**Calculators must not be used.**

### Advice to Candidates

Show all stages in any calculations.

Work steadily through the paper. Do not spend too long on one question.

If you cannot answer a question, leave it and attempt the next one.

Return at the end to those you have left out.

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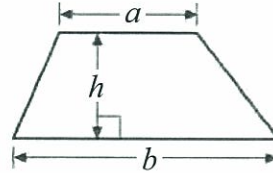
**PEARSON**

GCSE Mathematics (Linear) 1380

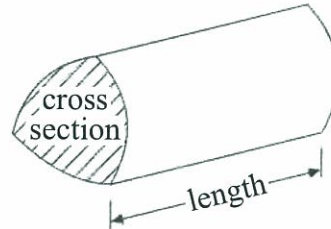
Formulae: Foundation Tier

**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



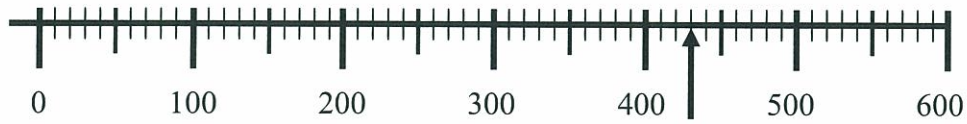
Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

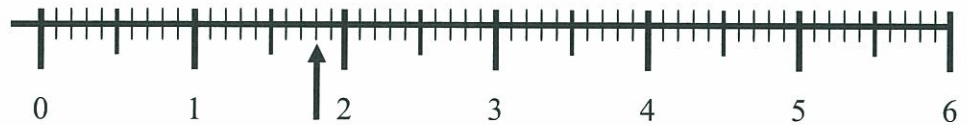
You must NOT use a calculator.

1.



(a) Write down the number marked by the arrow.

430  
.....  
(1)



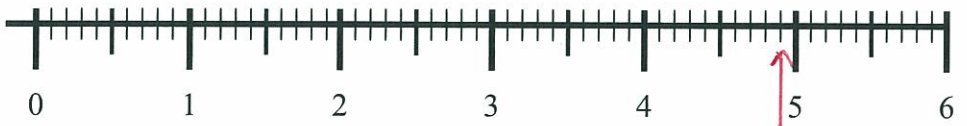
(b) Write down the number marked by the arrow.

1.8  
.....  
(1)



(c) Find the number 340 on the number line above.  
Mark it with an arrow (↑)

(1)



(d) Find the number 4.9 on the number line above.  
Mark it with an arrow (↑)

(1)

(Total 4 marks)

Q1



2. (a) Work out  $24 \times 20$

$$\begin{aligned} &24 \times 2 \times 10 \\ &= 48 \times 10 \\ &= 480 \end{aligned}$$

$$\begin{array}{r} 480 \\ \hline \end{array} \quad (1)$$

(b) Work out  $205 - 37$

$$\begin{array}{r} 205 \\ - 37 \\ \hline 168 \end{array}$$

$$\begin{array}{r} 168 \\ \hline \end{array} \quad (2)$$

(c) Work out  $18 + 24 + 12$

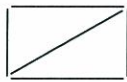
$$\begin{array}{r} 18 \\ 24 \\ + 12 \\ \hline 54 \end{array}$$

$$\begin{array}{r} 54 \\ \hline \end{array} \quad (1)$$

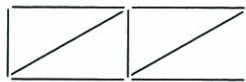
Q2



3. Here is part of a sequence of patterns made of sticks.



Pattern number 1



Pattern number 2



Pattern number 3

(a) In the space below, draw Pattern number 4



(1)

(b) Complete the table.

<b>Pattern number</b>	1	2	3	4	5
<b>Number of sticks</b>	5	9	13	17	21

(2)

(c) Work out how many sticks there will be in Pattern number 8

$$21 + 3(4) = 21 + 12 = 33$$

33  
.....

(1)

Josh has 100 sticks.

Josh says he can make a pattern in the sequence using all the sticks.

(d) Is Josh correct?

No  
.....

Give a reason for your answer.

An odd no. of sticks is required to make a pattern in the sequence.

(1)

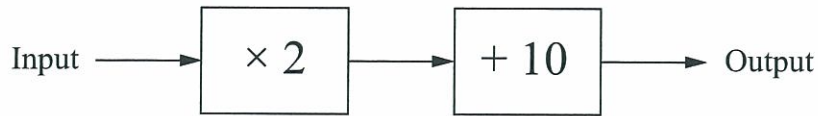
Q3

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(Total 5 marks)



4. Here is a two-stage number machine.  
It multiplies by 2 and then adds 10

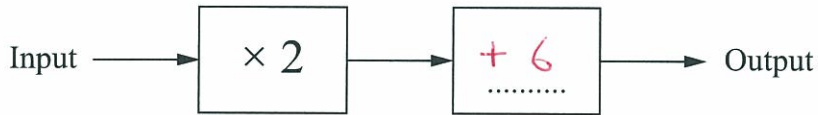


(a) Complete the table.

Input	Output
1	12
2	14
5	20
8	26
15	40

(2)

Here is a different two-stage number machine.



When the input is 10, the output is 26

(b) Complete the number machine.

$$(10 \times 2) + 6 = 26$$

(1)

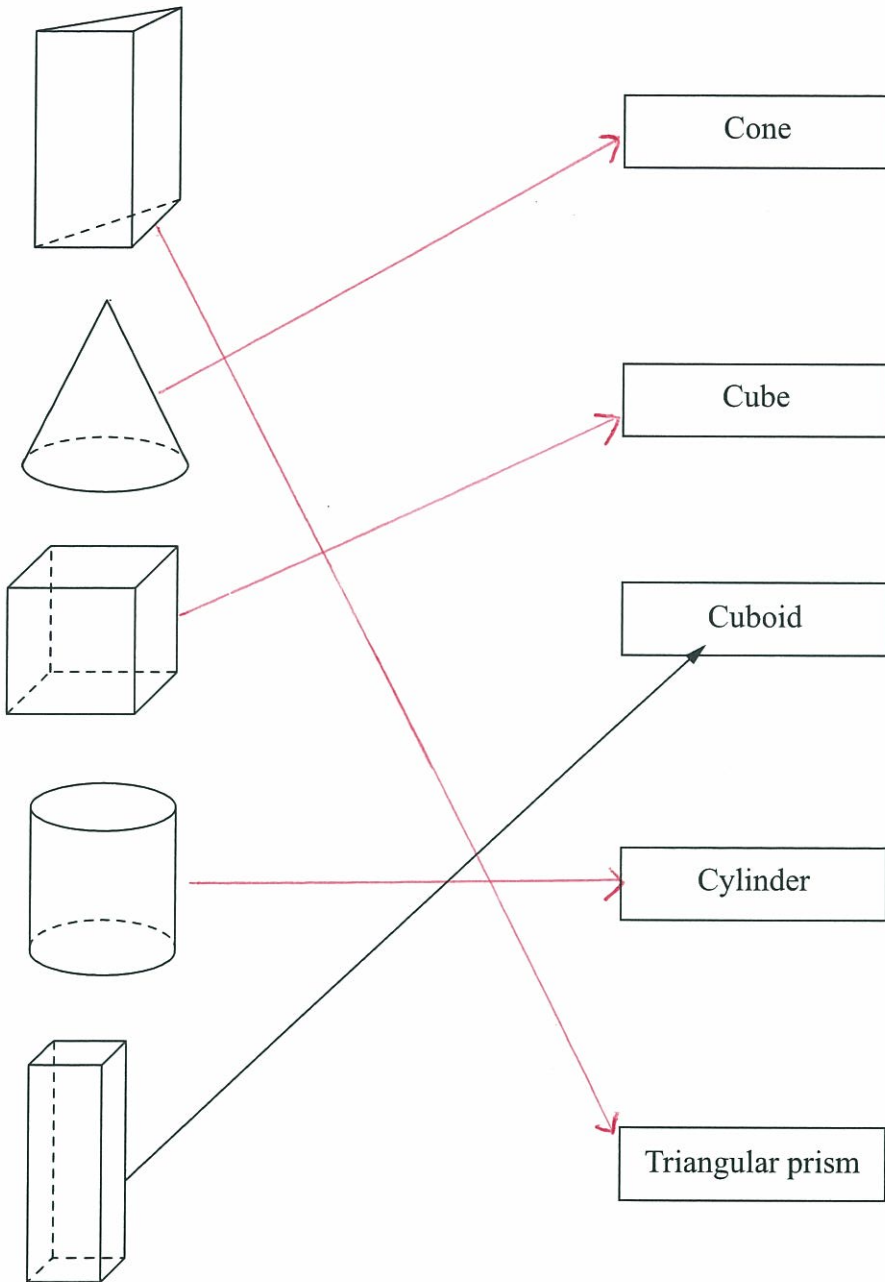
Q4

(Total 3 marks)



5. Here are 5 solid shapes.

(a) Match each solid shape to its name.  
One has been done for you.



(3)

(b) How many faces does the cuboid have?

6

(1)

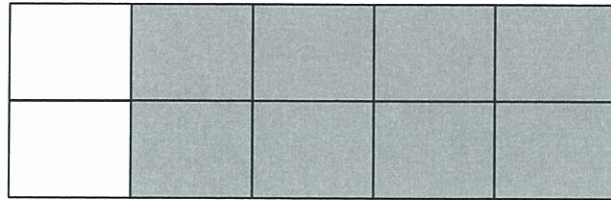
Q5

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(Total 4 marks)



6.



- (a) Write down the fraction of the shape that is shaded.  
Give your fraction in its simplest form.

$$\frac{8}{10} = \frac{4}{5}$$

$$\frac{4}{5}$$

.....  
(2)

- (b) Work out 10% of £50

$$\frac{10}{100} \times 50 = \frac{1}{10} \times 50 = \frac{50}{10} = 5$$

£ 5 .....

(2)

- (c) Change  $\frac{3}{4}$  to a decimal.

$$4 \overline{) 3.00} = 0.75$$

0.75

.....  
(1)

Q6

(Total 5 marks)





7. There are 24 men in a room.

$\frac{1}{2}$  of the men are wearing a red shirt.

$\frac{1}{3}$  of the men are wearing a green shirt.

The rest of the men are wearing a blue shirt.

Work out the number of men wearing a blue shirt.

$$24 - \left(\frac{1}{2} \times 24\right) - \left(\frac{1}{3} \times 24\right)$$

$$= 24 - 12 - 8$$

$$= 4$$

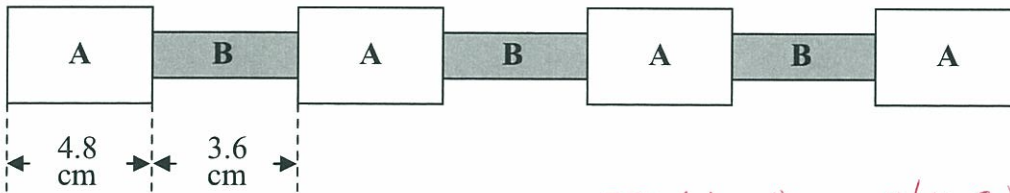
4

(Total 3 marks)

Q7

8. Here is a design made from white rectangles and grey rectangles.

Diagram NOT accurately drawn



Each white rectangle has a length of 4.8 cm.

Each grey rectangle has a length of 3.6 cm.

Work out the total length of the design.

$$\text{Total length} = 4(4.8) + 3(3.6)$$

$$= 19.2 + 10.8$$

$$= 30 \text{ cm}$$

$$\begin{array}{r} 4.8 \\ \times 4 \\ \hline 19.2 \end{array} \quad \begin{array}{r} 3.6 \\ \times 3 \\ \hline 10.8 \end{array}$$

30

..... cm

(Total 2 marks)

Q8

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9. (a) Simplify  $2x + 2x$

$$\begin{array}{r} 4x \\ \hline \end{array} \quad (1)$$

(b) Simplify  $5y - 2y$

$$\begin{array}{r} 3y \\ \hline \end{array} \quad (1)$$

(c) Simplify  $2 \times 4p$

$$\begin{array}{r} 8p \\ \hline \end{array} \quad (1)$$

(Total 3 marks)

Q9

10. In the morning Fred walks 400 m from home to school.  
After school, he walks 400 m from school to home.

Fred walks to school and back from school on 5 days.

How far does Fred walk in total?  
Give your answer in kilometres.

$$5(800) = 4000 \text{ m}$$

$$\frac{4000}{1000} = 4 \text{ km}$$

$$\dots\dots\dots 4 \dots\dots\dots \text{ km}$$

Q10

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(Total 3 marks)



11. Here is a rectangle.

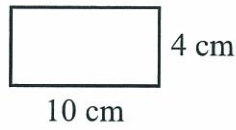


Diagram NOT accurately drawn

The length of the rectangle is 10 cm.  
The width of the rectangle is 4 cm.

(a) Work out the area of the rectangle.

$$10 \times 4 = 40 \text{ cm}^2$$

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

The rectangle is to be enlarged by scale factor 2

(b) Work out the length and the width of the enlarged rectangle.

Length ..... 20 ..... cm

Width ..... 8 ..... cm  
(2)

(Total 4 marks)

Q11



12. Here is an incomplete pictogram.

It shows the numbers of cars in a car park at 4 pm on Monday, Tuesday and Wednesday of one week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key represents 4 cars

(a) Write down the number of cars in the car park at 4 pm on Monday.

12  
.....  
(1)

(b) Write down the number of cars in the car park at 4 pm on Tuesday.

9  
.....  
(1)

On Thursday, there were 16 cars in the car park at 4 pm.

(c) Show this on the pictogram.

(1)

On Friday, there were 10 cars in the car park at 4 pm.

(d) Show this on the pictogram.

(1)

(Total 4 marks)

Q12



13. Here are 5 rows of numbers.

<b>Row A</b>	2	4	6	8	10	12	14	16
<b>Row B</b>	3	5	7	9	11	13	15	17
<b>Row C</b>	2	3	5	7	11	13	17	.....
<b>Row D</b>	1	2	5	10	20	50	100	200
<b>Row E</b>	1	2	4	8	16	32	64	.....

All the numbers are even in one of the rows.

(a) Which row?

A  
.....  
(1)

The numbers in row C are the first 7 prime numbers written in order of size.

(b) Write down the next prime number.

19  
.....  
(1)

(c) Write down a square number from row D.

$1^2 = 1$  or  $10^2 = 100$

100  
.....  
(1)

The numbers in row E are the first seven numbers of a sequence.

(d) Work out the next number in the sequence.

$2(64) = 128$

128  
.....  
(1)

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(Total 4 marks)

Q13



14. (a) What is the sum of the angles in a triangle?

180 °  
.....  
(1)

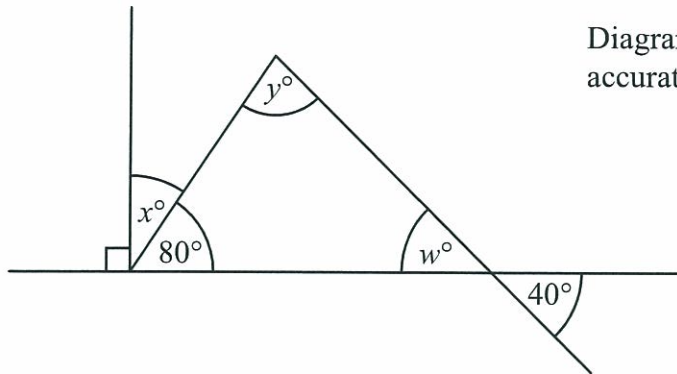


Diagram NOT accurately drawn

(b) (i) Write down the value of  $w$ .

40°  
.....

(ii) Give a reason for your answer.

Vertically opposite angles are equal.  
.....  
(2)

(c) Work out the value of  $x$ .

$x = 90 - 80 = 10^\circ$   
 $y = 180 - (80 + 40)$   
 $= 180 - 120$   
 $= 60^\circ$   
.....  
(1)

(d) Work out the value of  $y$ .

60°  
.....  
(2)

(Total 6 marks)

Q14



15. Here is a menu in a café.

Menu	
Starter	Main Course
Soup	Chicken
Melon	Fish
	Omelette

A meal is a starter and a main course.  
One possible meal is Soup and Chicken, (S, C).

Charlie wants to choose a meal.

- (a) Make a list of all the different meals she can have.  
One has been done for you.

(S, C) ... (S, F) ... (S, O) ... (M, C) ... (M, F) ... (M, O) ...

(2)

A meal is chosen at random.

- (b) What is the probability that the meal will be Melon and Chicken?

$$P(M, C) = \frac{n(M, C)}{n(S)} = \frac{1}{6}$$

→ no. of ways of choosing melon and chicken  
→ overall no. of meals possible

(1)

The café adds fruit juice as another starter.

Charlie says 'Now there will be one more meal to choose from'.

- (c) Show that Charlie is wrong.

There will be 3 additional meals to choose from given by (J, C), (J, F) and (J, O), where J is fruit juice.

(1)

Q15



16. Here is a sketch of a quadrilateral.

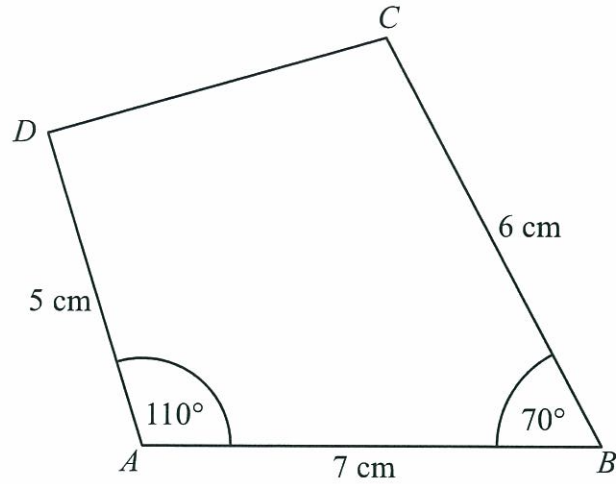
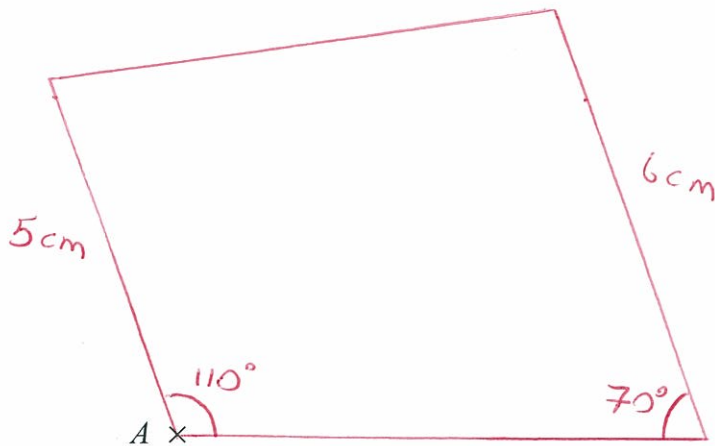


Diagram NOT accurately drawn

Make an accurate drawing of the quadrilateral ABCD in the space below. The point A, marked with a cross (×), has been drawn for you.



Q16

(Total 4 marks)





17. (a) Work out  $\frac{2}{3} \times \frac{9}{10}$

Give your answer in its simplest form.

$$\frac{2 \times 9}{3 \times 10} = \frac{18}{30} = \frac{9}{15} = \frac{3}{5}$$

$$\frac{3}{5}$$

.....

(2)

(b) Eric, the cat, eats  $\frac{2}{3}$  of a tin of cat food every day.

How much cat food will Eric eat in 7 days?

$$\frac{2}{3} \times 7 = \frac{7 \times 2}{3} = \frac{14}{3} = 4 \frac{2}{3}$$

$$4 \frac{2}{3}$$

..... tins

(2)

(Total 4 marks)

Q17



18. There are only red counters, blue counters and green counters in a bag.  
 There are 5 red counters.  
 There are 6 blue counters.  
 There is 1 green counter.

Jim takes at random a counter from the bag.

(a) (i) Work out the probability that he takes a red counter.

$$P(R) = \frac{n(R)}{n(S)} = \frac{5}{12}$$

total no. of counters

$$\frac{5}{12}$$

(ii) Work out the probability that he takes a counter that is **not** red.

$$P(\text{not red}) = P(\text{blue or green}) = \frac{6+1}{12} = \frac{7}{12}$$

$$\frac{7}{12}$$

(3)

Jim puts the counter back in the bag.  
 He then puts some more green counters into the bag.

The probability of taking at random a red counter is now  $\frac{1}{3}$

(b) Work out the number of green counters that are now in the bag.

$$P(R) = \frac{n(R)}{n(S)} = \frac{5}{n(S)} = \frac{1}{3}$$

$$\Rightarrow n(S) = 5 \div \frac{1}{3} = 5 \times \frac{3}{1} = 15$$

$$\therefore \text{No. of green counters added} = 15 - 12 = 3.$$

And total no. of green counters now in the bag = 1 + 3 = 4

$$4$$

(2)

(Total 5 marks)

Q18



19. Work out an estimate for the value of  
Give your answer as a decimal.

$$\frac{60.2 \times 0.799}{223}$$

$$\frac{60 \times 0.8}{220} = \frac{48}{220} = \frac{24}{110} = \frac{12}{55} \approx \frac{11}{55}$$

$$\frac{11}{55} = \frac{1}{5} = 0.2$$

0.2

Q19

(Total 3 marks)

20. (a) Solve  $13x+1=11x+8$

$$2x + 1 = 8$$

$$\Rightarrow x = \frac{8-1}{2} = \frac{7}{2} = 3\frac{1}{2} \text{ or } 3.5$$

$x = 3.5$

(2)

(b) Solve  $\frac{2y}{5} = 4$

$$2y = 4 \times 5 = 20$$

$$\Rightarrow y = \frac{20}{2} = 10$$

$y = 10$

(2)

Q20

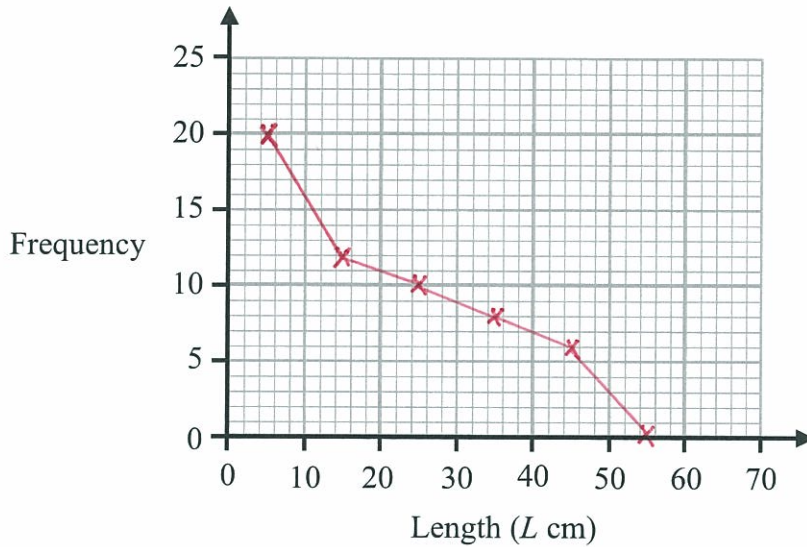
(Total 4 marks)



21. The table gives information about the lengths of the branches on a bush.

Length ( $L$ cm)	Frequency
$0 \leq L < 10$	20
$10 \leq L < 20$	12
$20 \leq L < 30$	10
$30 \leq L < 40$	8
$40 \leq L < 50$	6
$50 \leq L < 60$	0

(a) Draw a frequency polygon to show this information.



(2)

(b) Work out the total number of branches on the bush.

$$20 + 12 + 10 + 8 + 6 = 56$$

$$\underline{\quad 56 \quad}$$

(2)

(c) Write down the modal class interval.

$$\underline{\quad 0 \leq L < 10 \quad}$$

(1)

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(Total 5 marks)

Q21



22. (a) Simplify  $2a + 3b - a - b$

$$\underline{a + 2b} \quad (2)$$

(b) Expand  $4(2m - 3n)$

$$4(2m) - 4(3n) \\ = 8m - 12n$$

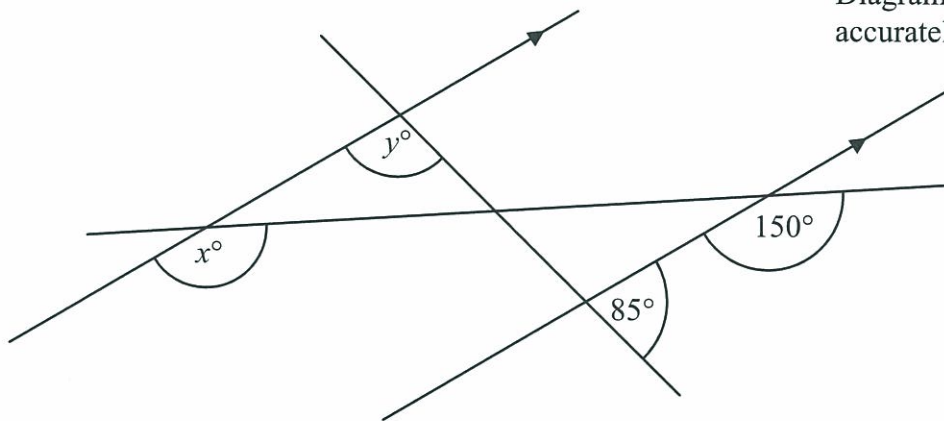
$$\underline{8m - 12n} \quad (1)$$

(Total 3 marks)

Q22

23.

Diagram NOT accurately drawn

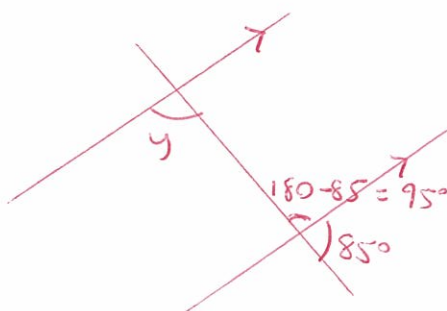


(a) Find the value of  $x$ .

$x$  corresponds with  $150^\circ$  across parallel lines, so  $x = 150^\circ$

$$\underline{150^\circ} \quad (1)$$

(b) Find the value of  $y$ .  
Give reasons for your answer.



$$y = 180 - 85 = 95^\circ$$

Alternate angles (a.k.a. Z angles) are equal and angles across a straight line add to  $180^\circ$

$$\underline{95^\circ} \quad (2)$$

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(Total 3 marks)

Q23

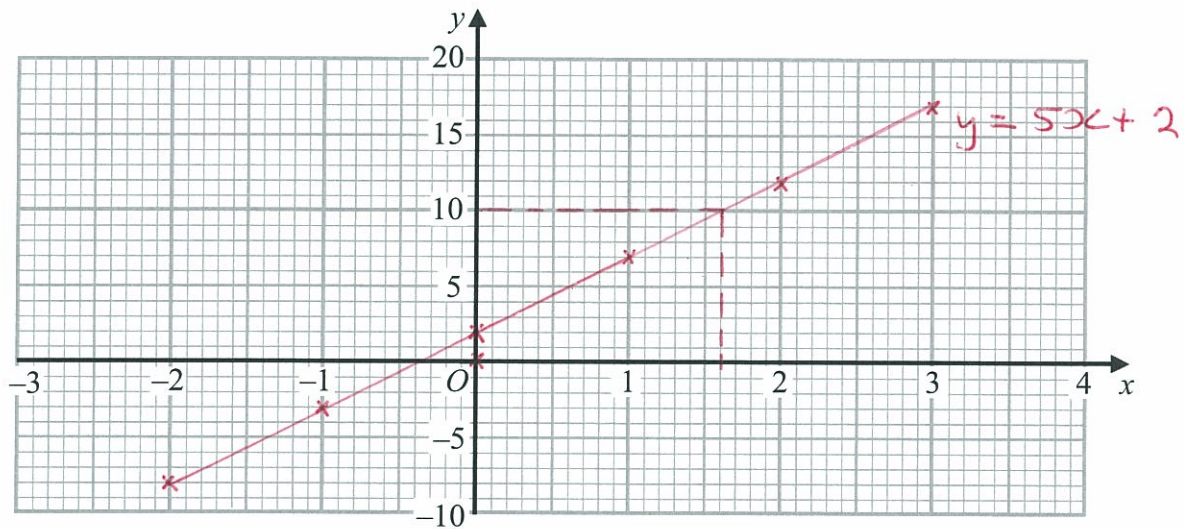


24. (a) Complete the table of values for  $y = 5x + 2$

x	-2	-1	0	1	2	3
y	-8	-3	2	7	12	17

(2)

(b) On the grid, draw the graph of  $y = 5x + 2$  for values of  $x$  from -2 to 3



(2)

(c) Use your graph to estimate the value of  $x$  when  $y = 10$

$x = 1.6$

$1.6$

(1)

Q24

(Total 5 marks)



25.

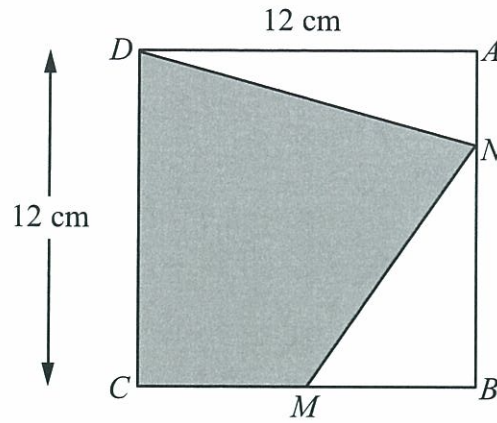


Diagram NOT accurately drawn

$ABCD$  is a square of side 12 cm.  
 $M$  is the midpoint of  $CB$ .  
 $N$  is a point on  $AB$ .

$$AN = \frac{1}{4} AB.$$

Calculate the area of the shaded region  $CDNM$ .

Area of shaded region  $CDNM$  = Area of  $12 \times 12$  square  
 - Area of triangle  $ADN$   
 - Area of triangle  $BMN$

$$= (12 \times 12) - \frac{3(12)}{2} - \frac{6(9)}{2}$$

$$= 144 - 18 - 27$$

$$= 144 - (18 + 27) = 144 - 45$$

$$= 99 \text{ cm}^2$$

..... 99 .....  $\text{cm}^2$

Q25

(Total 6 marks)

TOTAL FOR PAPER: 100 MARKS

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