

Name

Edexcel GCSE

Mathematics A

Higher Tier

Paper 1 (Non-Calculator) 1st 12 Pages

Paper Reference

1MA0/1H

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Total Marks

Instructions

- **Calculators must not be used.**



Paper	Mark	Grade	
June 2009			
November 2009			
June 2010			
November 2010			
June 2011			
November 2011			
March 2012			
June 2012			
November 2012			
March 2013			
June 2013			
November 2013			

Paper	Topics I need to work on

What have I done about it?	

Paper	Topics I need to work on

What have I done about it?	

June 2009.

1. The two-way table gives some information about how 100 children travelled to school one day.

	Walk	Car	Other	Total
Boy	15		14	54
Girl		8	16	
Total	37		30	100

- (a) Complete the two-way table.

(3)

One of the children is picked at random.

- (b) Write down the probability that this child walked to school that day.

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

2. (a) Simplify $4x + 3y - 2x + 5y$

.....
(2)

Compasses cost c pence each.

Rulers cost r pence each.

- (b) Write down an expression for the total cost, in pence, of 2 compasses and 4 rulers.

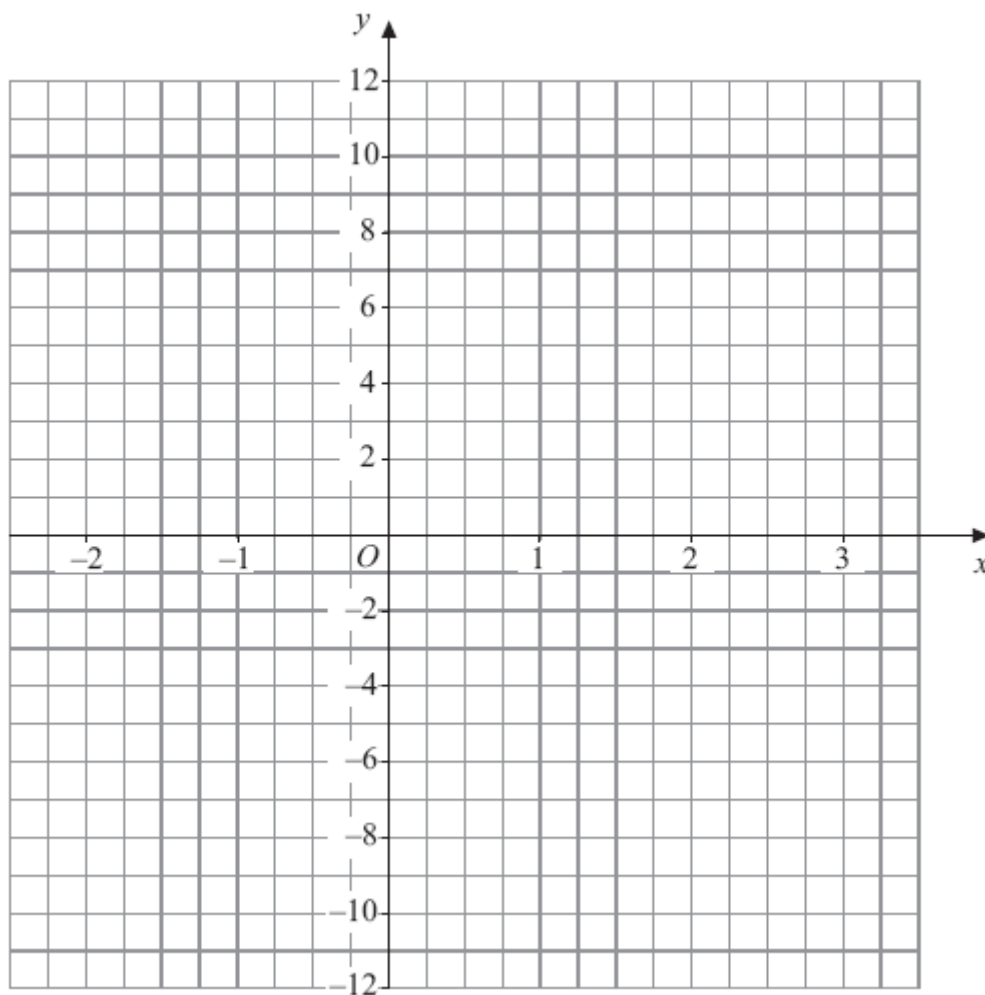
..... pence
(2)
(Total 4 marks)

3. (a) Complete the table of values for $y = 4x - 3$

x	-2	-1	0	1	2	3
y	-11		-3			9

(2)

- (b) On the grid, draw the graph of $y = 4x - 3$, for values of x from -2 to 3



(2)

(Total 4 marks)

4. $P = 4k - 10$

$$P = 50$$

(a) Work out the value of k .

.....
(2)

$$y = 4n - 3d$$

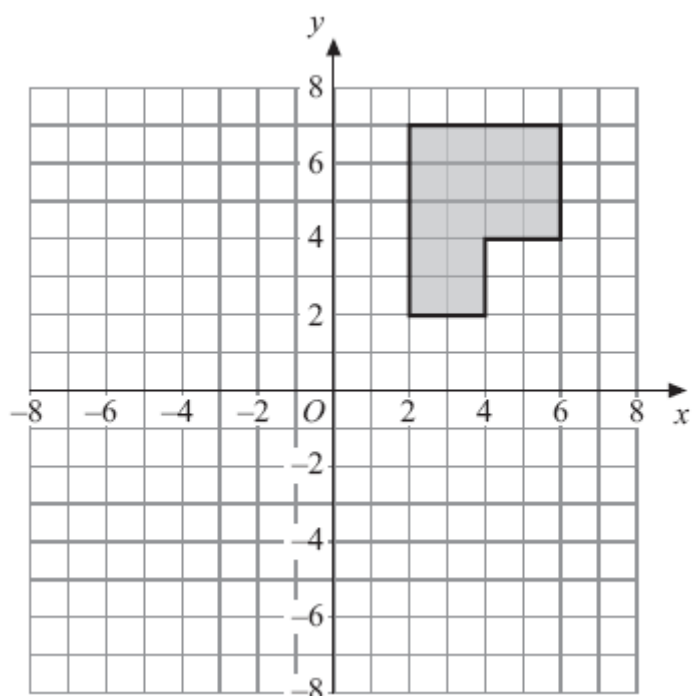
$$n = 2$$

$$d = 5$$

(b) Work out the value of y .

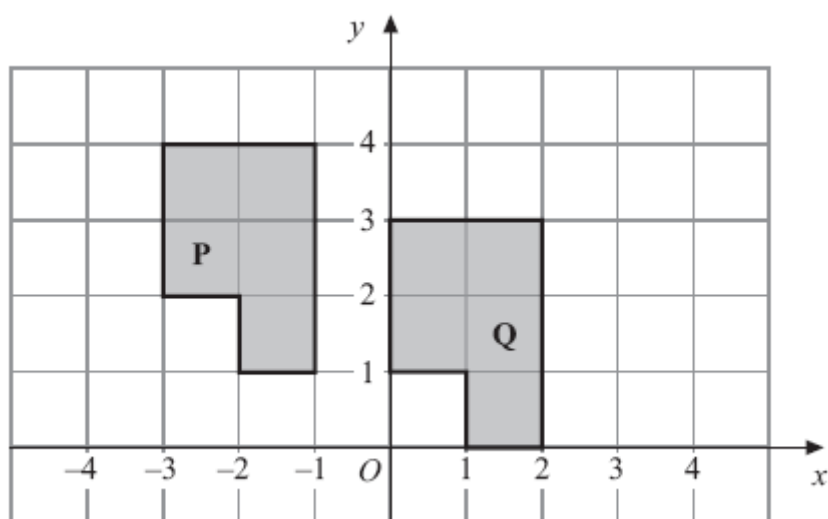
.....
(2)
(Total 4 marks)

5.



(a) Rotate the shaded shape 90° clockwise about the point O .

(2)



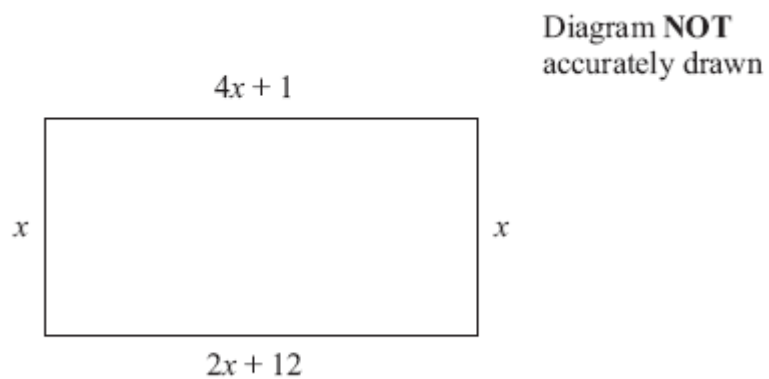
(b) Describe fully the single transformation that will map shape **P** onto shape **Q**.

.....

(2)

(Total 4 marks)

6.



The diagram shows a rectangle.
All the measurements are in centimetres.

- (a) Explain why $4x + 1 = 2x + 12$

.....
(1)

- (b) Solve $4x + 1 = 2x + 12$

$x =$
(2)

- (c) Use your answer to part (b) to work out the perimeter of the rectangle.

..... cm
(2)
(Total 5 marks)

7. Use the information that

$$322 \times 48 = 15\,456$$

to find the value of

(a) 3.22×4.8

.....
(1)

(b) 0.322×0.48

.....
(1)

(c) $15\,456 \div 4.8$

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

8. $2x^2 = 2$

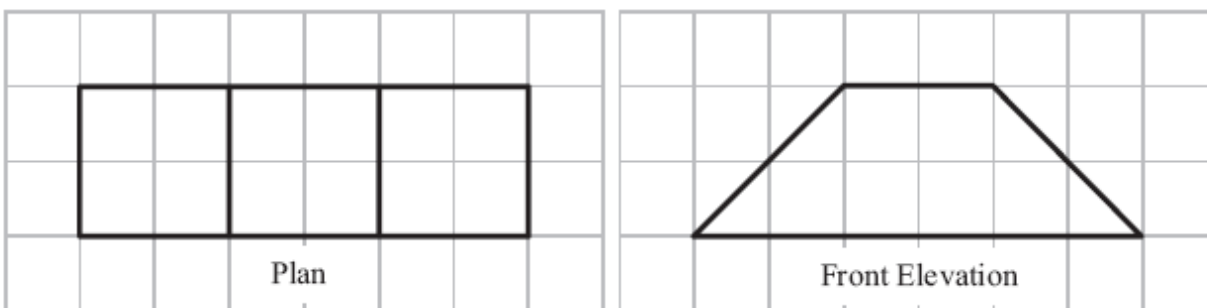
- (a) Find a value of x .

.....
(2)

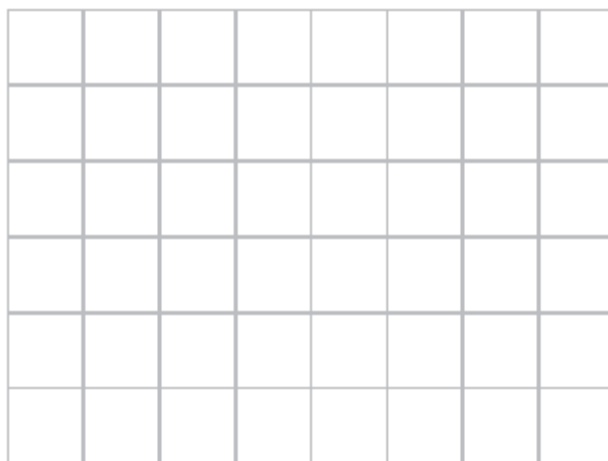
- (b) Express 72 as a product of its prime factors.

.....
(2)
(Total 4 marks)

9. Here are the plan and front elevation of a solid shape.



- (a) On the grid below, draw the side elevation of the solid shape.



(2)

- (b) In the space below, draw a sketch of the solid shape.

(2)

(Total 4 marks)

10. There are 40 litres of water in a barrel.

The water flows out of the barrel at a rate of 125 millilitres per second.

1 litre = 1000 millilitres.

Work out the time it takes for the barrel to empty completely.

..... seconds

(Total 3 marks)

11. The length of a line is 63 centimetres, correct to the nearest centimetre.

(a) Write down the **least** possible length of the line.

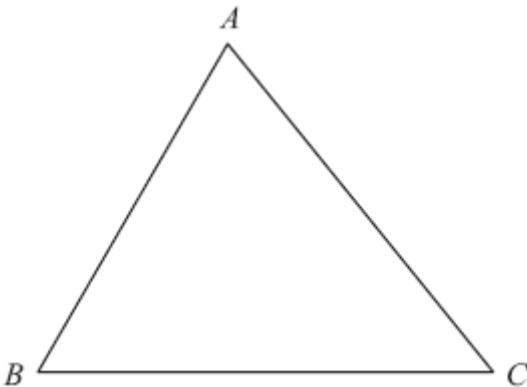
..... centimetres
(1)

(b) Write down the **greatest** possible length of the line.

..... centimetres
(1)

(Total 2 marks)

12.



ABC is a triangle.

Shade the region inside the triangle which is **both**

less than 4 centimetres from the point B
and closer to the line AC than the line AB .

(Total 4 marks)

13. Fred is going to take a survey of the magazines read by students.

He wants to design a questionnaire.

- (a) Design a suitable question that he could use to find out what types of magazine students read.

(2)

Fred put the question below on his questionnaire.

‘How many magazines have you read?’

☐

A few

☐

A lot

- (b) Design a better question.
You should include some response boxes.

(2)

(Total 4 marks)

- 14.** Work out an estimate for the value of

$$\frac{6.8 \times 191}{0.051}$$

.....
(Total 3 marks)

- 15.** (a) Write 64 000 in standard form.

.....
(1)

- (b) Write 156×10^{-7} in standard form.

.....
(1)
(Total 2 marks)

- 16.** (a) Factorise fully $4x^2 - 6xy$

.....
(2)

- (b) Factorise $x^2 + 5x - 6$

.....
(2)
(Total 4 marks)

17.

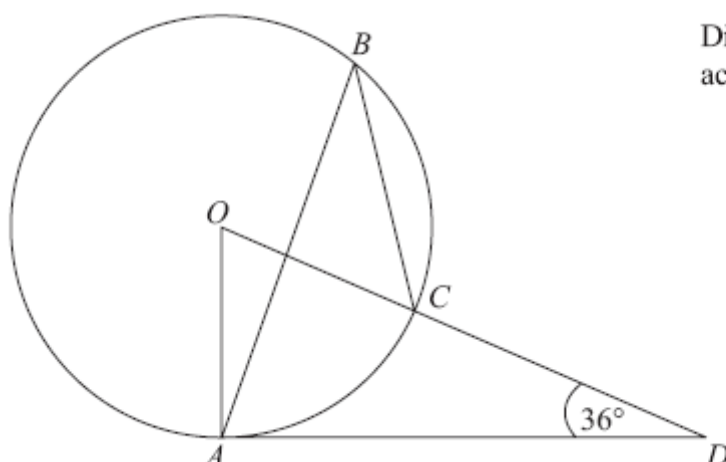


Diagram **NOT**
accurately drawn

The diagram shows a circle centre O .
 A , B and C are points on the circumference.

DCO is a straight line.
 DA is a tangent to the circle.

Angle $ADO = 36^\circ$

(a) Work out the size of angle AOD .

.....^o
(2)

(b) (i) Work out the size of angle ABC .

.....^o

(ii) Give a reason for your answer.

.....
(3)
(Total 5 marks)

November 2009.

1. Using the information that

$$74 \times 234 = 17\,316$$

write down the value of

(a) 740×234

.....
(1)

(b) 74×2.34

.....
(1)

(Total 2 marks)

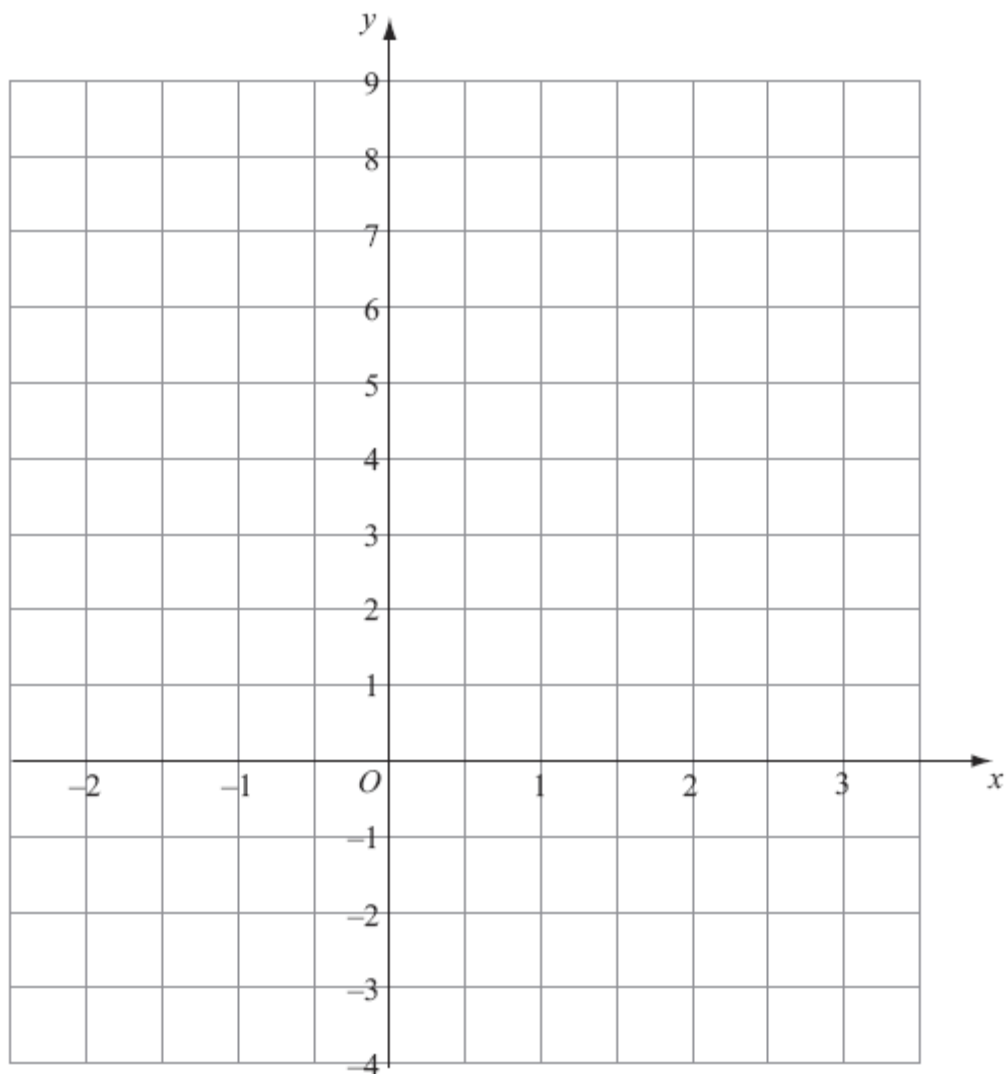
2. Work out an estimate for the value of $\frac{31 \times 4.92}{0.21}$

.....
(Total 3 marks)

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

x	-2	-1	0	1	2	3
y		0	2			

- (b) On the grid, draw the graph of $y = 2x + 2$



(2)

- (c) Use your graph to find

(i) the value of y when $x = -1.5$

$y = \dots\dots\dots$

(ii) the value of x when $y = 7$

$x = \dots\dots\dots$

(2)

(Total 6 marks)

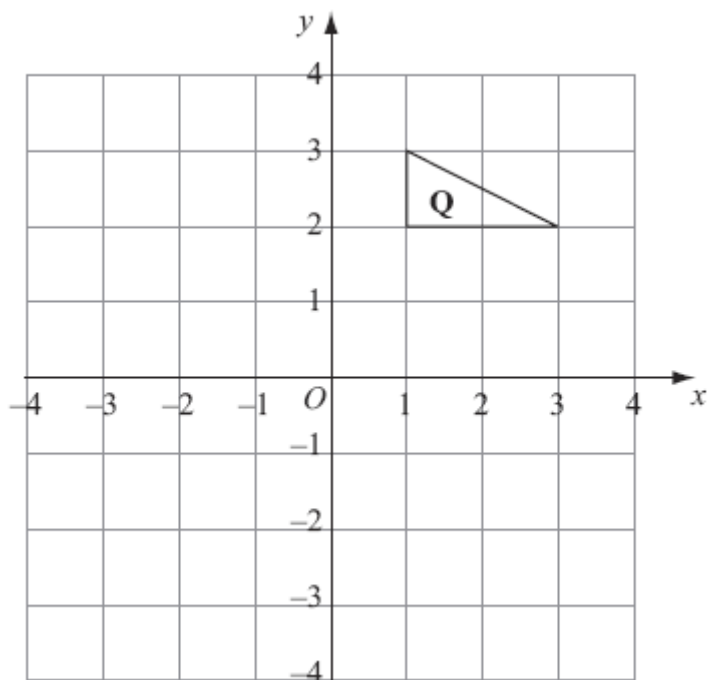
4.



Triangle **P** has been drawn on a grid.

- (a) On the grid, draw an enlargement of the triangle **P** with scale factor 3

(2)



Triangle **Q** has been drawn on a grid.

- (b) On the grid, rotate triangle **Q** 90° clockwise, centre O .

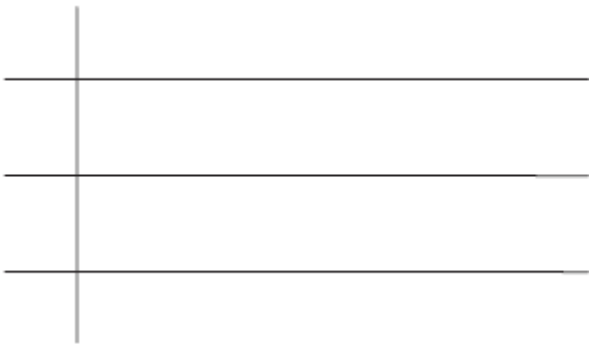
(3)

(Total 5 marks)

5. Here are the weights in grams, to the nearest gram, of 15 eggs.

33	46	41	54	51
38	60	44	55	51
62	55	52	37	63

- (a) Complete the ordered stem and leaf diagram to show this information.
You must include a key.



Key

(3)

Meg is going to pick at random one of the eggs.

- (b) Work out the probability that this egg will have a weight of more than 45 grams.

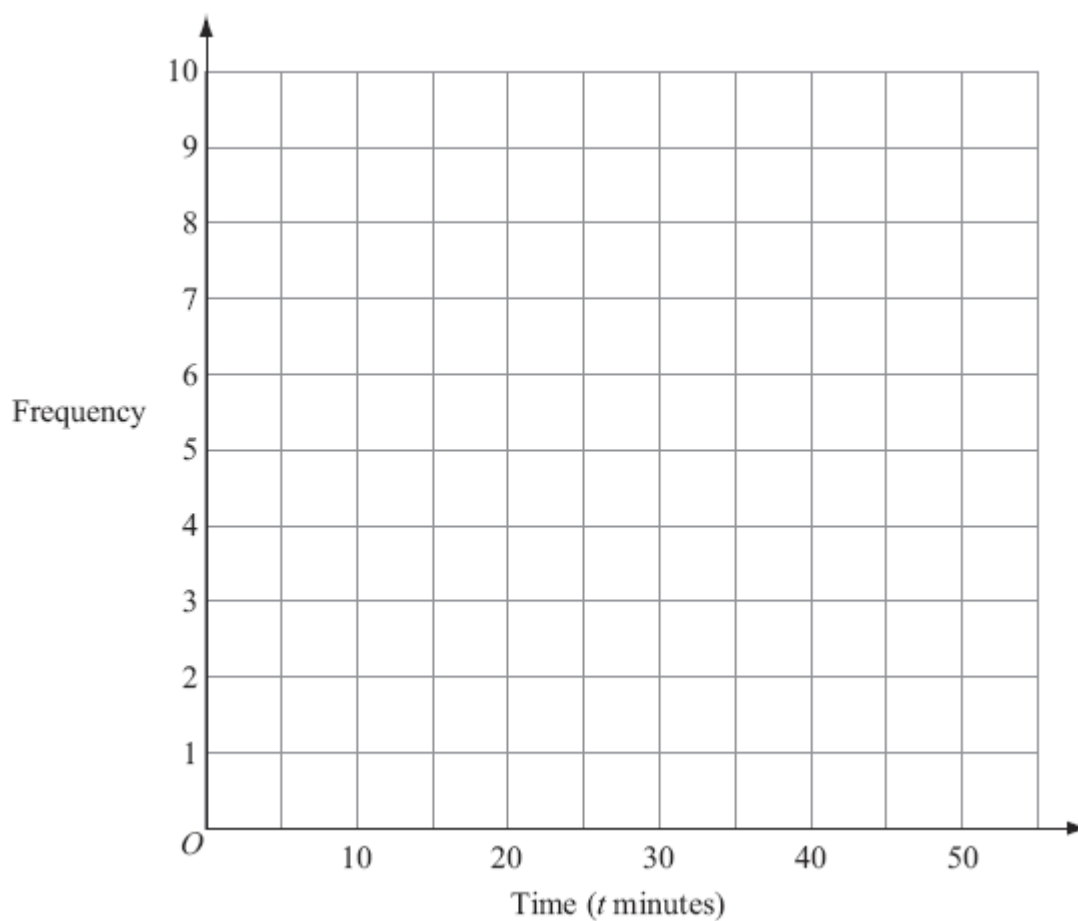
.....
(2)

(Total 5 marks)

6. 30 students took a test.
The table shows information about how long it took them to complete the test.

Time (t minutes)	Frequency
$0 < t \leq 10$	5
$10 < t \leq 20$	7
$20 < t \leq 30$	8
$30 < t \leq 40$	6
$40 < t \leq 50$	4

- (a) On the grid, draw a frequency polygon for this information.



(2)

- (b) Write down the modal class interval.

(1)

(Total 3 marks)

7. (a) Work out $\frac{3}{8} + \frac{1}{4}$

Give your answer in its simplest form.

.....
(2)

(b) Work out $\frac{2}{3} \times \frac{4}{5}$

.....
(2)

(c) Work out 423×12

You **must** show **all** your working.

.....
(3)
(Total 7 marks)

8. Simon wants to find out how much people spend using their mobile phone.

He uses this question on a questionnaire.

How much do you spend using your mobile phone?		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
£1–£5	£5–£10	£10–£15

- (a) Write down **two** things that are wrong with this question.

1

.....

2

.....

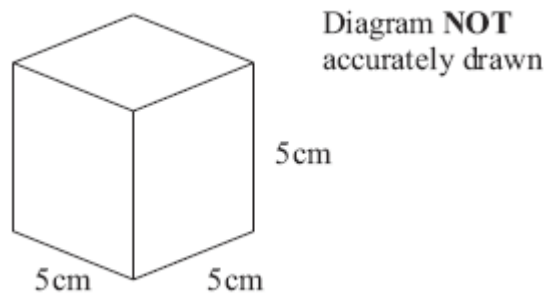
(2)

- (b) Design a better question for his questionnaire to find out how much people spend using their mobile phone.
You should include some response boxes.

(2)

(Total 4 marks)

9. (a) A solid cube has sides of length 5 cm.



Work out the total surface area of the cube.
State the units of your answer.

.....
(4)

The volume of the cube is 125 cm^3 .

- (b) Change 125 cm^3 into mm^3 .

..... mm^3
(2)

The weight of the cube is 87 grams, correct to the nearest gram.

- (c) (i) What is the minimum the weight could be?

..... grams

- (ii) What is the maximum the weight could be?

..... grams
(2)

(Total 8 marks)

10. (a) Simplify $3a + 4c - a + 3c$

.....
(2)

(b) Expand $y(2y - 3)$

.....
(1)

(c) Factorise $x^2 - 4x$

.....
(2)

(d) Expand and simplify $2(x + 3) + 3(2x - 1)$

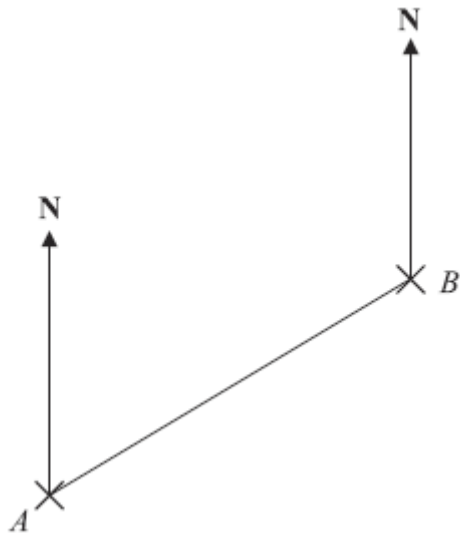
.....
(2)

(e) Solve $3(x + 2) = 8$

$x =$
(2)

(Total 9 marks)

11. The diagram shows the positions of two telephone masts, A and B , on a map.



(a) Measure the bearing of B from A .

.....°
(1)

Another mast C is on a bearing of 160° from B .

On the map, C is 4 cm from B .

(b) Mark the position of C with a cross (×) and label it C .

(2)

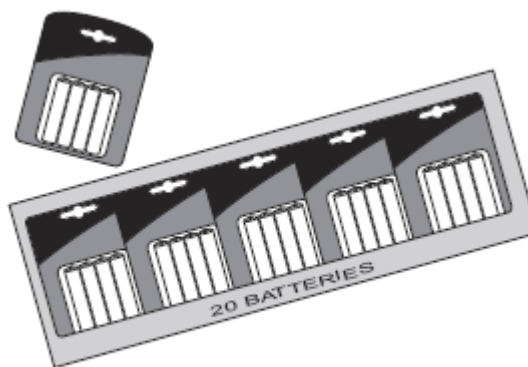
(Total 3 marks)

12. Batteries are sold in packets and boxes.

Each packet contains 4 batteries.
Each box contains 20 batteries.

Bill buys p packets of batteries
and b boxes of batteries.

Bill buys a total of N batteries.
Write down a formula for N in
terms of p and b .



.....
(Total 3 marks)

13. (a) Write in standard form 213 000

.....
(1)

- (b) Write in standard form 0.00123

.....
(1)

(Total 2 marks)

14. (a) Write down the value of 5^0

.....
(1)

- (b) Write down the value of 2^{-1}

.....
(1)

(Total 2 marks)

15. k is an integer such that $-1 \leq k < 3$

(a) List all the possible values of k .

.....
(2)

(b) Solve the inequality $6y \geq y + 10$

.....
(2)

(Total 4 marks)

16. Make q the subject of the formula $5(q + p) = 4 + 8p$
Give your answer in its simplest form.

$q =$
(Total 3 marks)

June 2010

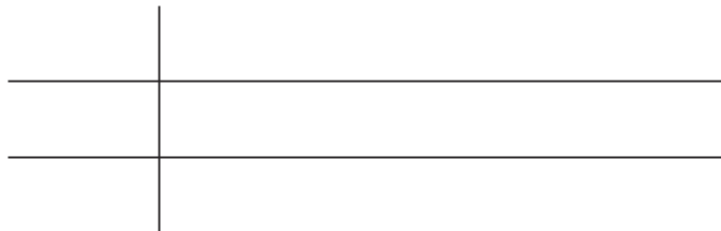
1. Simplify $6x + 9y + 2x - 3y$

.....
(Total 2 marks)

2. Here are the weights, in grams, of 16 eggs.

47	45	50	53	43	61	53	62
58	56	57	47	55	62	58	58

Draw an ordered stem and leaf diagram to show this information.
You must include a key.



Key:

(Total 3 marks)

3.

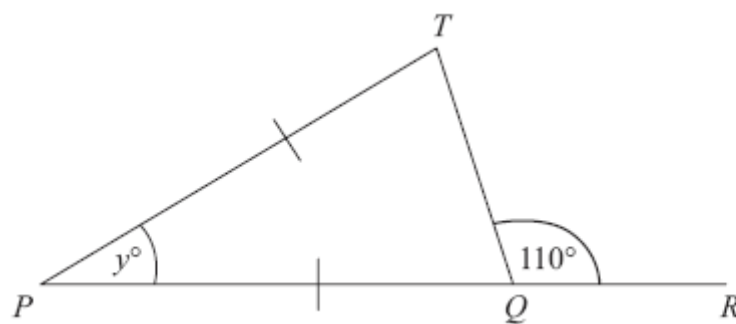


Diagram **NOT**
accurately drawn

PQR is a straight line.

$PT = PQ$.

(i) Work out the value of y .

.....

(ii) Give reasons for your answer.

.....

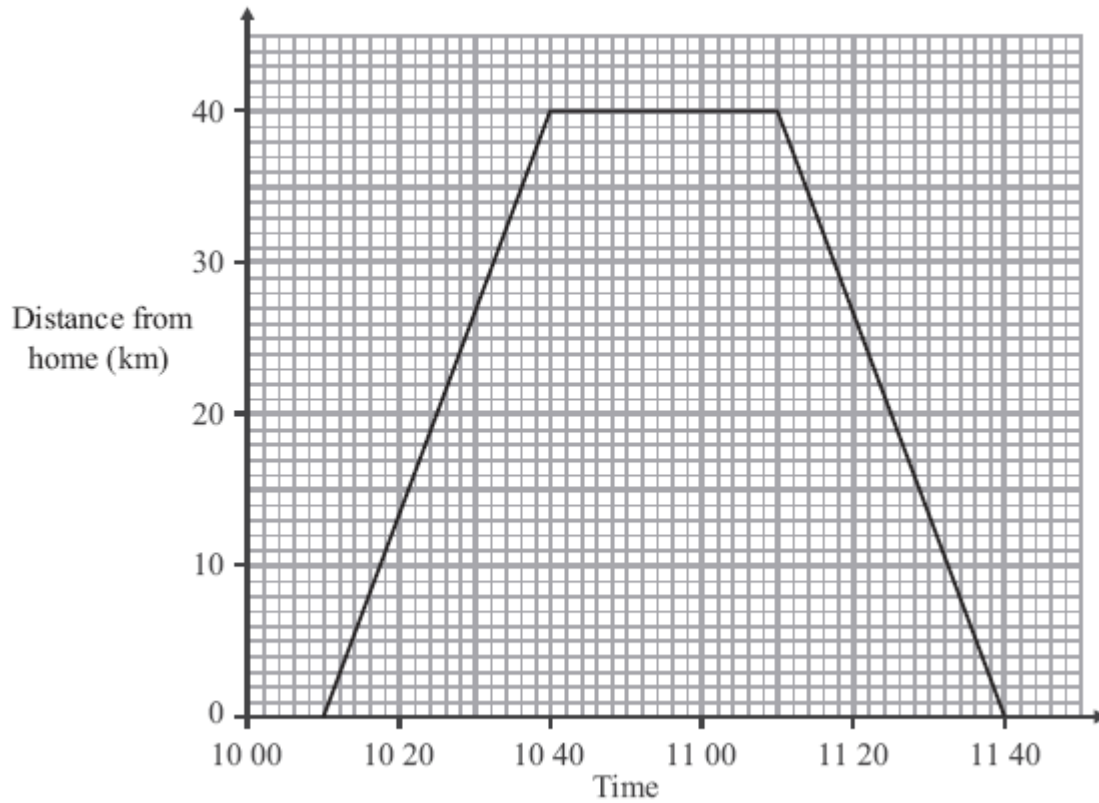
.....

.....

(Total 4 marks)

4. Nigel travelled from his home to his friend's house 40 km away.
Nigel stayed for some time at his friend's house before returning home.

Here is a distance-time graph for Nigel's journey.



- (a) At what time did Nigel leave home?

.....
(1)

- (b) How far was Nigel from home at 10 20?

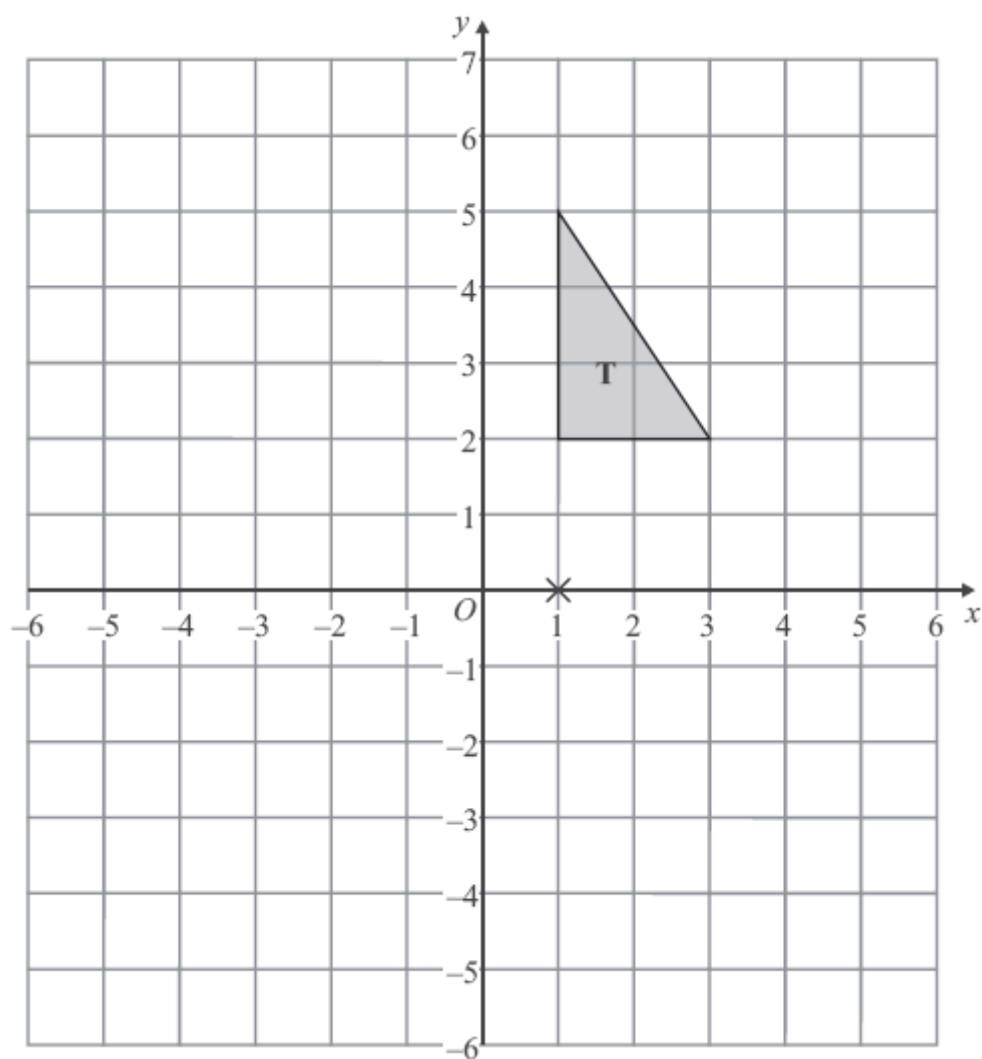
..... km
(1)

- (c) How many minutes did Nigel spend at his friend's house?

..... minutes
(1)

(Total 3 marks)

5.



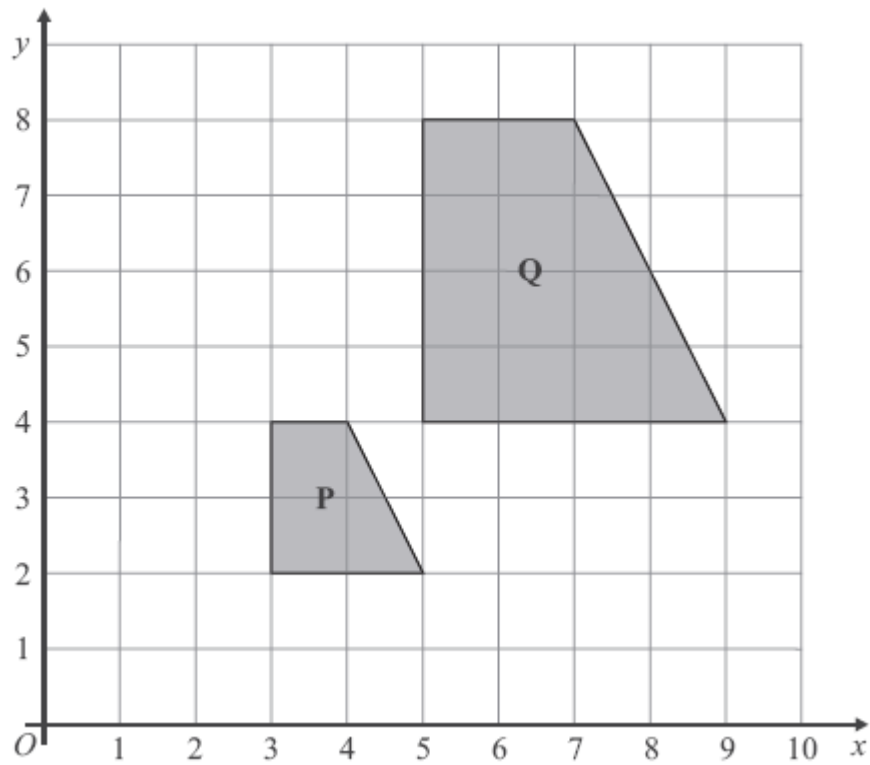
Triangle **T** has been drawn on the grid.

Rotate triangle **T** 180° about the point (1, 0).

Label the new triangle **A**.

(Total 2 marks)

6.



Describe fully the single transformation which maps shape **P** onto shape **Q**.

.....

.....

(Total 3 marks)

7. Anna and Bill share £40 in the ratio 2 : 3

Work out how much each person gets.

Anna £.....

Bill £.....

(Total 3 marks)

8. Sasha carried out a survey of 60 students.
She asked them how many CDs they each have.

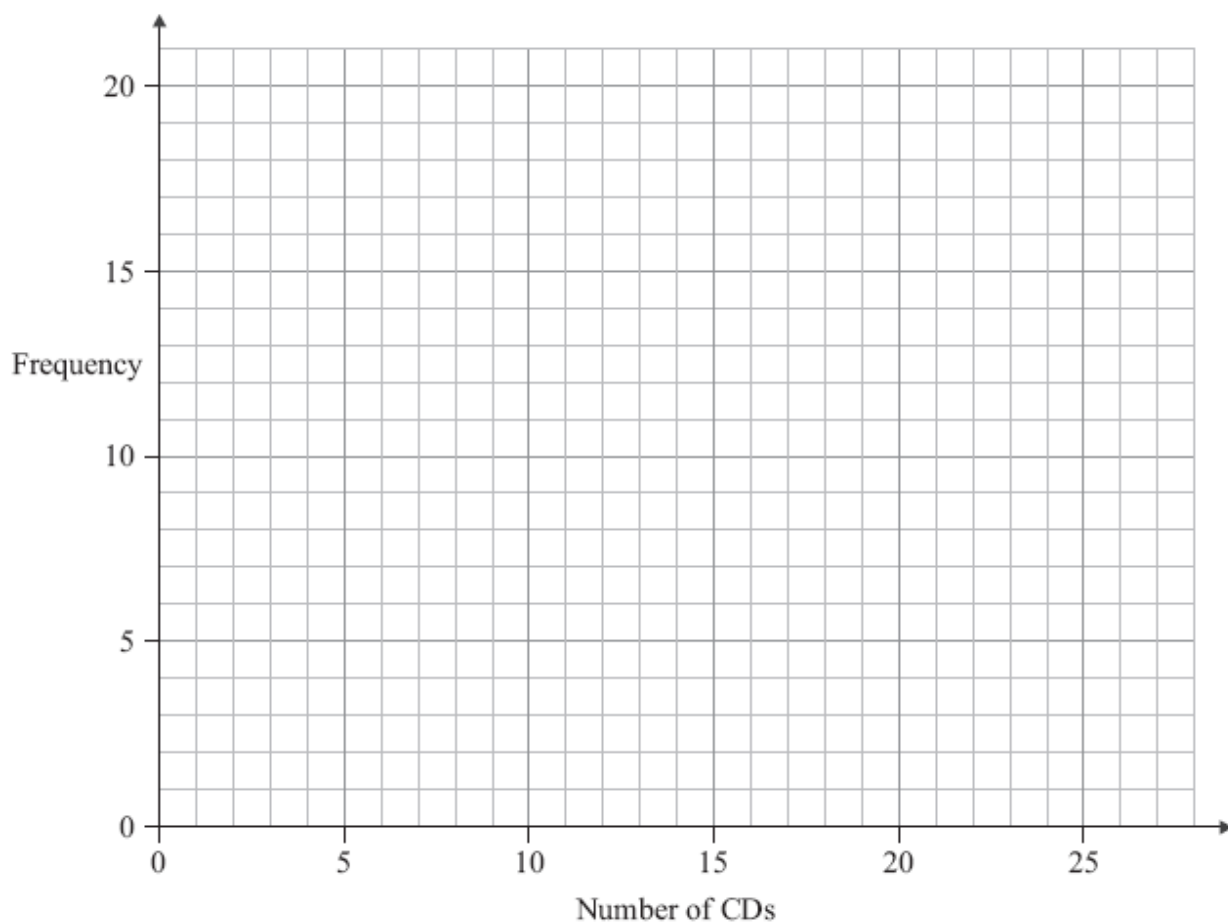
This table shows information about the numbers of CDs these students have.

Number of CDs	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24
Frequency	8	11	9	14	18

- (a) Write down the class interval containing the median.

.....
(1)

- (b) On the grid, draw a frequency polygon to show the information given in the table.



(2)

(Total 3 marks)

9.

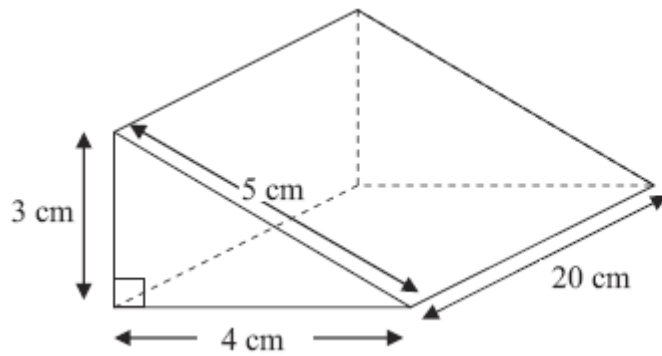


Diagram **NOT**
accurately drawn

Work out the volume of the triangular prism.

..... cm³

(Total 2 marks)

10. Work out 4.52×36

.....

(Total 3 marks)

11. There are 300 people in the cinema.

$\frac{1}{6}$ of the 300 people are boys.

$\frac{3}{10}$ of the 300 people are girls.

The rest of the people are adults.

Work out how many people are adults.

.....
(Total 4 marks)

- 12.

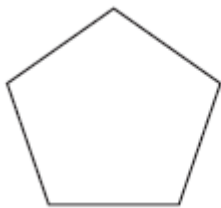


Diagram **NOT**
accurately drawn

Work out the size of an exterior angle of a regular pentagon.

..... °
(2 marks)

13. Anil wants to find out how many DVDs people buy.
He uses this question on a questionnaire.

How many DVDs do you buy?			
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 – 5	5 – 10	10 – 15	15 – 20

Write down **two** different things wrong with this question.

- 1
-
- 2
-

(Total 2 marks)

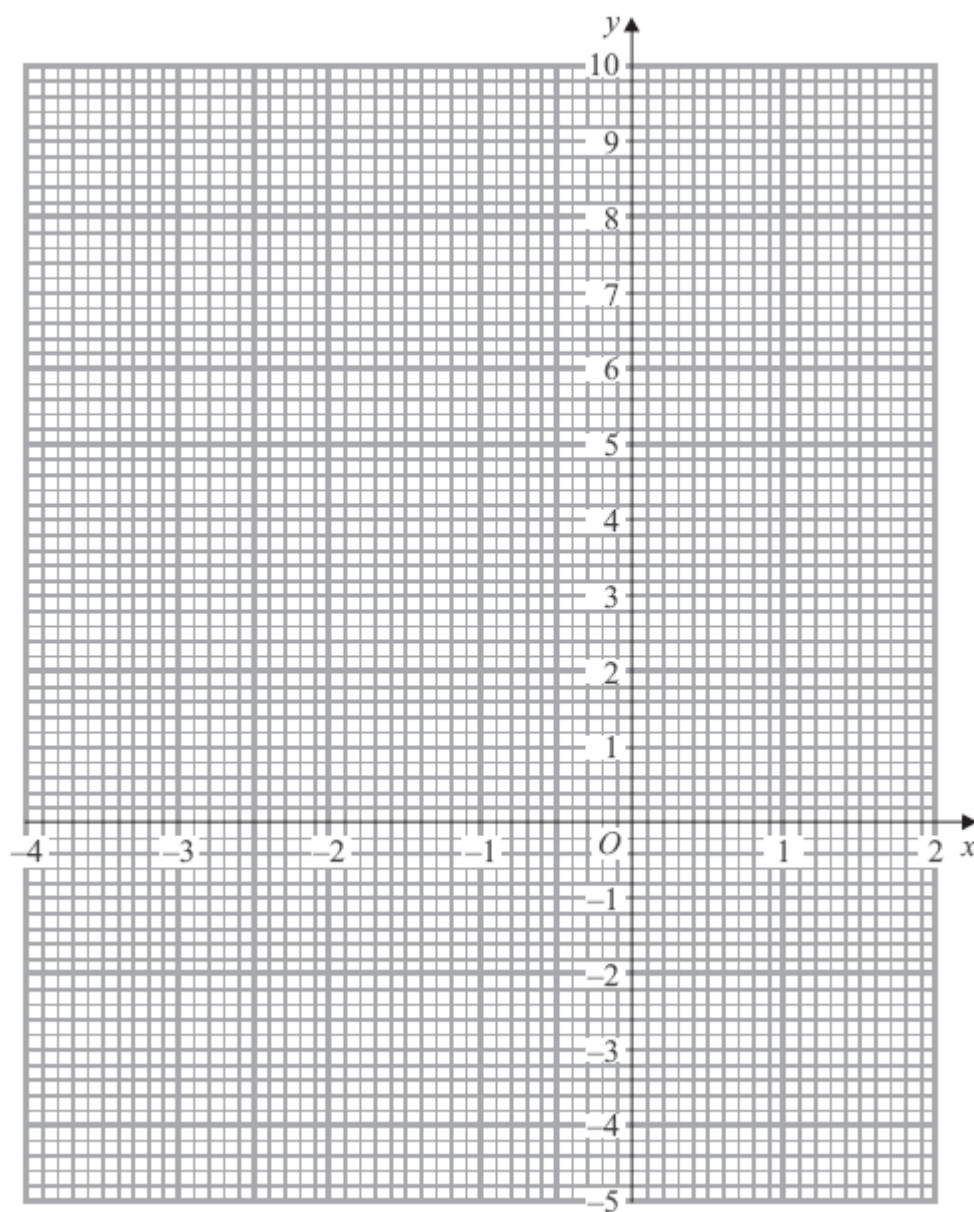
14. (a) Complete the table of values for $y = x^2 + x - 3$

x	-4	-3	-2	-1	0	1	2
y	9		-1	-3			3

(2)

- (b) On the grid below, draw the graph of $y = x^2 + x - 3$ for values of x from -4 to 2

(2)



(c) Use your graph to find estimates for the solutions of $x^2 + x - 3 = 0$

$x = \dots\dots\dots$

$x = \dots\dots\dots$

(1)

(Total 5 marks)

15. Express 180 as a product of its prime factors.

$\dots\dots\dots$

(Total 3 marks)

16. Work out $3\frac{1}{4} \times 2\frac{2}{3}$

Give your answer in its simplest form.

$\dots\dots\dots$

(Total 3 marks)

17. (a) Factorise $3x + 12$

.....
(1)

(b) Solve $4(2x - 3) = 5x + 7$

$x =$
(3)

(c) Expand and simplify $(y + 4)(y + 5)$

.....
(2)

(d) Factorise fully $8x^2 + 12xy$

.....
(2)

(Total 6 marks)

November 2010

1. A box contains milk chocolates and dark chocolates only.
The number of milk chocolates to the number of dark chocolates is in the ratio 2 : 1

There are 24 milk chocolates.

Work out the total number of chocolates.

.....
(2 marks)

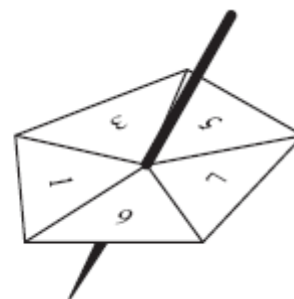
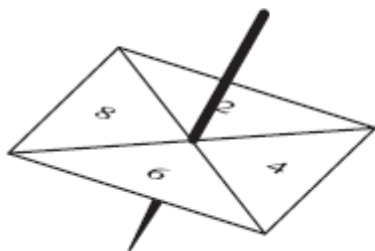
2. (a) Simplify $p \times p \times p \times p$

.....
(1)

- (b) Simplify $2c \times 3d$

.....
(1)

3. Louise spins a four-sided spinner and a five-sided spinner.



The four-sided spinner is labelled 2, 4, 6, 8
The five-sided spinner is labelled 1, 3, 5, 7, 9

Louise adds the score on the four-sided spinner to the score on the five-sided spinner.
She records the possible total scores in a table.

		4-sided spinner			
5-sided spinner	+	2	4	6	8
	1	3	5	7	9
	3	5	7	9	11
	5	7	9	11	13
	7	9	11		
	9	11	13		

- (a) Complete the table of possible total scores.

(1)

- (b) Write down all the ways in which Louise can get a total score of 11
One way has been done for you.

(2, 9).....

(2)

Both spinners are fair.

- (c) Find the probability that Louise's total score is less than 6

(2)

(Total 5 marks)

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

2 6 10 14 18

- (a) Find, in terms of n , an expression for the n th term of this sequence.

.....
(2)

- (b) An expression for the n th term of another sequence is $10 - n^2$

- (i) Find the third term of this sequence.

.....
(2)

- (ii) Find the fifth term of this sequence.

.....
(Total 4 marks)

5.

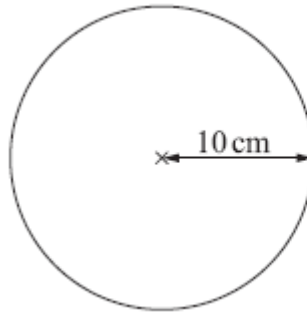


Diagram **NOT**
accurately drawn

The radius of a circle is 10 cm.

Work out the area of this circle.

Use $\pi = 3.14$

.....cm²

(Total 2 marks)

6. Work out an estimate for $\frac{3870}{236 \times 4.85}$

.....

(Total 2 marks)

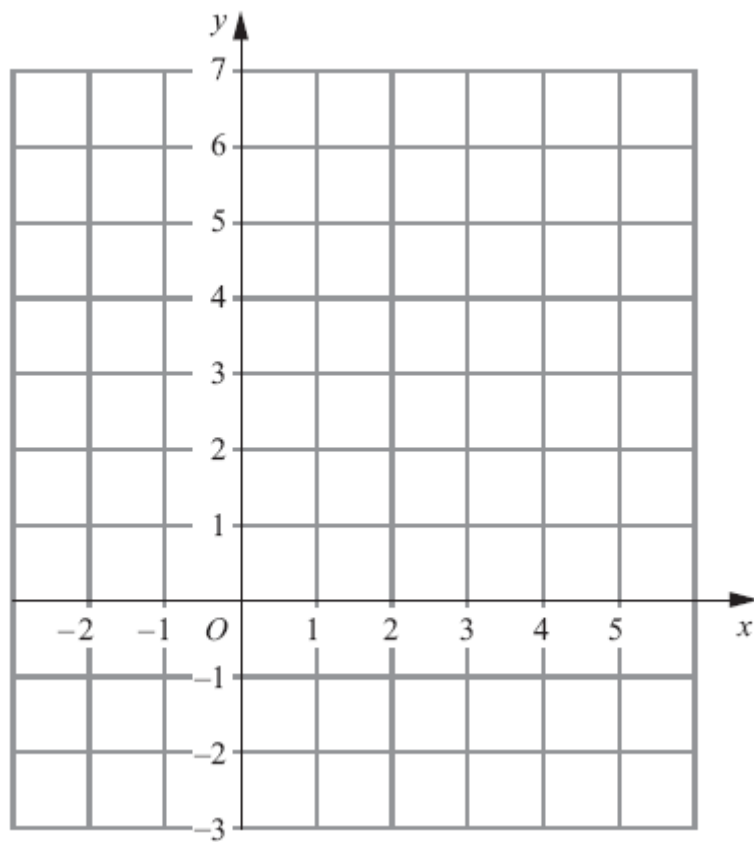
7. Paul drives 175 miles to a meeting.
His company pays him 37p for each mile.

Work out how much the company pays Paul.

£

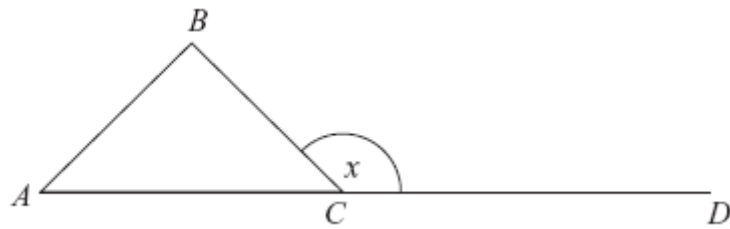
(Total 3 marks)

8. On the grid draw the graph of $x + y = 4$ for values of x from -2 to 5



(Total 3 marks)

9.



ABC is an equilateral triangle.

ACD is a straight line.

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

.....^o
(2)

(b) Give a reason for your answer.

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

(Total 3 marks)

10. Chris plays golf.

Here are 15 of his scores.

69	78	82	86	77
83	91	77	92	80
74	81	83	77	72

(a) Draw an ordered stem and leaf diagram to show this information.

You must include a key.



Key:

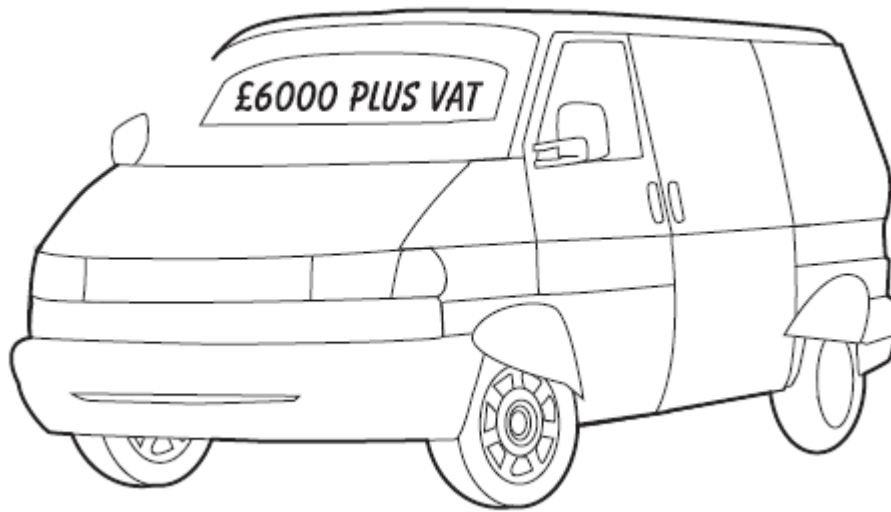
(3)

(b) Write down the mode.

(1)

(Total 4 marks)

11. Lizzie bought a van.
The total cost of the van was £6000 **plus** VAT at $17\frac{1}{2}\%$.



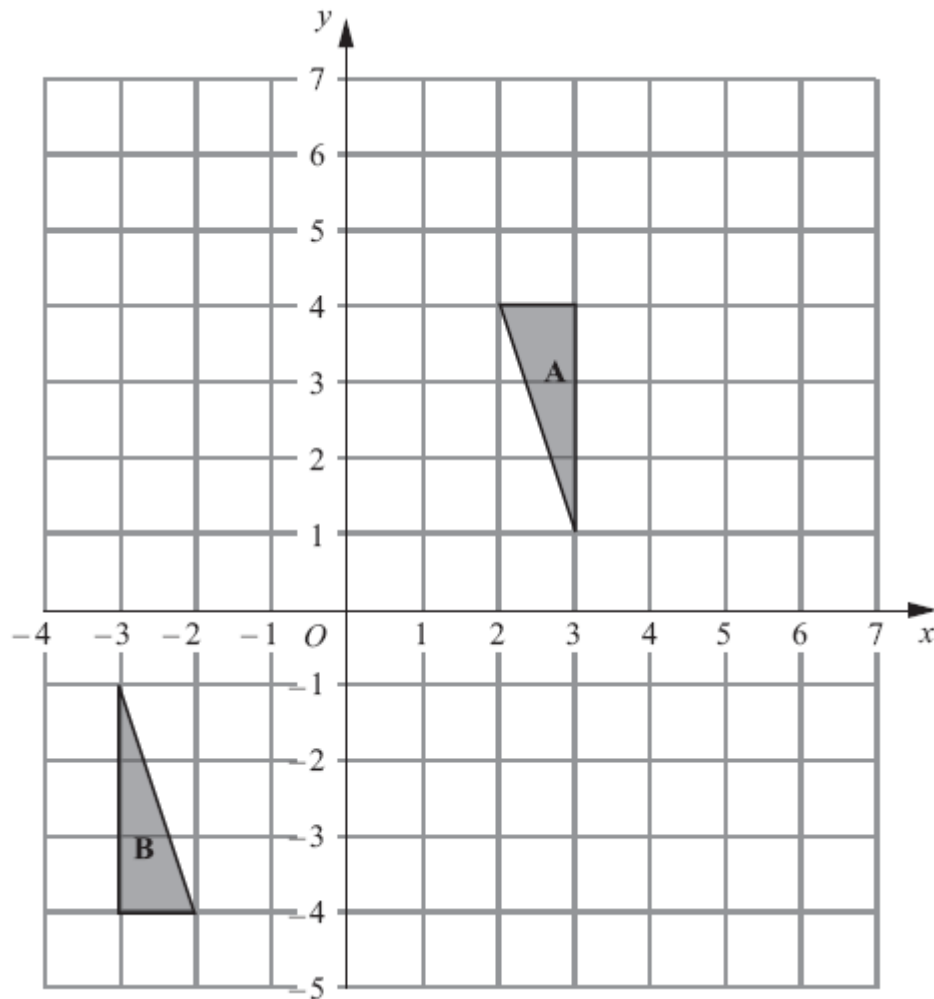
Lizzie paid £3000 when she got the van.
She paid the rest of the total cost of the van in 10 equal monthly payments.

Work out the amount of each monthly payment.

£

(Total 6 marks)

12.



Triangle **A** and triangle **B** are drawn on the grid.

- (a) Describe fully the single transformation which maps triangle **A** onto triangle **B**.

.....

 (3)

- (b) Translate triangle **A** by the vector $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$.

Label the new triangle **C**.

(1)

(Total 4 marks)

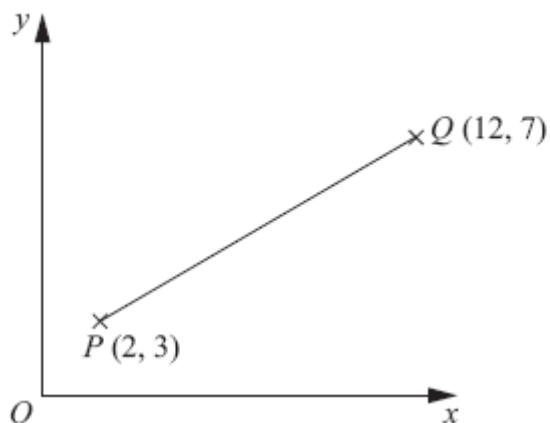
13. Make v the subject of the formula $t = \frac{v}{5} + 2$

$v = \dots\dots\dots$

(Total 2 marks)

14.

Diagram **NOT**
accurately drawn



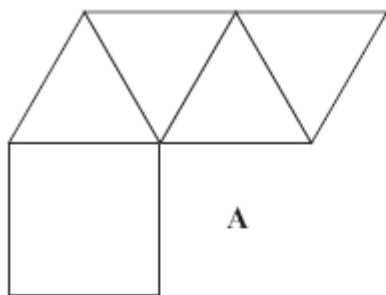
P is the point with coordinates (2, 3).
 Q is the point with coordinates (12, 7).

Work out the coordinates of the midpoint of the line PQ .

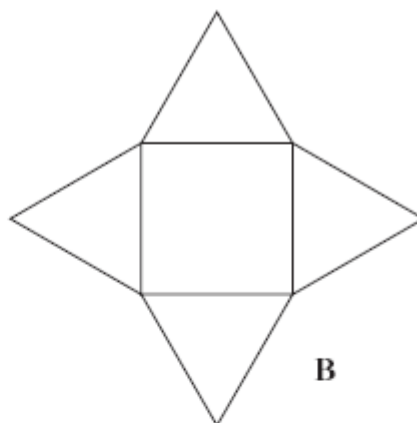
(..... ,)

(Total 2 marks)

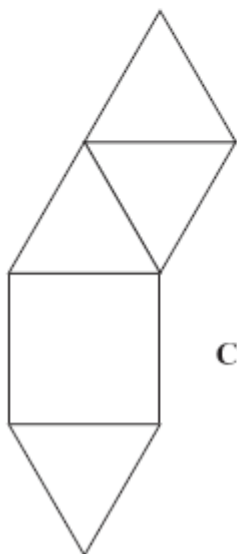
15. Here are 5 diagrams.



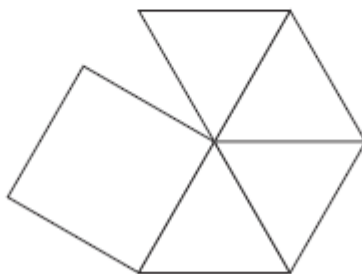
A



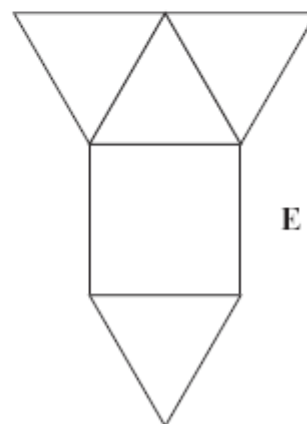
B



C



D



E

Two of these diagrams show a net for a square-based pyramid.

Write down the letter of each of these two diagrams.

..... and

(Total 2 marks)

June 2011

1. Here is a list of ingredients for making **10** Flapjacks.

Ingredients for 10 Flapjacks

80 g rolled oats

60 g butter

30 ml golden syrup

36 g light brown sugar

Work out the amount of each ingredient needed to make **15** Flapjacks.

..... g rolled oats

..... g butter

..... ml golden syrup

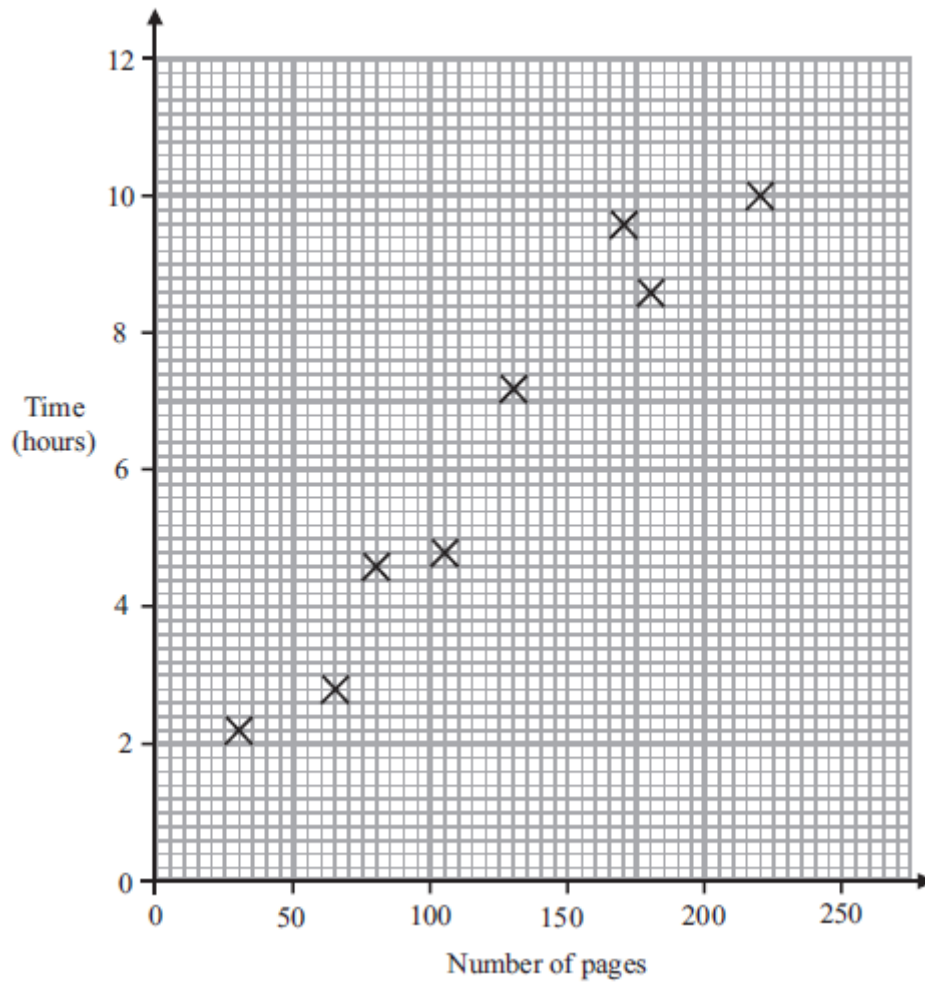
..... g light brown sugar

(Total 3 marks)

2. Harriet reads eight books.

For each book she recorded the number of pages and the time she takes to read it.

The scatter graph shows information about her results.



- (a) Describe the relationship between the number of pages in a book and the time Harriet takes to read it.

.....
(1)

Harriet reads another book.

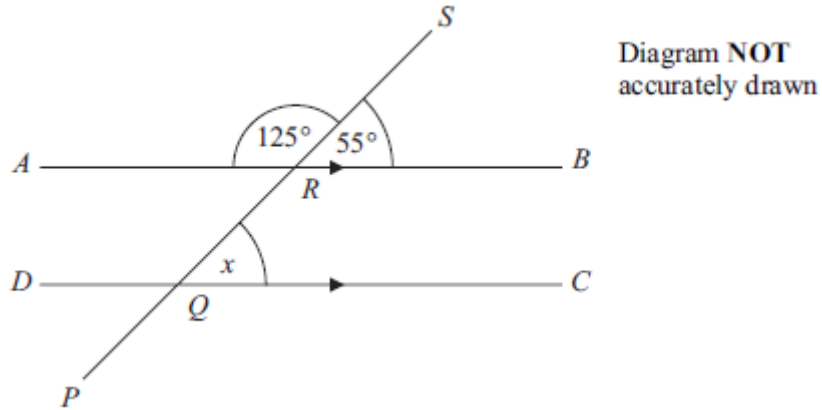
The book has 150 pages.

- (b) Estimate the time it takes Harriet to read it.

..... hours
(2)

(Total 3 marks)

3.



ARB is parallel to DQC .

$PQRS$ is a straight line.

Angle $SRB = 55^\circ$.

(i) Find the size of the angle marked x .

.....^o

(ii) Give a reason for your answer.

.....

(Total 2 marks)

4. Work out an estimate for $\frac{7.19 \times 19.7}{0.46}$.

.....

(Total 3 marks)

5. $h = 5t^2 + 2$

(a) (i) Work out the value of h when $t = -2$

.....

(ii) Work out a value of t when $h = 47$

.....

(3)

(b) $-1 \leq n < 4$

n is an integer.

Write down all the possible values of n .

.....

(2)

(Total 5 marks)

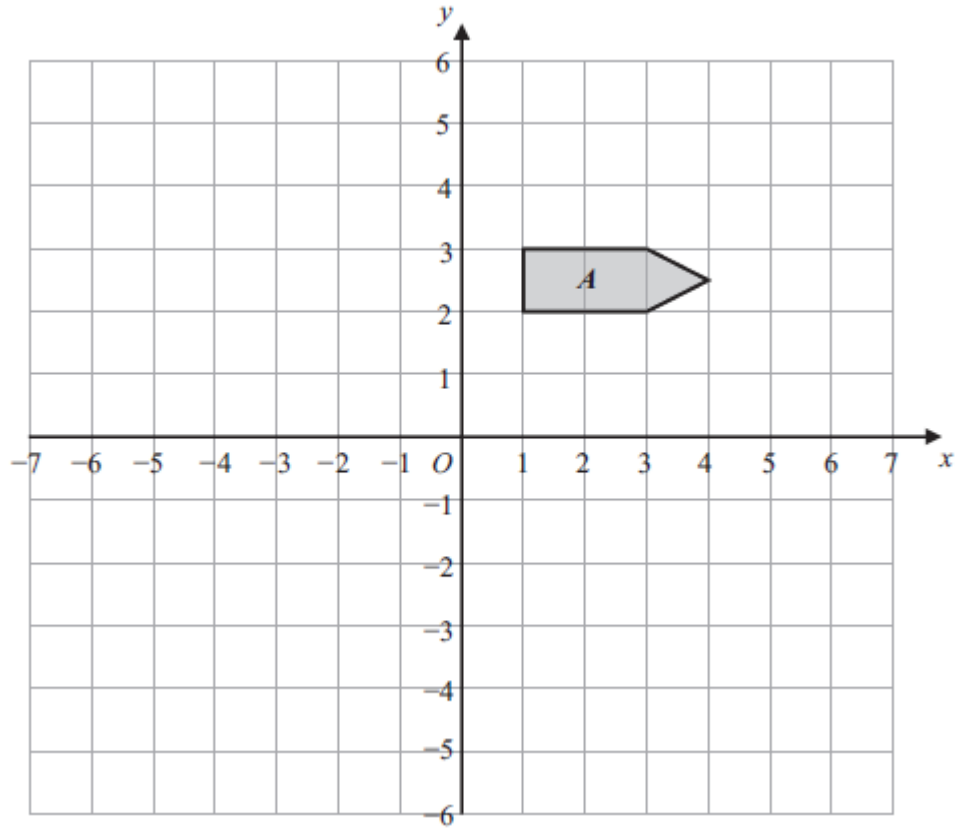
6. Each exterior angle of a regular polygon is 30° .

Work out the number of sides of the polygon.

.....

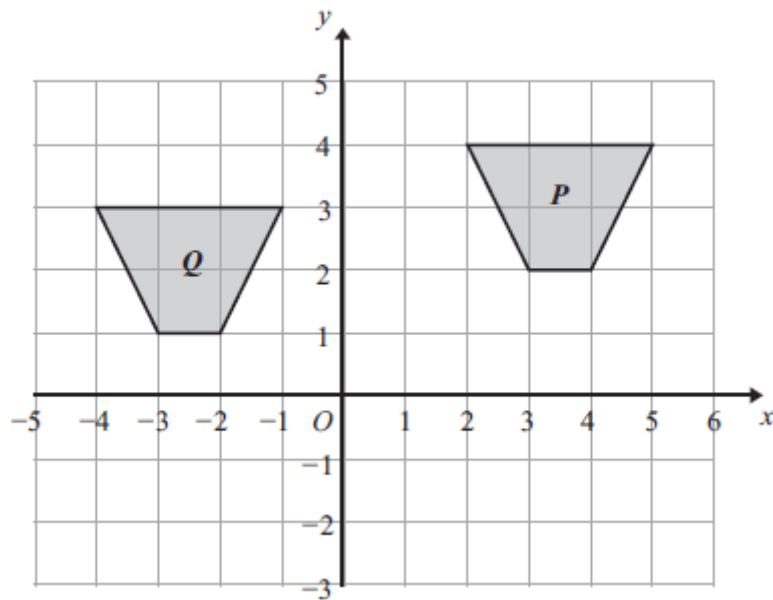
(Total 2 marks)

7.



(a) On the grid above, reflect shape **A** in the line $x = -1$.

(2)



(b) Describe fully the single transformation that will map shape **P** onto shape **Q**.

(2)

(Total 4 marks)

8. Sophie wants to find out the amount of time people exercise.
She will use a questionnaire.
- (a) Design a suitable question for Sophie to use in her questionnaire.
You must include some response boxes.

(2)

Sophie asks the people at her swimming pool to complete her questionnaire.
This may **not** be a suitable sample.

- (b) Give a reason why.

.....

.....

(1)

(Total 3 marks)

9. The n th term of a number sequence is given by $3n + 1$

- (a) Work out the first **two** terms of the number sequence.

.....

(1)

Here are the first four terms of another number sequence.

1 5 9 13

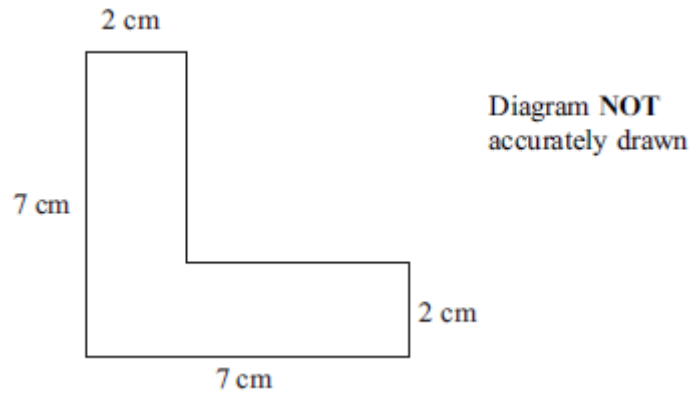
- (b) Find, in terms of n , an expression for the n th term of this number sequence.

.....

(2)

(Total 3 marks)

10.



The diagram shows the cross-section of a solid prism.
The length of the prism is 2 m.

The prism is made from metal.
The density of the metal is 8 grams per cm^3 .

Work out the mass of the prism.

.....
(Total 5 marks)

11. Peter, Tarish and Ben share £54.

Tarish gets three times as much money as Peter.
Ben gets twice as much money as Tarish.

How much money does Ben get?

£
(Total 3 marks)

12. (a) Simplify

(i) $w^6 \times w^4$

.....

(ii) $h^8 \div h^3$

.....
(2)

(b) Simplify completely $\frac{12xy^3}{3x^2y^3}$.

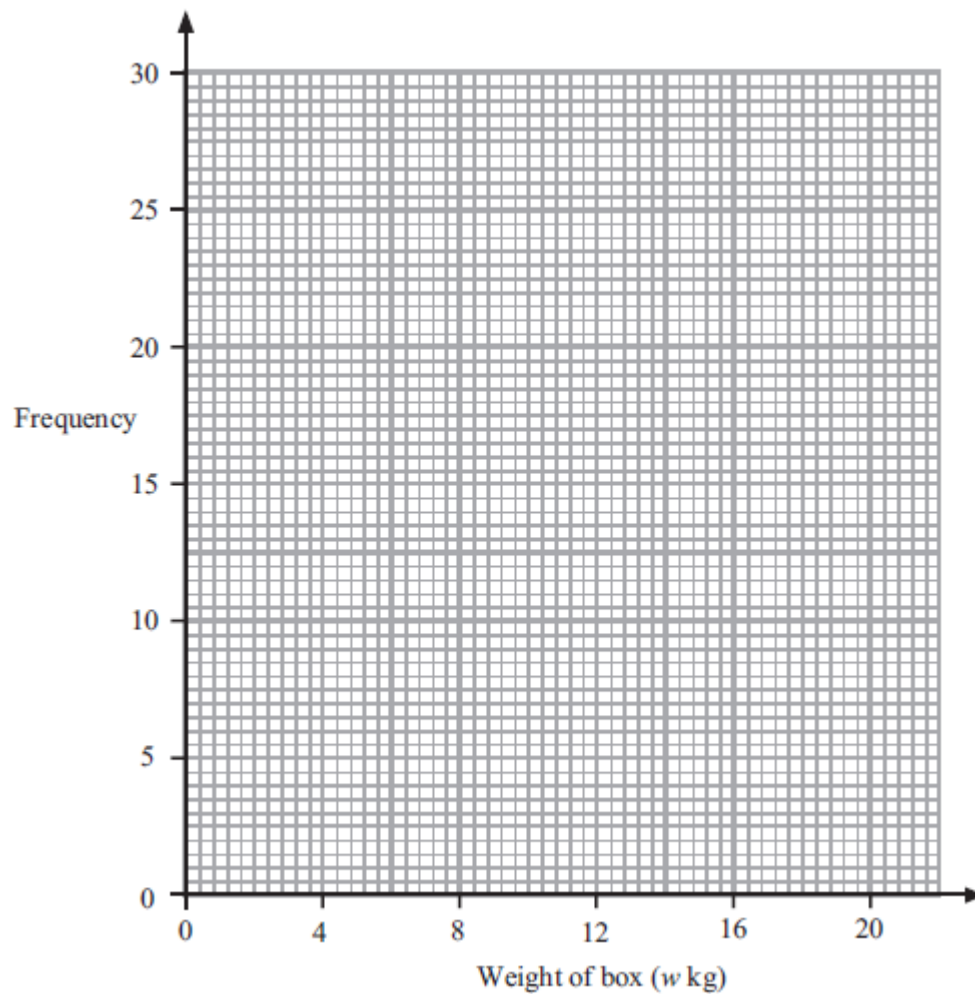
.....
(2)

(Total 4 marks)

13. The table shows some information about the weights, in kg, of 100 boxes.

Weight of box (w kg)	Frequency
$0 < w \leq 4$	10
$4 < w \leq 8$	17
$8 < w \leq 12$	28
$12 < w \leq 16$	25
$16 < w \leq 20$	20

Draw a frequency polygon to show this information.



(Total 2 marks)

14. Use ruler and compasses to **construct** an angle of 30° at P .
You **must** show all your construction lines.

P _____

(Total 3 marks)

15. (a) Expand $x(x + 2)$

.....
(2)

- (b) Expand and simplify $(x + 3)(x - 4)$

.....
(2)

- (c) Factorise completely $2y^2 - 4y$

.....
(2)

- (d) Factorise $x^2 - 9$

.....
(1)

(Total 7 marks)

16. (a) Work out $\frac{2}{3} \div \frac{5}{6}$

Give your fraction in its simplest form.

.....
(3)

(b) Work out $2\frac{1}{3} - 1\frac{2}{5}$

.....
(3)

(Total 6 marks)

17.

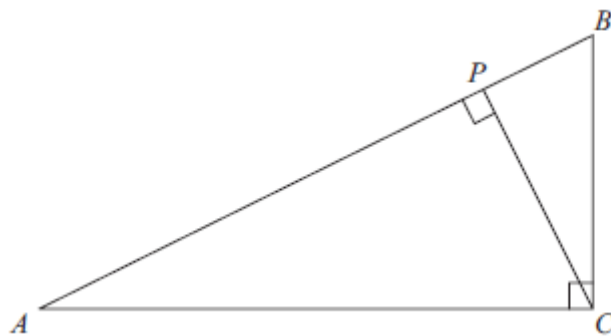


Diagram **NOT**
accurately drawn

In the diagram,

ABC is a triangle,
angle $ACB = 90^\circ$,
 P lies on the line AB ,
 CP is perpendicular to AB .

Prove that the angles of triangle APC are the same as the angles of triangle CPB .

(Total 3 marks)

November 2011

1. Theo earns £20 one weekend.
He gives £4 to his brother.

- (a) Express £4 as a fraction of £20
Give your answer in its simplest form.

.....
(2)

Theo gives £6 to his mother.

- (b) Express £6 as a percentage of £20

..... %
(2)

Theo spent the remaining £10 on bus fares and food.
He spent £1.50 more on bus fares than on food.

- (c) How much did he spend on bus fares?

£
(2)

(Total 6 marks)

2. Here is a number pattern.

Line Number			
1	$1^2 + 3^2$	$2 \times 2^2 + 2$	10
2	$2^2 + 4^2$	$2 \times 3^2 + 2$	20
3	$3^2 + 5^2$	$2 \times 4^2 + 2$	34
4	52
10

(a) Complete Line Number 4 of the pattern.

(1)

(b) Complete Line Number 10 of the pattern.

(2)

(c) Use the number pattern to find the answer to $999^2 + 1001^2$

.....
(2)

(Total 5 marks)

3.

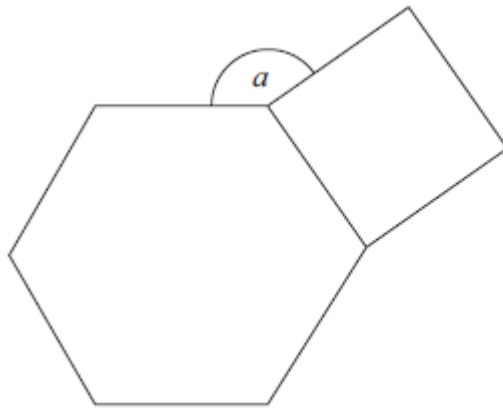


Diagram NOT
accurately drawn

The diagram shows a regular hexagon and a square.
Calculate the size of the angle a .

.....^o

(Total 4 marks)

4. Jim did a survey on the lengths of caterpillars he found on a field trip.
Information about the lengths is given in the stem and leaf diagram.

1	3	5	7	7					
2	0	6	8	8	8	9			
3	1	5	5	5	5	6	8	9	
4	1	5							
5	2								

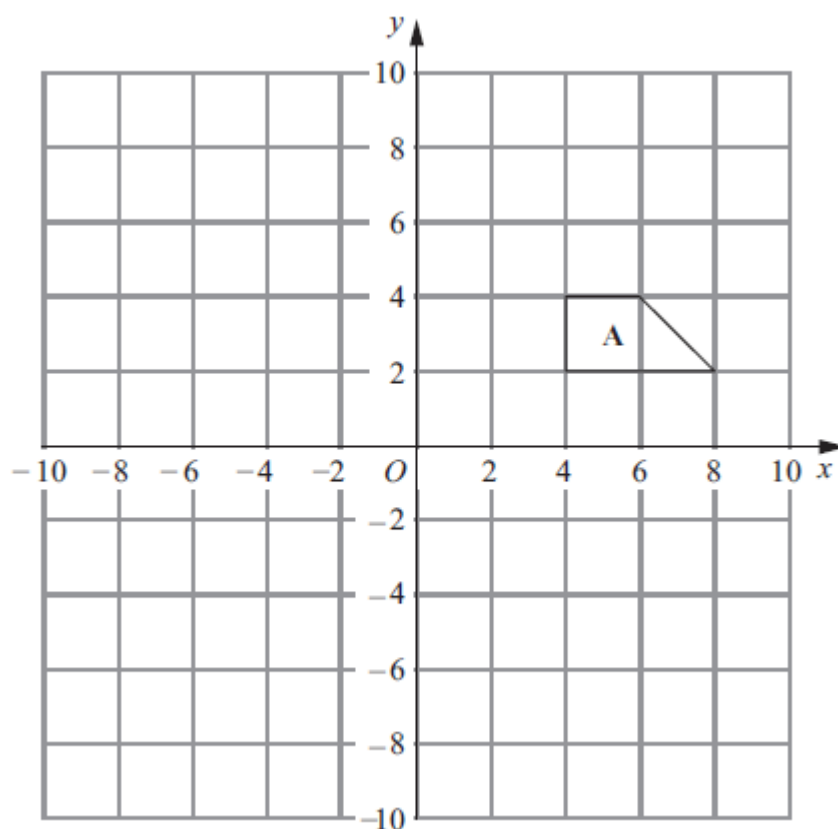
Key: 5|2 means 5.2 cm

Work out the median.

..... cm

(Total 2 marks)

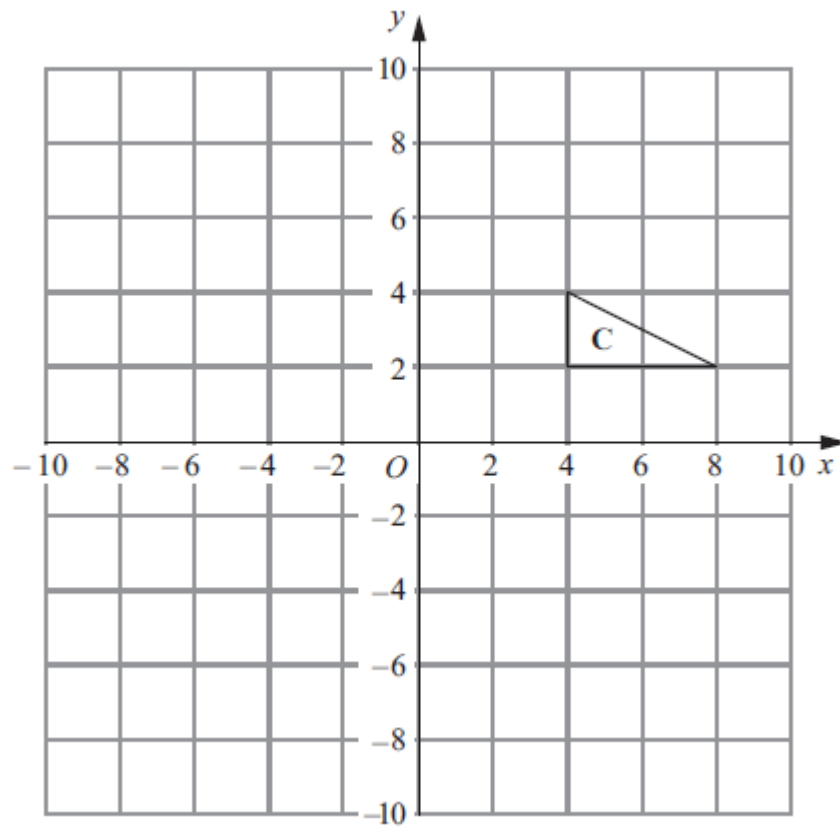
5.



- (a) Translate shape **A** by $\begin{pmatrix} -8 \\ -2 \end{pmatrix}$.

Label the new shape **B**.

(2)



- (b) Reflect shape **C** in the line $y = x$.
Label the new shape **D**.

(2)

(Total 4 marks)

6.

Reading				
22	Slough			
28	40	Guildford		
30	22	47	Oxford	
45	28	66	25	Buckingham

The table gives distances in miles by road between some towns.

Izzy lives in Oxford.

She has to drive to a meeting in Buckingham and then from Buckingham to Reading to pick up a friend.

After she picks up her friend she will drive back to Oxford.

She plans to drive at a speed of 50 miles per hour.

The meeting will last 3 hours, including lunch.

She leaves Oxford at 9 a.m.

Work out the time at which she should get back to Oxford.

.....
(Total 4 marks)

7. (a) Solve $3(2t - 4) = 2t + 12$

$t = \dots\dots\dots$
(3)

(b) Expand and simplify $2(x - y) - 3(x - 2y)$

$\dots\dots\dots$
(2)

(c) Expand and simplify $(x - 5)(x + 7)$

$\dots\dots\dots$
(2)

(Total 7 marks)

8. Work out an estimate for the value of

$$(0.49 \times 0.61)^2$$

$\dots\dots\dots$
(Total 2 marks)

9. Two shops both sell the same type of suit.
In both shops the price of the suit was £180

One shop increases the price of the suit by $17\frac{1}{2}\%$.

The other shop increases the price of the suit by $22\frac{1}{2}\%$.

Calculate the difference between the new prices of the suits in the two shops.

£

(Total 3 marks)

10.

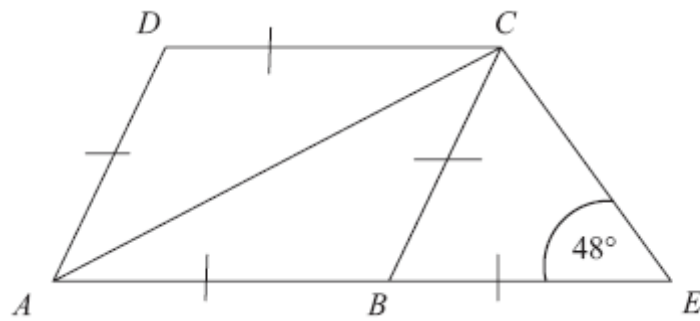


Diagram NOT
accurately drawn

$ABCD$ is a rhombus.

BCE is an isosceles triangle.

ABE is a straight line.

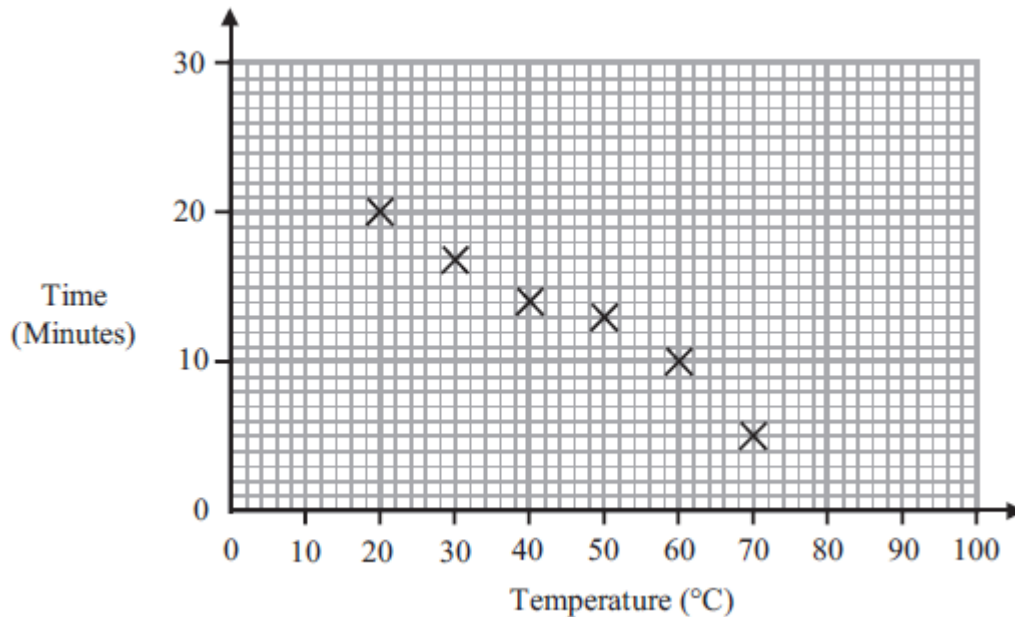
Work out the size of angle DCA .

..... °

(Total 3 marks)

11. Suzy did an experiment to study the times, in minutes, it took 1 cm ice cubes to melt at different temperatures.

Some information about her results is given in the scatter graph.



The table shows information from two more experiments.

Temperature (°C)	15	55
Time (Minutes)	22	15

- (a) On the scatter graph, plot the information from the table. (1)
- (b) Describe the relationship between the temperature and the time it takes a 1 cm ice cube to melt.
- (1)
- (c) Find an estimate for the time it takes a 1 cm ice cube to melt when the temperature is 25 °C.

..... minutes
(2)

Suzy's data cannot be used to predict how long it will take a 1 cm ice cube to melt when the temperature is 100 °C.

(d) Explain why.

.....
(1)

(Total 5 marks)

12. Solve the simultaneous equations

$$3x + 4y = 200$$

$$2x + 3y = 144$$

$$x = \dots\dots\dots$$

$$y = \dots\dots\dots$$

(Total 4 marks)

March 2012

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

.....
(2)

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

.....
(1)

(Total 3 marks)

Q1

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

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

.....
(Total 3 marks)

Q2



3. Fred buys 18 tins of polish costing £2.37 each.

(a) Work out the total cost.

£
(3)

A vacuum cleaner costs £85
Fred gets 10% off the price of the vacuum cleaner.

(b) Work out how much he has to pay.

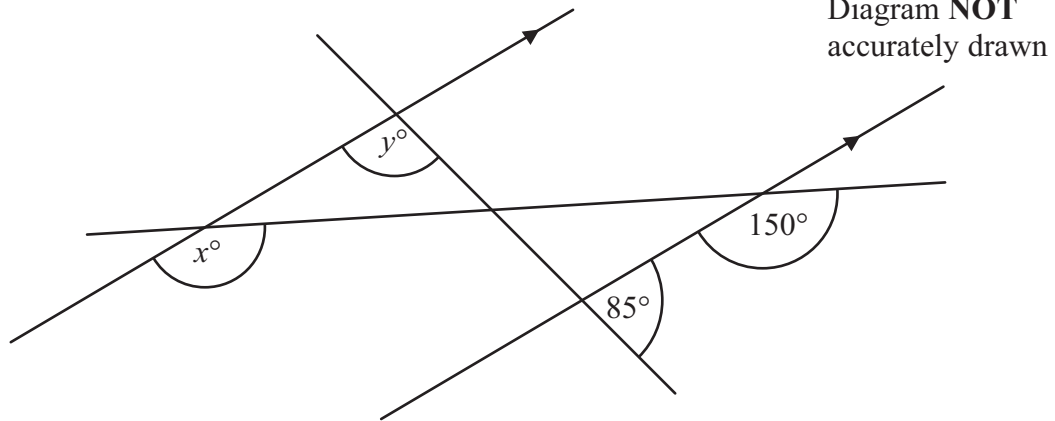
£
(3)

(Total 6 marks)

Q3



4.



(a) Find the value of x .

.....
(1)

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

.....
(2)

(Total 3 marks)

Q4

5. 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) Work out the probability that Jim takes a counter that is **not** red.

.....
(2)

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.

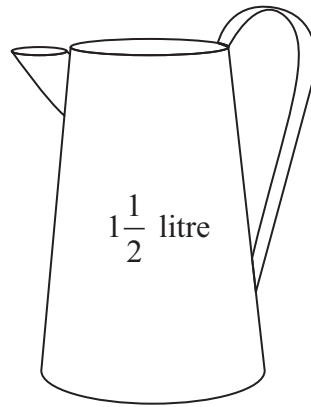
.....
(2)

(Total 4 marks)

Q5



6.



There are $1\frac{1}{2}$ litres of juice in a jug.

Lisa is going to pour the juice into some glasses.
She will fill each glass with 175 ml of juice.

Work out the greatest number of glasses she can fill.

.....

(Total 4 marks)

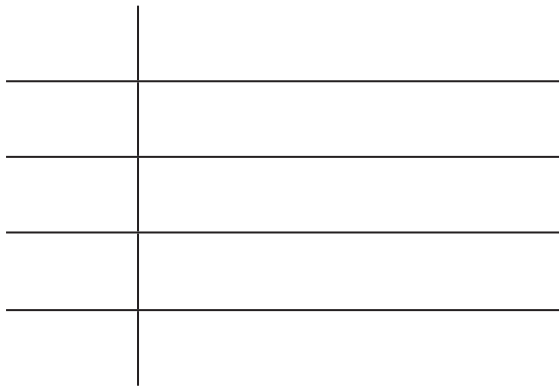
Q6



7. Jo measured the times in seconds it took 18 students to run 400 m.
Here are the times.

67	78	79	98	96	103
75	85	94	92	61	80
82	86	90	95	90	89

- (a) Draw an ordered stem and leaf diagram to show this information.



Key:

(3)

- (b) Work out the median.

..... seconds
(2)

(Total 5 marks)

Q7



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

$$x = \dots\dots\dots (2)$$

(b) Show that $y = -2$ is a solution of the equation $\frac{4}{y} + y = 2y$

(2)

Q8

(Total 4 marks)

9. Sweets are sold in bags and in tins.

There are 20 sweets in a bag.
There are 30 sweets in a tin.

Lee buys B bags of sweets and T tins of sweets.

He buys a total of S sweets.
Write down a formula for S in terms of B and T .

Q9

(Total 3 marks)



10. Jim has only 5p coins and 10p coins.

The ratio of the number of 5p coins to the number of 10p coins is 2 : 3

Work out the ratio of

the total value of the 5p coins : the total value of the 10p coins.

Give your answer in its simplest form.

..... :

(Total 2 marks)

Q10



11.

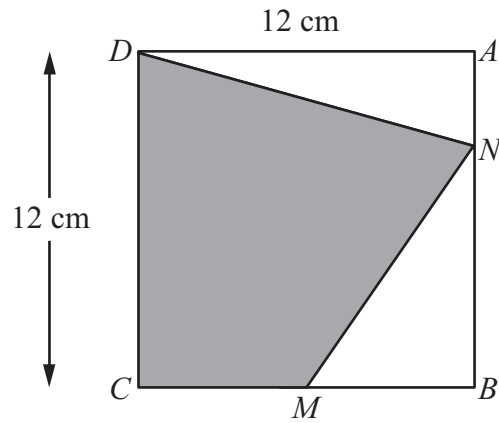


Diagram **NOT**
accurately drawn

$ABCD$ 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 $CDNM$.

..... cm^2

(Total 6 marks)

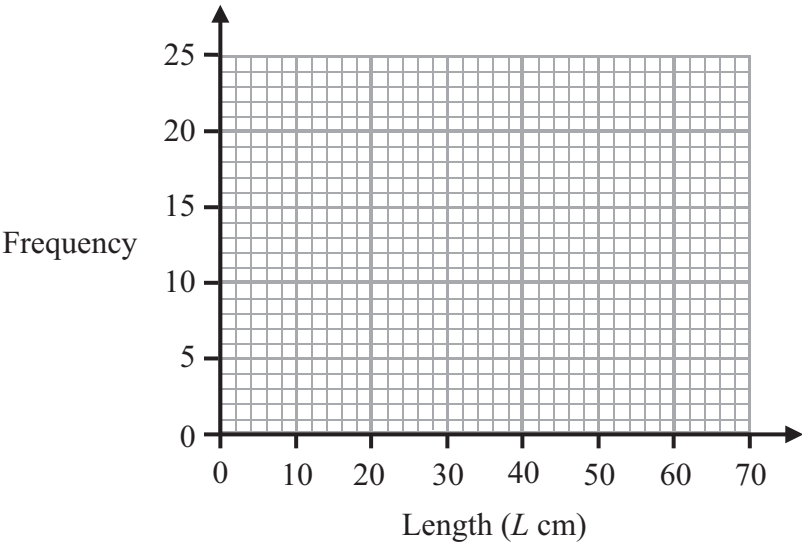
Q11



12. 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) Write down the modal class interval.

.....

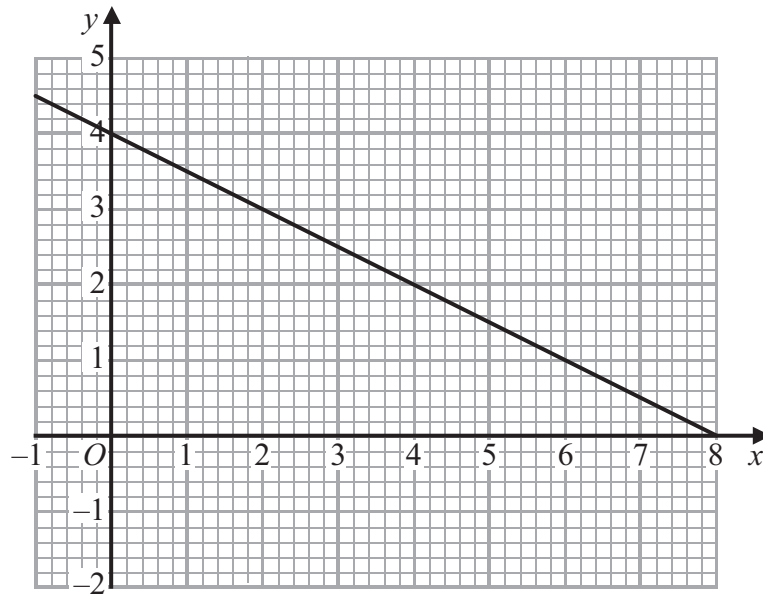
(1)

(Total 3 marks)

Q12



13.



The graph of the straight line $x + 2y = 8$ is shown on the grid.

(a) On the grid, draw the graph of $y = \frac{x}{2} - 1$

(3)

(b) Use the graphs to find estimates for the solution of

$$x + 2y = 8$$

$$y = \frac{x}{2} - 1$$

$x = \dots\dots\dots y = \dots\dots\dots$

(1)

Q13

(Total 4 marks)



14. (a) Write 6.43×10^5 as an ordinary number.

.....
(1)

(b) Work out the value of $2 \times 10^7 \times 8 \times 10^{-12}$
Give your answer in standard form.

.....
(2)

(Total 3 marks)

Q14

15. (a) Factorise fully $2x^2 - 4xy$

.....
(2)

(b) Factorise $p^2 - 6p + 8$

.....
(2)

(c) Simplify $\frac{(x+2)^2}{x+2}$

.....
(1)

(d) Simplify $2a^2b \times 3a^3b$

.....
(2)

(Total 7 marks)

Q15



June 2012

1. Sam wants to find out the types of film people like best.

He is going to ask whether they like comedy films or action films or science fiction films or musicals best.

- (a) Design a suitable table for a data collection sheet he could use to collect this information.

(2)

Sam collects his data by asking 10 students in his class at school.

This might **not** be a good way to find out the types of film people like best.

- (b) Give **one** reason why.

.....

.....

(1)

(Total for Question 1 is 3 marks)

2. The diagram shows a patio in the shape of a rectangle.

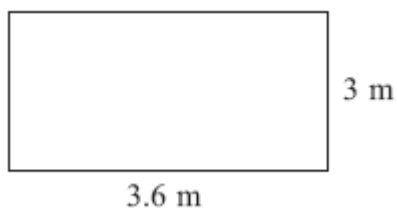


Diagram **NOT**
accurately drawn

The patio is 3.6 m long and 3 m wide.

Matthew is going to cover the patio with paving slabs.
Each paving slab is a square of side 60 cm.

Matthew buys 32 of the paving slabs.

- (a) Does Matthew buy enough paving slabs to cover the patio?
You must show all your working.

.....
(3)

The paving slabs cost £8.63 each.

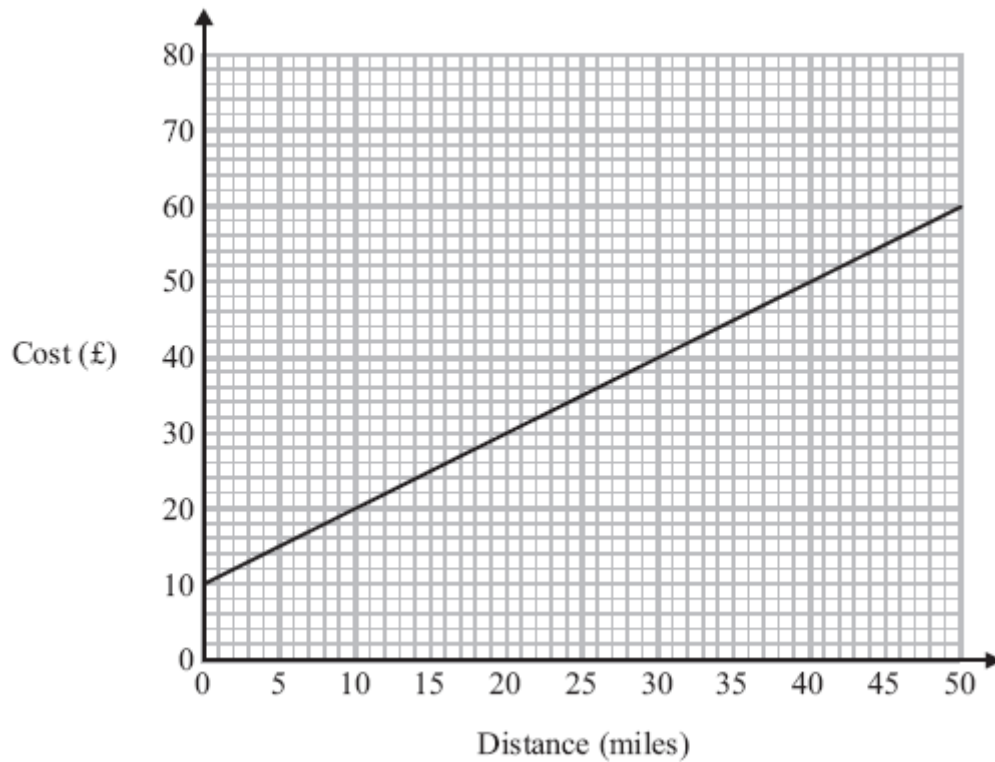
- (b) Work out the total cost of the 32 paving slabs.

£
(3)

(Total for Question 2 is 6 marks)

- *3. Bill uses his van to deliver parcels.
For each parcel Bill delivers there is a fixed charge plus £1.00 for each mile.

You can use the graph to find the total cost of having a parcel delivered by Bill.



- (a) How much is the fixed charge?

£
(1)

Ed uses a van to deliver parcels.
For each parcel Ed delivers it costs £1.50 for each mile.
There is **no** fixed charge.

- (b) Compare the cost of having a parcel delivered by Bill with the cost of having a parcel delivered by Ed.

(3)

(Total for Question 3 is 4 marks)

4. Here are the speeds, in miles per hour, of 16 cars.

31	52	43	49	36	35	33	29
54	43	44	46	42	39	55	48

Draw an ordered stem and leaf diagram for these speeds.

(Total for Question 4 is 3 marks)

5.



Take **two** 5 ml spoons full
twice a day

You can work out the amount of medicine, c ml, to give to a child by using the formula

$$c = \frac{ma}{150}$$

m is the age of the child, in months.

a is an adult dose, in ml.

A child is 30 months old.

An adult's dose is 40 ml.

Work out the amount of medicine you can give to the child.

..... ml

(Total for Question 5 is 2 marks)

6. Here are the ingredients needed to make 12 shortcakes.

Shortcakes	
Makes 12 shortcakes	
50 g	of sugar
200 g	of butter
200 g	of flour
10 ml	of milk

Liz makes some shortcakes.
She uses 25 ml of milk.

- (a) How many shortcakes does Liz make?

.....
(2)

Robert has 500 g of sugar
 1000 g of butter
 1000 g of flour
 500 ml of milk

- (b) Work out the greatest number of shortcakes Robert can make.

.....
(2)

(Total for Question 23 is 4 marks)

7. Buses to Acton leave a bus station every 24 minutes.
Buses to Barton leave the same bus station every 20 minutes.

A bus to Acton and a bus to Barton both leave the bus station at 9 00 am.

When will a bus to Acton and a bus to Barton next leave the bus station at the same time?

.....
(Total for Question 7 is 3 marks)

8. (a) Expand $3(2y - 5)$

.....
(1)

- (b) Factorise completely $8x^2 + 4xy$

.....
(2)

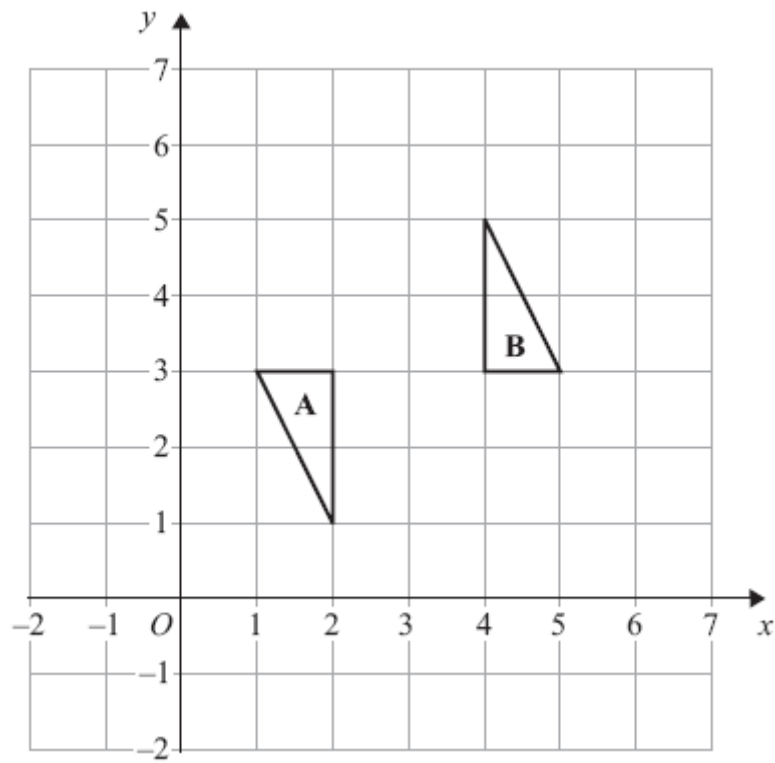
- (c) Make h the subject of the formula

$$t = \frac{gh}{10}$$

$h =$
(2)

(Total for Question 8 is 5 marks)

9.



Describe fully the single transformation that maps triangle **A** onto triangle **B**.

.....

.....

(Total for Question 9 is 3 marks)

***10** Railtickets and Cheaptrains are two websites selling train tickets.

Each of the websites adds a credit card charge and a booking fee to the ticket price.

Railtickets

Credit card charge: 2.25% of ticket price

Booking fee: 80 pence

Cheaptrains

Credit card charge: 1.5% of ticket price

Booking fee: £1.90

Nadia wants to buy a train ticket.

The ticket price is £60 on each website.

Nadia will pay by credit card.

Will it be cheaper for Nadia to buy the train ticket from Railtickets or from Cheaptrains?

(Total for Question 10 is 4 marks)

11.

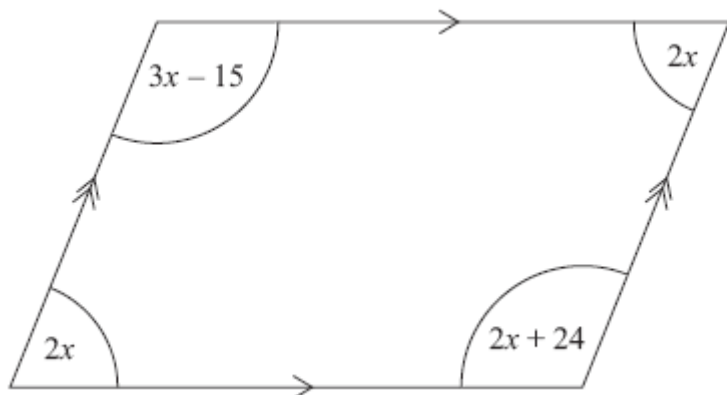


Diagram **NOT**
accurately drawn

The diagram shows a parallelogram.
The sizes of the angles, in degrees, are

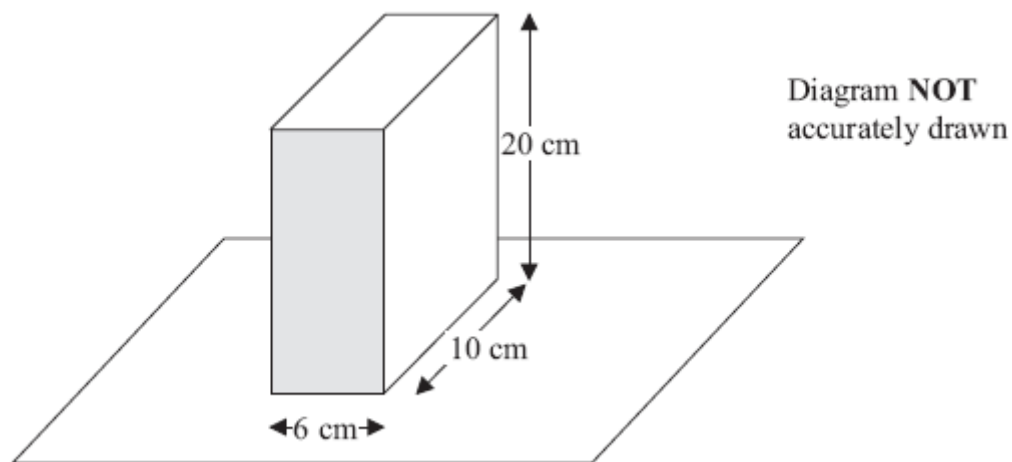
$2x$
 $3x - 15$
 $2x$
 $2x + 24$

Work out the value of x .

$x = \dots\dots\dots$

(Total for Question 27 is 3 marks)

12. Jane has a carton of orange juice.
The carton is in the shape of a cuboid.



The depth of the orange juice in the carton is 8 cm.

Jane closes the carton.

Then she turns the carton over so that it stands on the shaded face.

Work out the depth, in cm, of the orange juice now.

..... cm

(Total for Question 12 is 3 marks)

13.

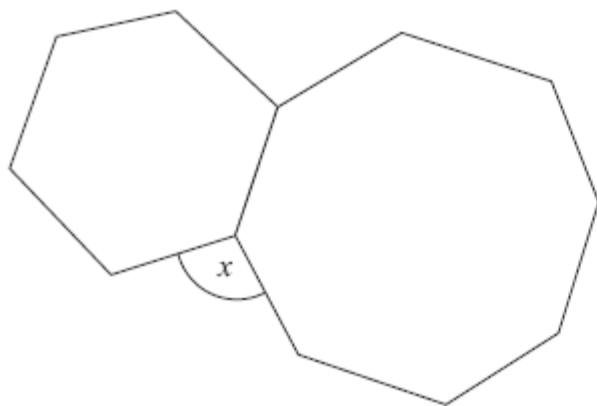


Diagram **NOT**
accurately drawn

The diagram shows a regular hexagon and a regular octagon.

Calculate the size of the angle marked x .
You must show all your working.

.....^o
(Total for Question 13 is 4 marks)

NOVEMBER 2012

- 1 Here are the ingredients needed to make 16 gingerbread men.

Ingredients
to make **16** gingerbread men

180 g flour
40 g ginger
110 g butter
30 g sugar

Hamish wants to make 24 gingerbread men.

Work out how much of each of the ingredients he needs.

.....g flour

.....g ginger

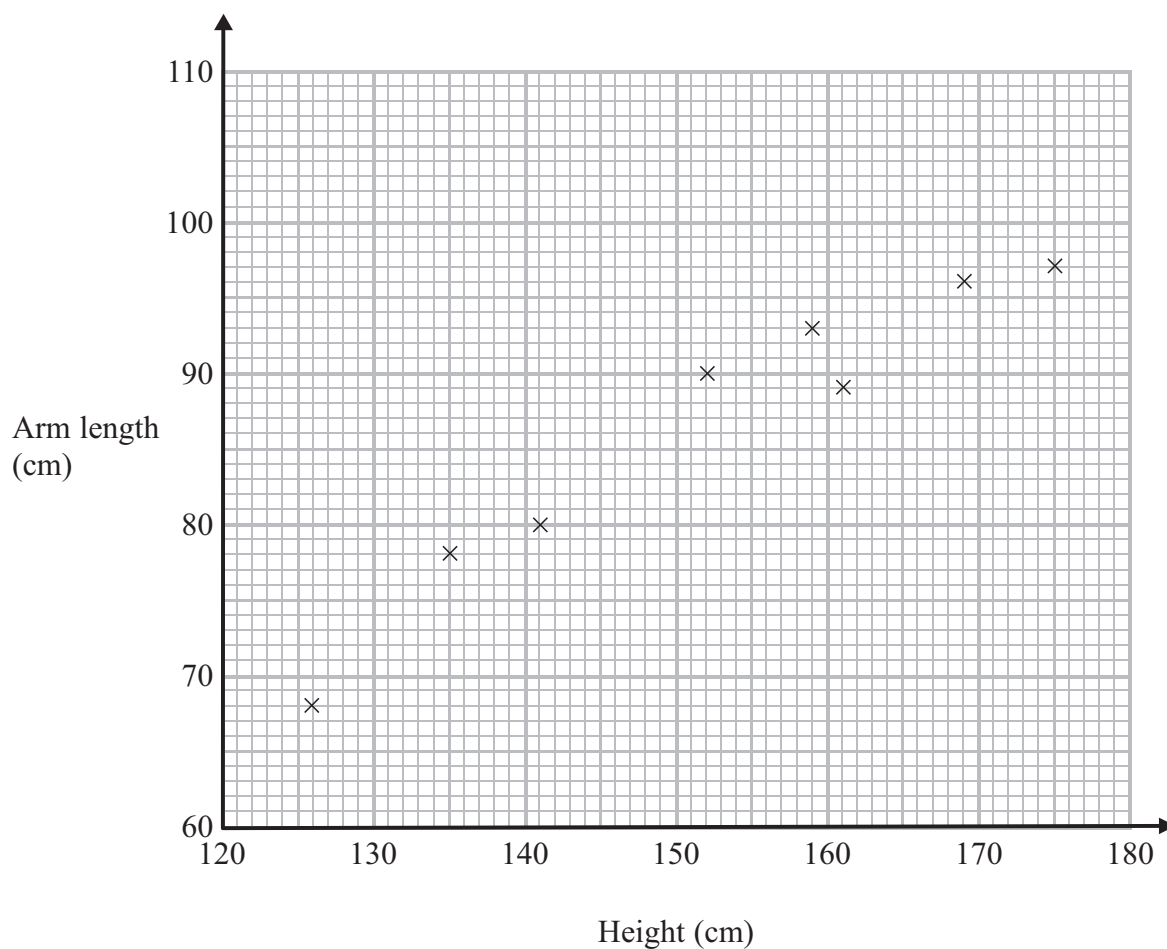
.....g butter

.....g sugar

(Total for Question 1 is 3 marks)



- 2 The scatter graph shows information about the height and the arm length of each of 8 students in Year 11



- (a) What type of correlation does this scatter graph show?

.....
(1)

A different student in Year 11 has a height of 148 cm.

- (b) Estimate the arm length of this student.

.....cm
(2)

(Total for Question 2 is 3 marks)



***3** Here is part of Gary's electricity bill.

Electricity bill

New reading 7155 units

Old reading 7095 units

Price per unit 15p

Work out how much Gary has to pay for the units of electricity he used.

(Total for Question 3 is 4 marks)



- 4 Alison wants to find out how much time people spend reading books.
She is going to use a questionnaire.

Design a suitable question for Alison to use in her questionnaire.

(Total for Question 4 is 2 marks)

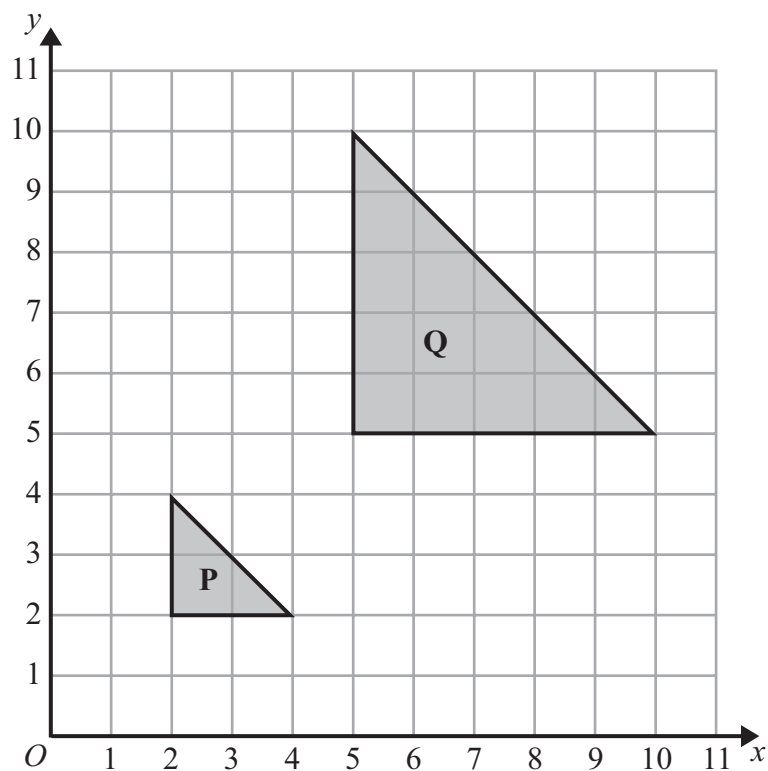
- 5 Work out an estimate for $\frac{31 \times 9.87}{0.509}$

.....

(Total for Question 5 is 3 marks)



6



Describe fully the single transformation that maps shape **P** onto shape **Q**.

.....

.....

(Total for Question 6 is 3 marks)



7 Here is a diagram of Jim's garden.

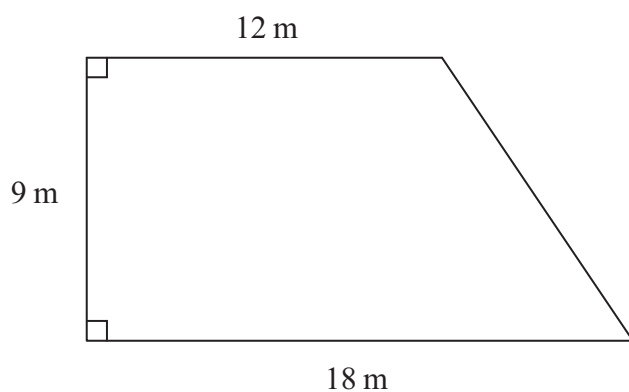


Diagram **NOT**
accurately drawn

Jim wants to cover his garden with grass seed to make a lawn.

Grass seed is sold in bags.

There is enough grass seed in each bag to cover 20 m^2 of garden.

Each bag of grass seed costs £4.99

Work out the least cost of putting grass seed on Jim's garden.

£.....

(Total for Question 7 is 4 marks)



- 8 There are only red counters, blue counters, white counters and black counters in a bag.

The table shows the probability that a counter taken at random from the bag will be red or blue.

Colour	red	blue	white	black
Probability	0.2	0.5		

The number of white counters in the bag is the same as the number of black counters in the bag.

Tania takes at random a counter from the bag.

- (a) Work out the probability that Tania takes a white counter.

.....
(2)

There are 240 counters in the bag.

- (b) Work out the number of red counters in the bag.

.....
(2)

(Total for Question 8 is 4 marks)



- 9 The diagram shows a prism.

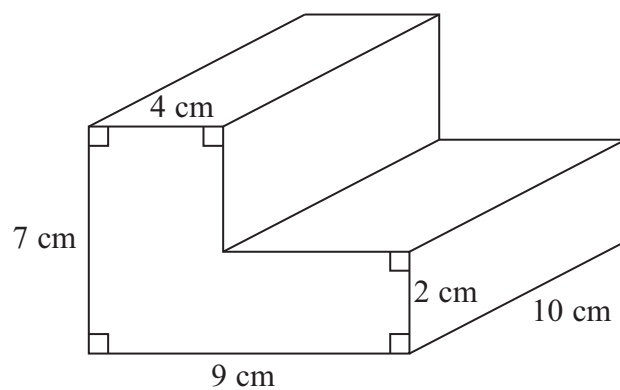


Diagram **NOT**
accurately drawn

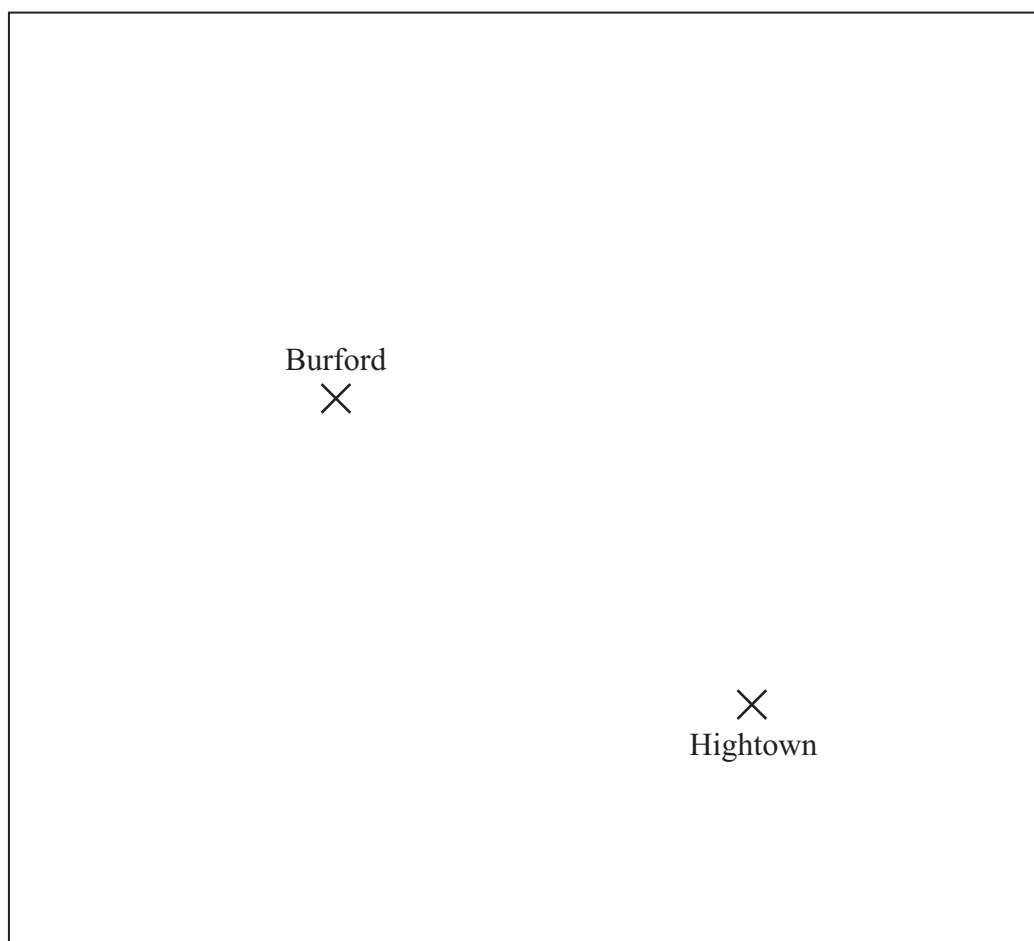
Work out the volume of the prism.

.....cm³

(Total for Question 9 is 3 marks)



- 10 Here is a map.
The map shows two towns, Burford and Hightown.



Scale: 1 cm represents 10 km

A company is going to build a warehouse.

The warehouse will be less than 30 km from Burford **and** less than 50 km from Hightown.

Shade the region on the map where the company can build the warehouse.

(Total for Question 10 is 3 marks)



11 (a) Expand $4(3x + 5)$

.....
(1)

(b) Expand and simplify $2(x - 4) + 3(x + 5)$

.....
(2)

(c) Expand and simplify $(x + 4)(x + 6)$

.....
(2)

(Total for Question 11 is 5 marks)



12 The diagram shows a circle drawn inside a square.

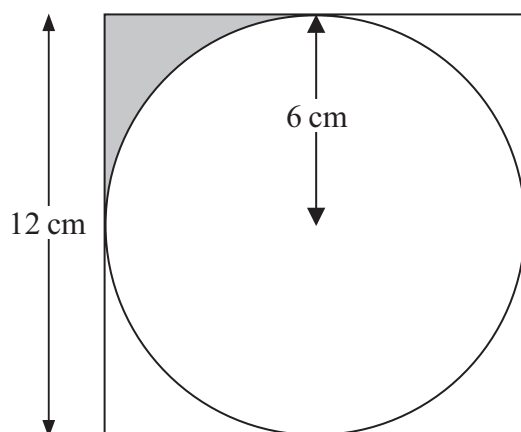


Diagram **NOT**
accurately drawn

The circle has a radius of 6 cm.
The square has a side of length 12 cm.

Work out the shaded area.
Give your answer in terms of π .

.....cm²

(Total for Question 12 is 3 marks)



***13** Talil is going to make some concrete mix.
He needs to mix cement, sand and gravel in the ratio 1 : 3 : 5 by weight.

Talil wants to make 180 kg of concrete mix.

Talil has

15 kg of cement
85 kg of sand
100 kg of gravel

Does Talil have enough cement, sand and gravel to make the concrete mix?

(Total for Question 13 is 4 marks)



March 2013

1 Work out 1.83×47

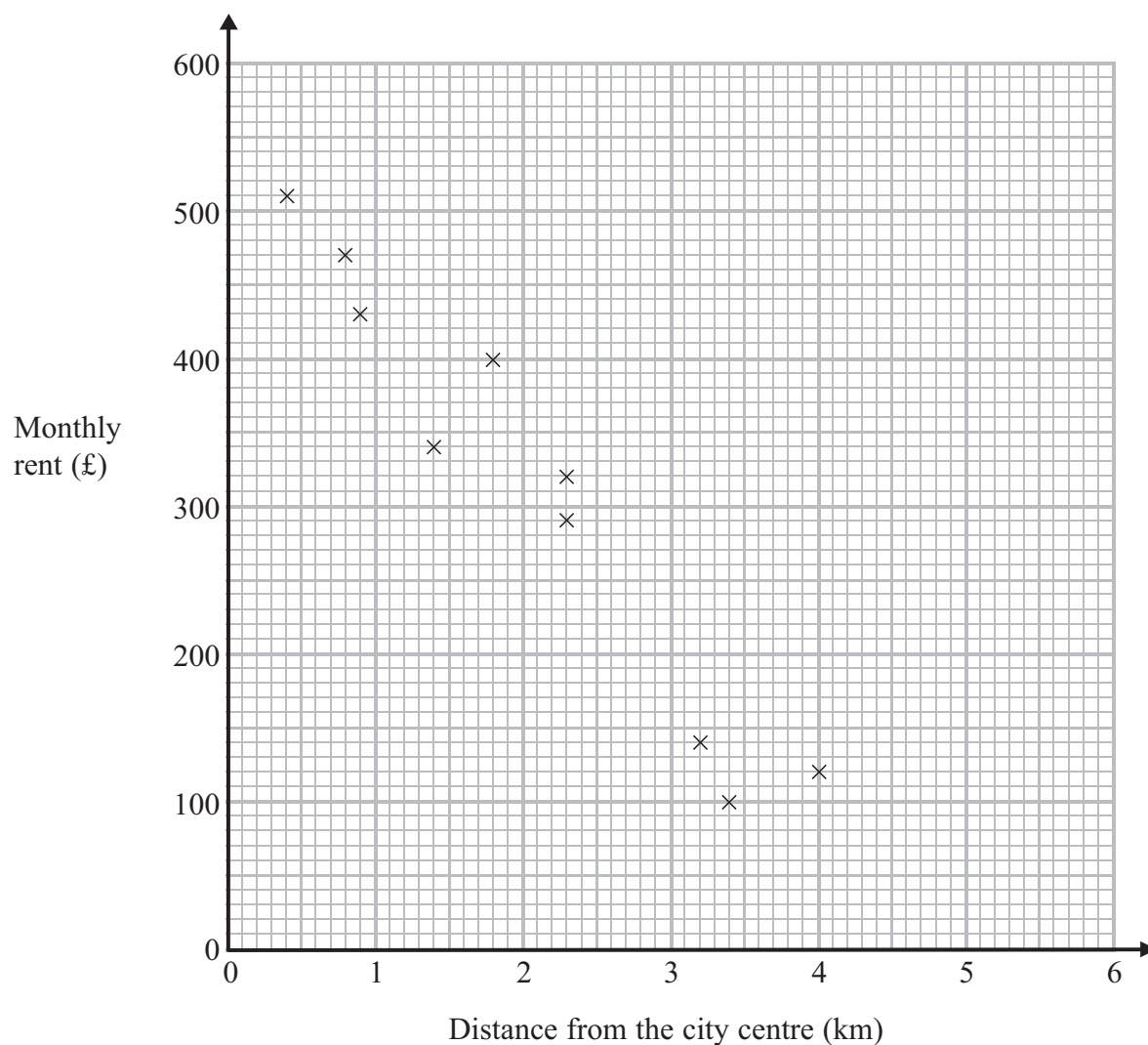
.....
(Total for Question 1 is 3 marks)



P 4 2 0 5 7 A 0 3 2 8

- 2 The scatter graph shows information about 10 apartments in a city.

The graph shows the distance from the city centre and the monthly rent of each apartment.



The table shows the distance from the city centre and the monthly rent for two other apartments.

Distance from the city centre (km)	2	3.1
Monthly rent (£)	250	190

- (a) On the scatter graph, plot the information from the table.

(1)

- (b) Describe the relationship between the distance from the city centre and the monthly rent.

(1)



An apartment is 2.8 km from the city centre.

(c) Find an estimate for the monthly rent for this apartment.

£

(2)

(Total for Question 2 is 4 marks)

3 Paula wants to find out how much money people spend buying CDs.

She uses this question on a questionnaire.

How much money do you spend buying CDs?

☐ £10 – £30 ☐ £30 – £50 ☐ £50 – £70 ☐ more than £70

(a) Write down **two** things wrong with this question.

1

.....

2

.....

(2)

Paula asks 100 people in a CD store to do her questionnaire.

(b) Her sample is biased.

Explain why.

.....

.....

(1)

(Total for Question 3 is 3 marks)

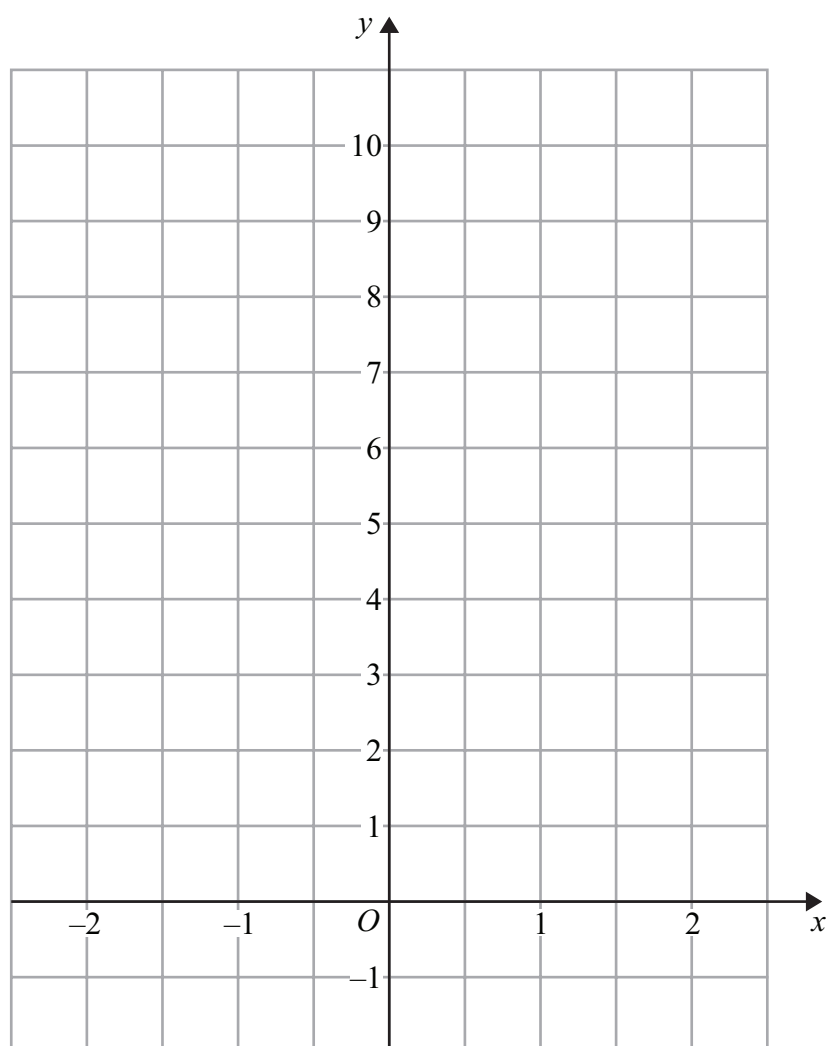


4 (a) Complete the table of values for $y = 2x + 5$

x	-2	-1	0	1	2
y	1		5		

(2)

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



(2)

(Total for Question 4 is 4 marks)



5 Here are the first 5 terms of an arithmetic sequence.

3 9 15 21 27

(a) Find an expression, in terms of n , for the n th term of this sequence.

.....
(2)

Ben says that 150 is in the sequence.

(b) Is Ben right?

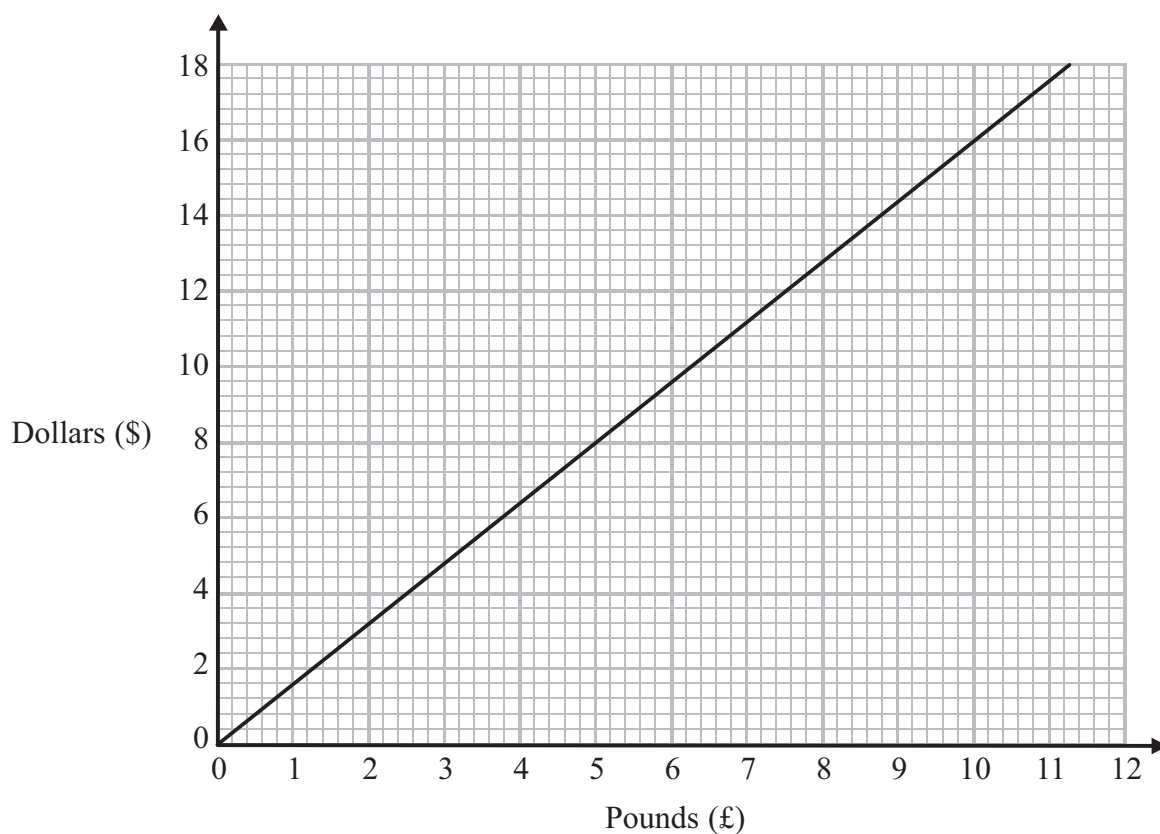
You must explain your answer.

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

(Total for Question 5 is 3 marks)



6 You can use this conversion graph to change between pounds (£) and dollars (\$).



(a) Use the conversion graph to change £5 to dollars.

\$
(1)

Ella has \$200 and £800

Her hotel bill is \$600

Ella pays the bill with the \$200 and some of the pounds.

(b) Use the conversion graph to work out how many pounds she has left.

£
(4)

(Total for Question 6 is 5 marks)



7 (a) Simplify $5x + 4y + x - 7y$

.....
(2)

(b) Solve $7(x + 2) = 7$

.....
(2)

(Total for Question 7 is 4 marks)



P 4 2 0 5 7 A 0 9 2 8

8 Trams leave Piccadilly

to Eccles every 9 minutes

to Didsbury every 12 minutes

A tram to Eccles and a tram to Didsbury both leave Piccadilly at 9 am.

At what time will a tram to Eccles and a tram to Didsbury next leave Piccadilly at the same time?

.....
(Total for Question 8 is 3 marks)

9 (a) Simplify $a^4 \times a^5$

.....
(1)

(b) Simplify $\frac{45e^6f^8}{5ef^2}$

.....
(2)

(c) Write down the value of $9^{\frac{1}{2}}$

.....
(1)

(Total for Question 9 is 4 marks)



*10

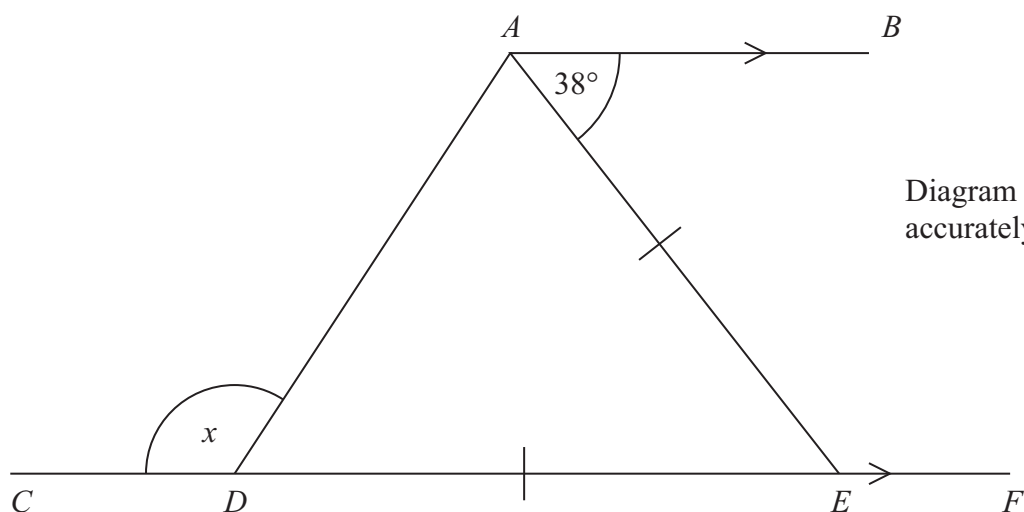


Diagram **NOT**
accurately drawn

$CDEF$ is a straight line.

AB is parallel to CF .

$DE = AE$.

Work out the size of the angle marked x .

You must give reasons for your answer.

(Total for Question 10 is 4 marks)



P 4 2 0 5 7 A 0 1 1 2 8

11 Greg sells car insurance and home insurance.

The table shows the cost of these insurances.

Insurance	car insurance	home insurance
Cost	£200	£350

Each month Greg earns

£530 basic pay
5% of the cost of all the car insurance he sells
and 10% of the cost of all the home insurance he sells

In May Greg sold

6 car insurances
and 4 home insurances

Work out the total amount of money Greg earned in May.



£

(Total for Question 11 is 5 marks)



12 5 schools sent some students to a conference.

One of the schools sent both boys and girls.

This school sent 16 boys.

The ratio of the number of boys it sent to the number of girls it sent was 1 : 2

The other 4 schools sent only girls.

Each of the 5 schools sent the same number of students.

Work out the total number of students sent to the conference by these 5 schools.

.....
(Total for Question 12 is 4 marks)



June 2013

- 1 Given that $1793 \times 185 = 331\,705$

write down the value of

(a) 1.793×185

.....

(b) $331\,705 \div 1.85$

.....

(Total for Question 1 is 2 marks)

- 2 Mr Mason asks 240 Year 11 students what they want to do next year.

15% of the students want to go to college.

$\frac{3}{4}$ of the students want to stay at school.

The rest of the students do not know.

Work out the number of students who do not know.

.....

(Total for Question 2 is 4 marks)



3 Sixteen babies are born in a hospital.

Here are the weights of the babies in kilograms.

2.4 2.7 3.5 4.4 4.5 4.1 4.4 2.8
4.1 3.8 3.8 4.2 3.3 3.0 3.7 3.3

Show this information in an ordered stem and leaf diagram.

Key:

(Total for Question 3 is 3 marks)

4 (a) Expand $3(2 + t)$

(1)

(b) Expand $3x(2x + 5)$

(2)

(c) Expand and simplify $(m + 3)(m + 10)$

(2)

(Total for Question 4 is 5 marks)



5 Write 525 as a product of its prime factors.

(Total for Question 5 is 3 marks)

6 Ed has 4 cards.
There is a number on each card.

12

6

15

?

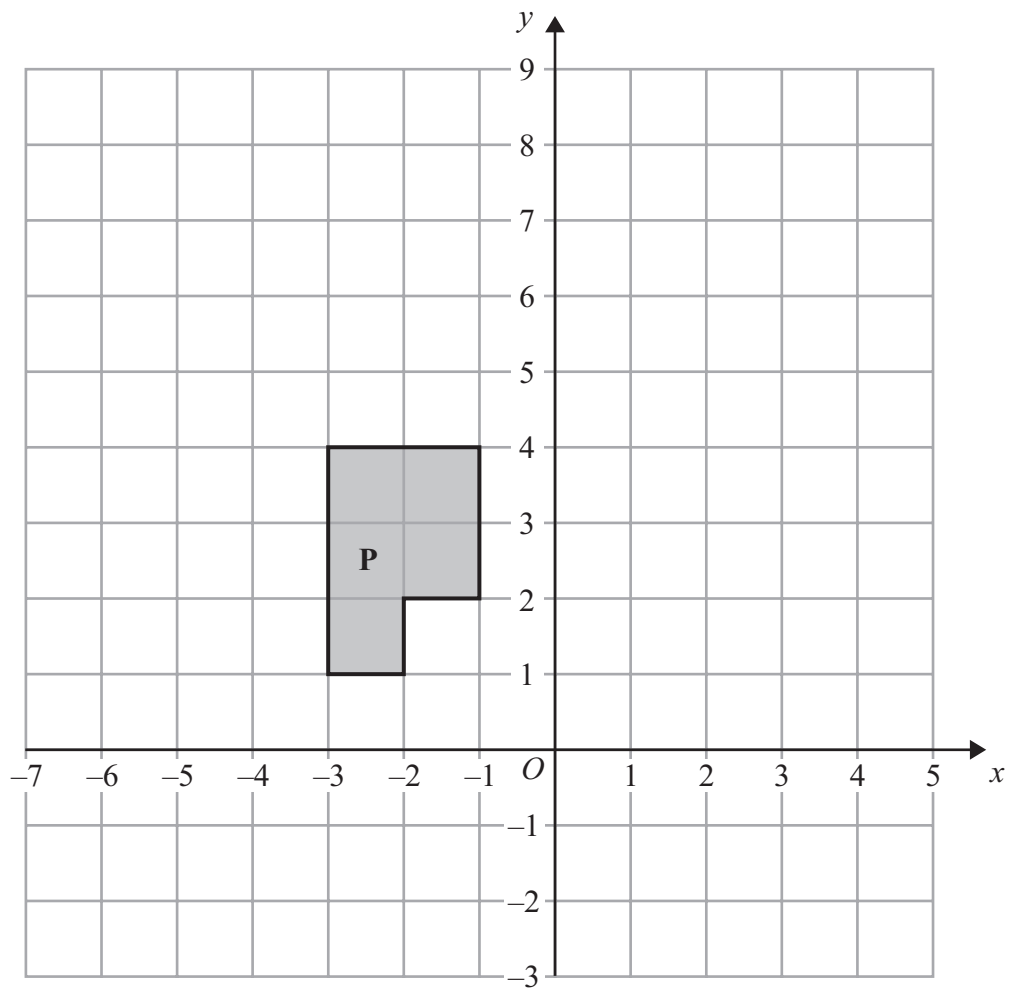
The mean of the 4 numbers on Ed's cards is 10

Work out the number on the 4th card.

(Total for Question 6 is 3 marks)



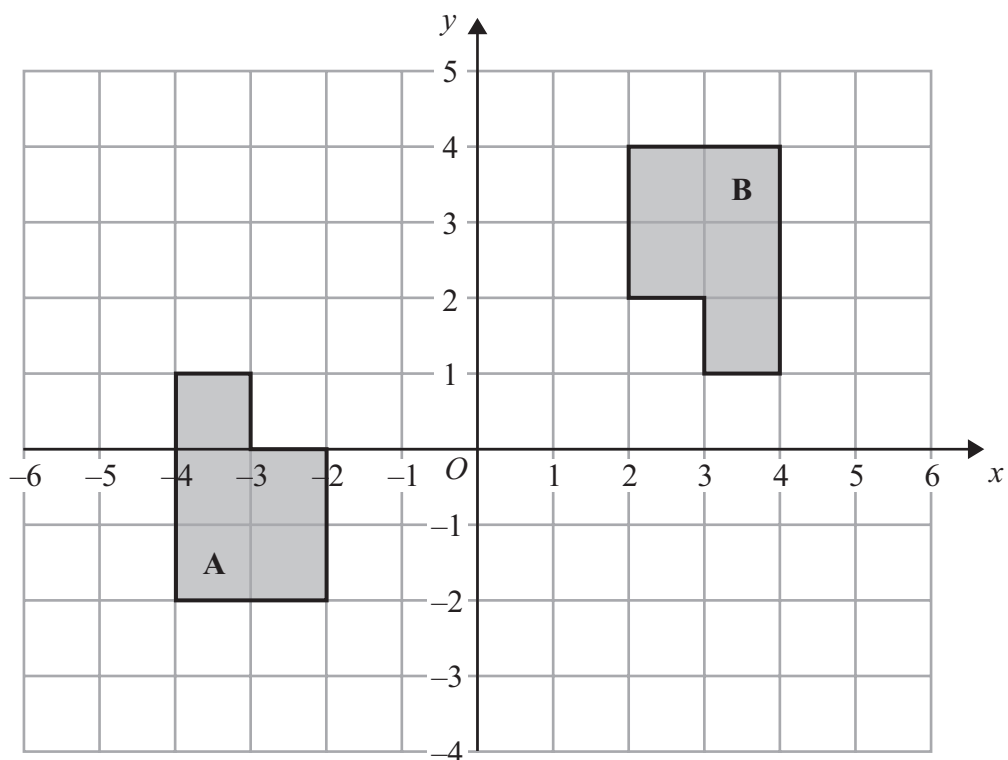
P 4 3 5 9 8 A 0 5 2 8



(a) Translate shape **P** by the vector $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$

(2)





(b) Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

 (3)

(Total for Question 7 is 5 marks)



- 8 Margaret has some goats.
The goats produce an average total of 21.7 litres of milk per day for 280 days.
Margaret sells the milk in $\frac{1}{2}$ litre bottles.

Work out an estimate for the total number of bottles that Margaret will be able to fill with the milk.

You must show clearly how you got your estimate.

.....
(Total for Question 8 is 3 marks)

- 9 Matt and Dan cycle around a cycle track.
Each lap Matt cycles takes him 50 seconds.
Each lap Dan cycles takes him 80 seconds.

Dan and Matt start cycling at the same time at the start line.

Work out how many laps they will each have cycled when they are next at the start line together.

Matt..... laps

Dan..... laps

(Total for Question 9 is 3 marks)



- 10 The diagram shows a garden in the shape of a rectangle.

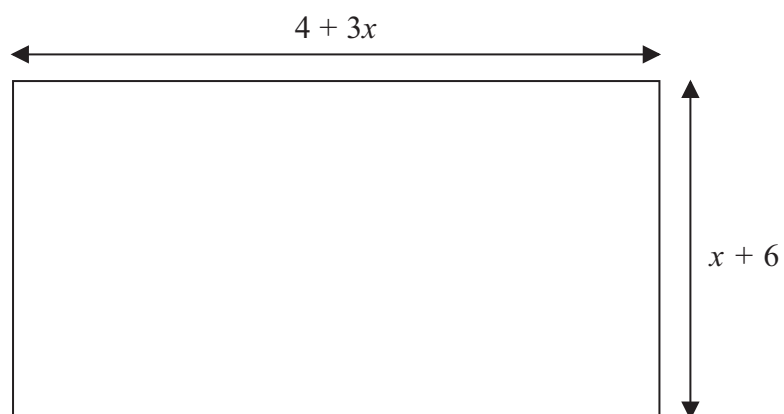


Diagram **NOT**
accurately drawn

All measurements are in metres.

The perimeter of the garden is 32 metres.

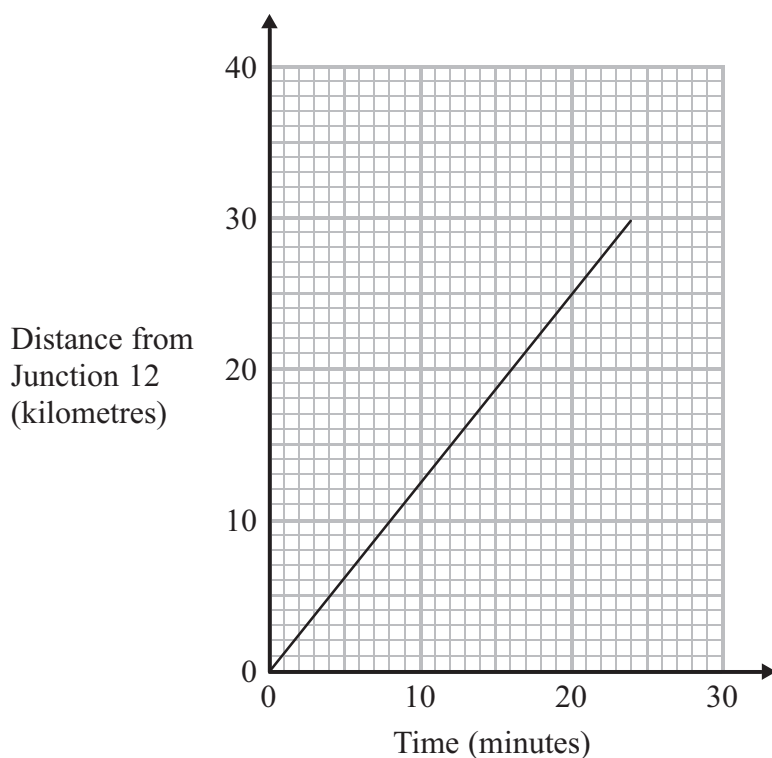
Work out the value of x

(Total for Question 10 is 4 marks)



***11** Debbie drove from Junction 12 to Junction 13 on a motorway.

The travel graph shows Debbie's journey.



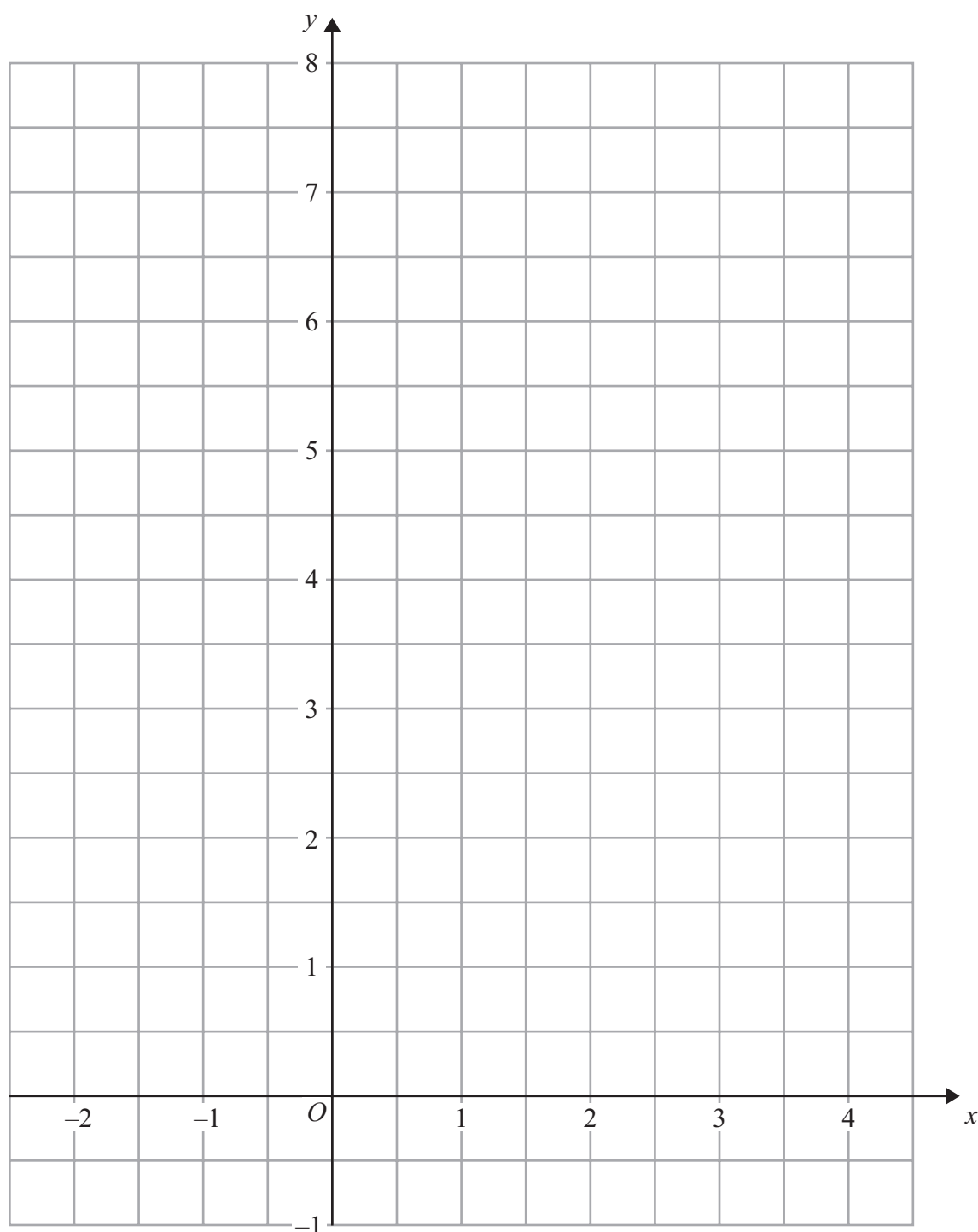
Ian also drove from Junction 12 to Junction 13 on the same motorway.
He drove at an average speed of 66 km/hour.

Who had the faster average speed, Debbie or Ian?
You must explain your answer.

(Total for Question 11 is 4 marks)



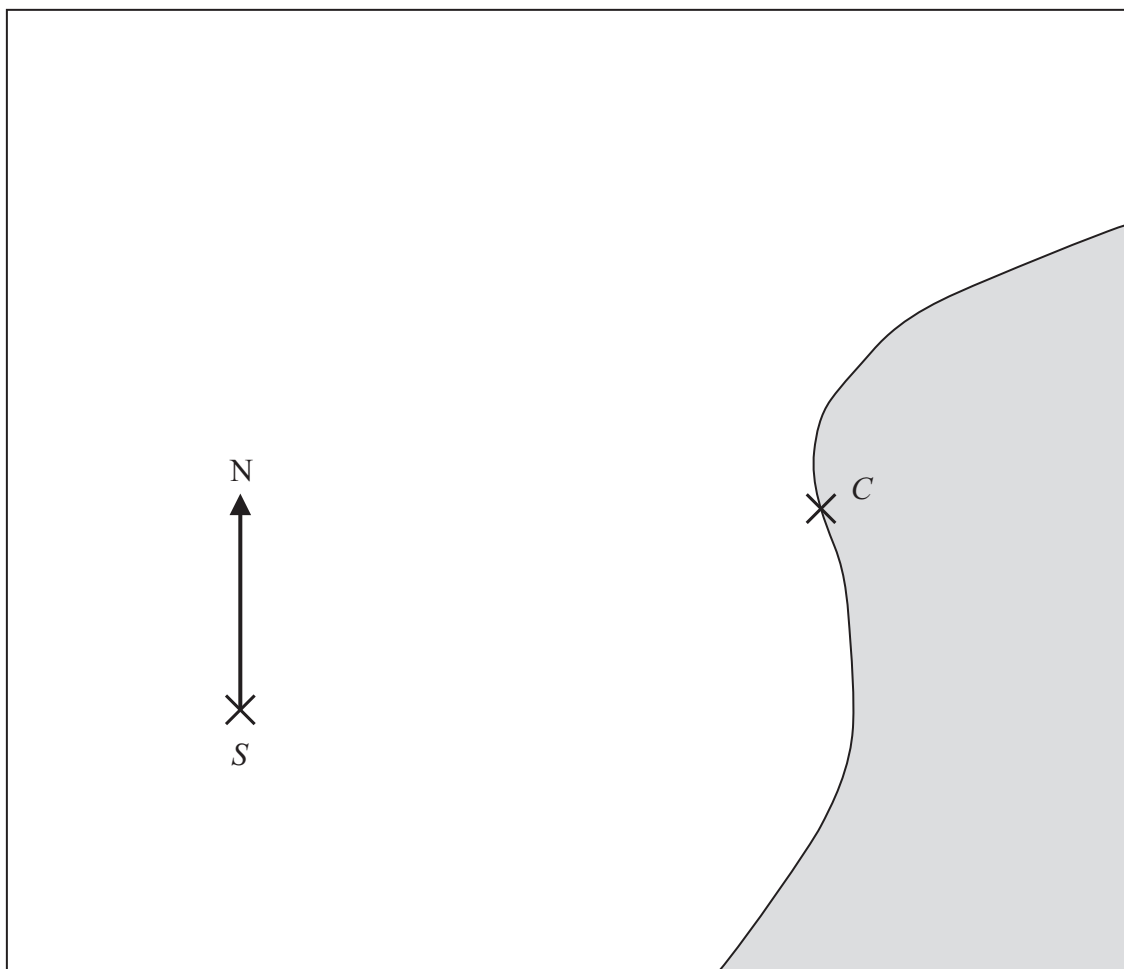
- 12 On the grid, draw the graph of $y = \frac{1}{2}x + 5$ for values of x from -2 to 4



(Total for Question 12 is 3 marks)



- *13** Here is a map.
The position of a ship, S , is marked on the map.



Scale 1 cm represents 100 m

Point C is on the coast.
Ships must not sail closer than 500 m to point C .

The ship sails on a bearing of 037°

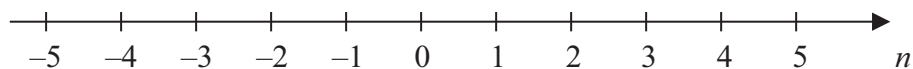
Will the ship sail closer than 500 m to point C ?
You must explain your answer.

(Total for Question 13 is 3 marks)



14 $-2 < n \leq 3$

(a) Represent this inequality on the number line.



(2)

(b) Solve the inequality $8x - 3 \geq 6x + 4$

(2)

(Total for Question 14 is 4 marks)

***15** One sheet of paper is 9×10^{-3} cm thick.

Mark wants to put 500 sheets of paper into the paper tray of his printer.
The paper tray is 4 cm deep.

Is the paper tray deep enough for 500 sheets of paper?
You must explain your answer.

(Total for Question 15 is 3 marks)



16 The normal price of a television is reduced by 30% in a sale.

The sale price of the television is £350

Work out the normal price of the television.

£.....

(Total for Question 16 is 3 marks)



NOVEMBER 2013

- 1 This is a list of ingredients for making chicken soup for 4 people.

Ingredients for 4 people

60 g	butter
300 g	chicken
150 ml	cream
1	onion
640 ml	chicken stock

Bill is going to make chicken soup for 6 people.

Work out the amount of each ingredient he needs.

..... g butter

..... g chicken

..... ml cream

..... onion

..... ml chicken stock

(Total for Question 1 is 3 marks)

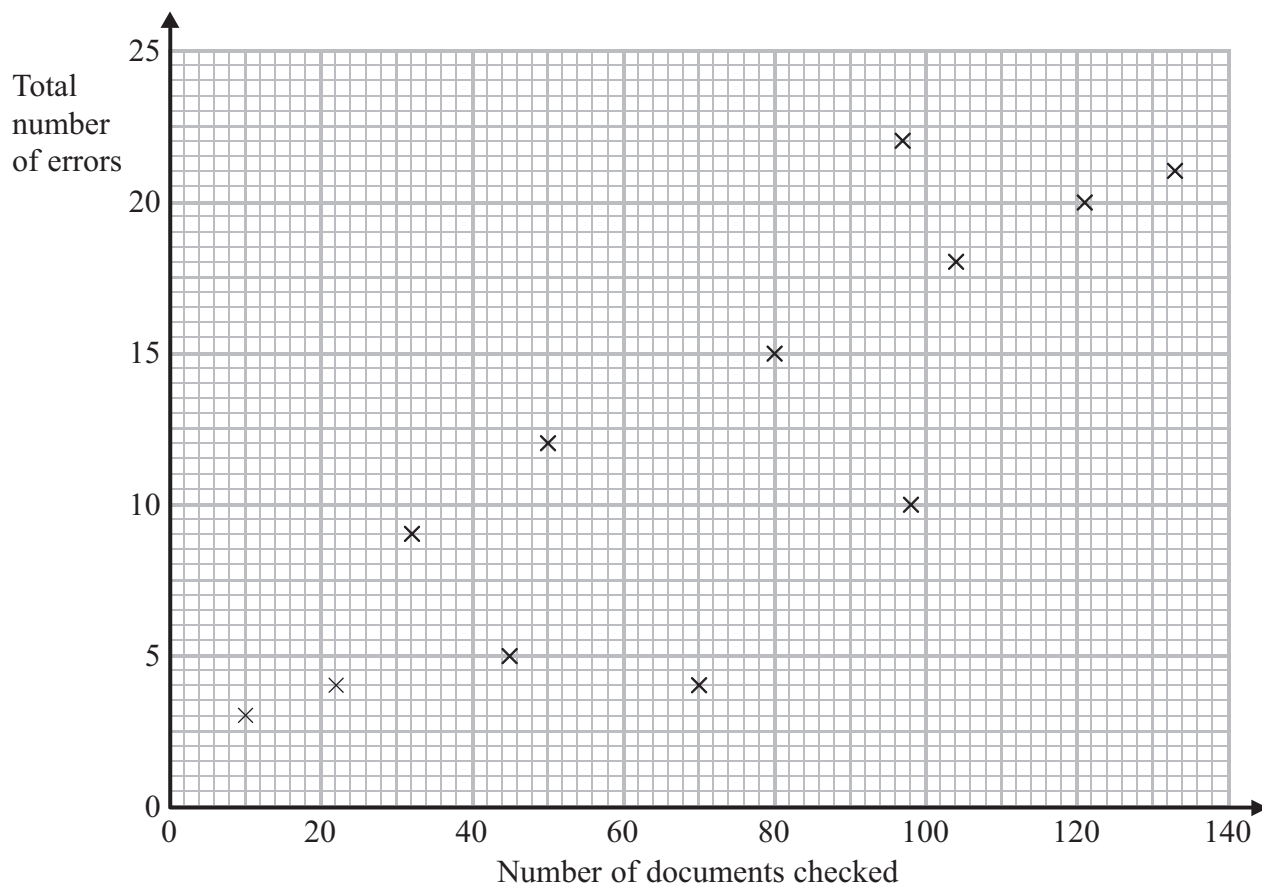


2 A publisher checks documents for errors.

He records the number of documents that are checked each day.

He also records the total number of errors in the documents each day.

The scatter graph shows this information.



On another day 90 documents are checked.

There is a total of 17 errors.

(a) Show this information on the scatter graph.

(1)

(b) Describe the correlation between the number of documents checked and the total number of errors.

(1)

One day 110 documents are checked.

(c) Estimate the total number of errors in these documents.

(2)

(Total for Question 2 is 4 marks)



3 Here is a triangular prism.

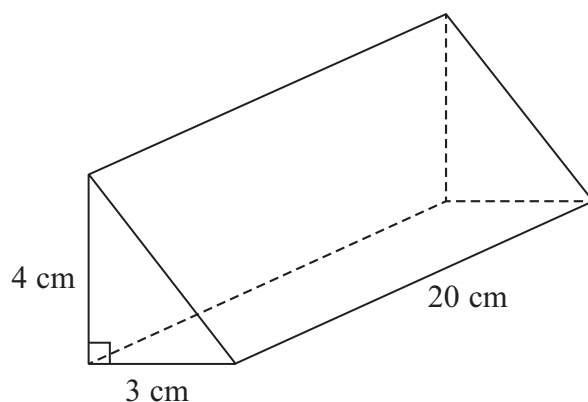


Diagram **NOT**
accurately drawn

Work out the volume of this triangular prism.

.....

(Total for Question 3 is 4 marks)



4 (a) Simplify $4y + 2x - 3 + 3x + 8$

.....
(2)

(b) Factorise fully $9x^2 - 6xy$

.....
(2)

(c) Expand $4(x + 2)$

.....
(1)

(d) Expand and simplify $(x - 5)(x + 3)$

.....
(2)

(Total for Question 4 is 7 marks)



- 5 Jane has a packet of seeds.
The probability that a seed will grow is 0.75
- (a) What is the probability that a seed will **not** grow?

.....
(1)

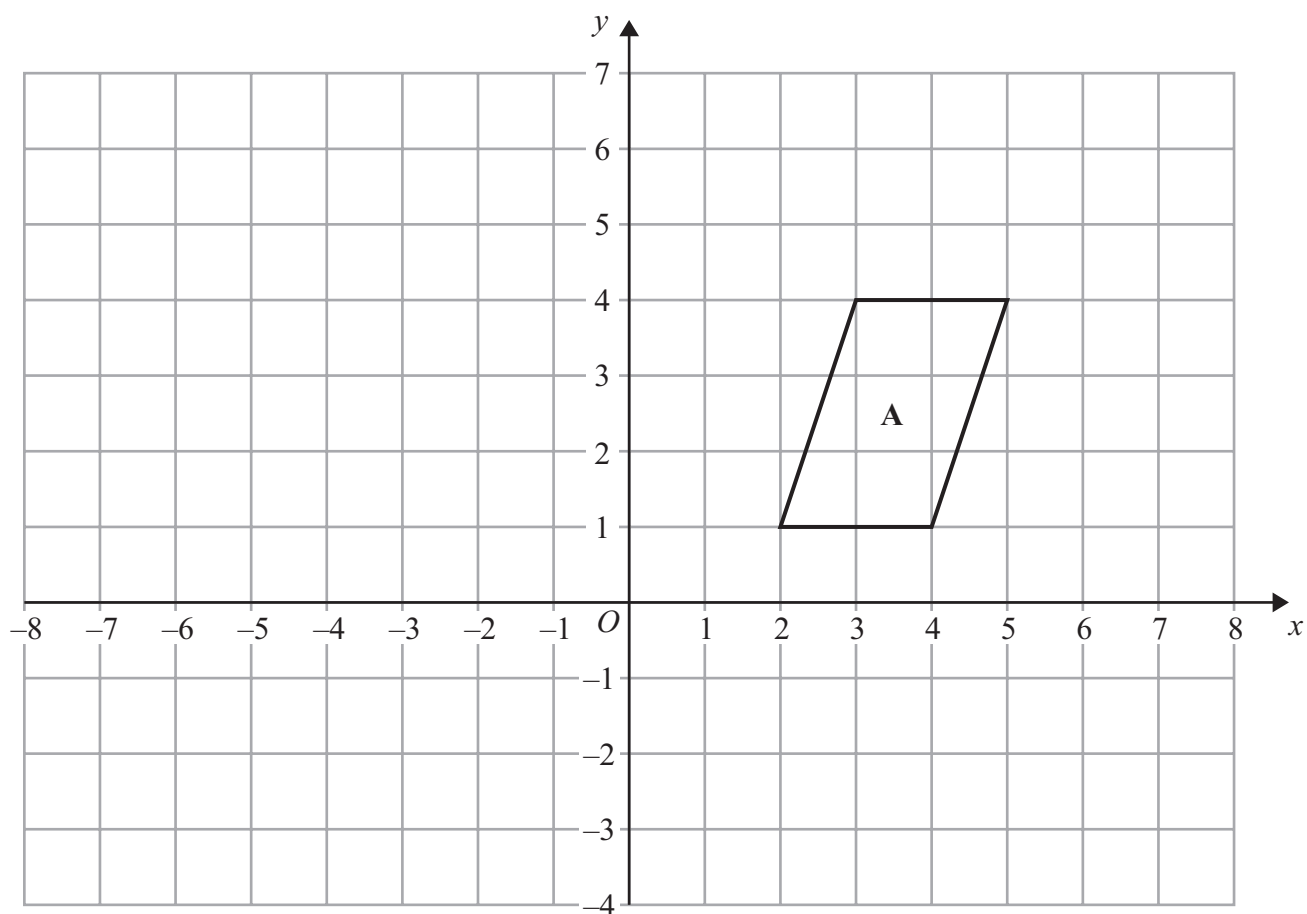
Jane plants 200 of these seeds.

- (b) Estimate the number of the seeds that will grow.

.....
(2)

(Total for Question 5 is 3 marks)

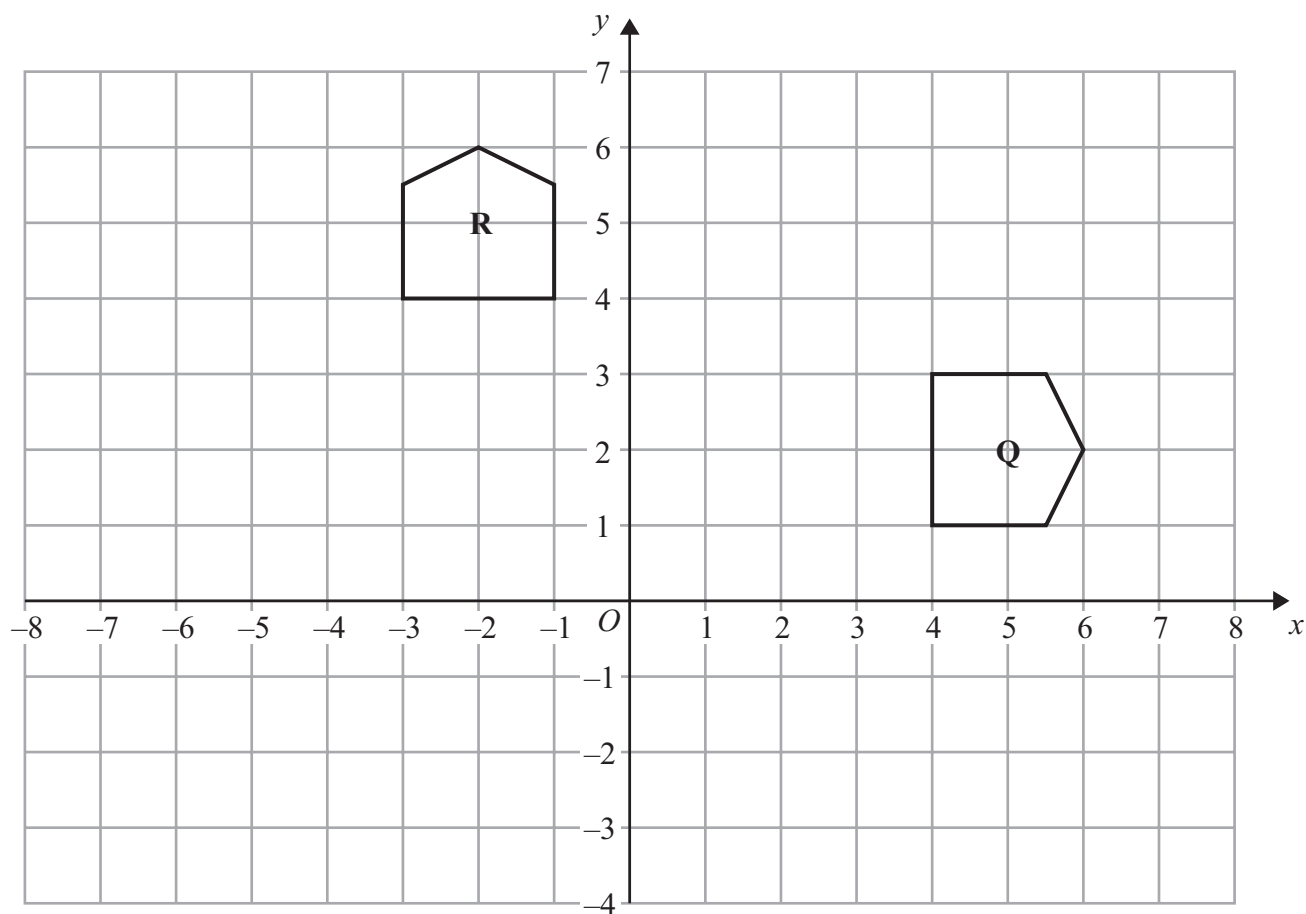




(a) Translate shape **A** by the vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

(1)





(b) Describe fully the single transformation that maps shape Q onto shape R.

.....

.....

.....

.....

(3)

(Total for Question 6 is 4 marks)



- 7 Rita is going to make some cheeseburgers for a party.
She buys some packets of cheese slices and some boxes of burgers.

There are 20 cheese slices in each packet.

There are 12 burgers in each box.

Rita buys exactly the same number of cheese slices and burgers.

- (i) How many packets of cheese slices and how many boxes of burgers does she buy?

..... packets of cheese slices

..... boxes of burgers

Rita wants to put one cheese slice and one burger into each bread roll.
She wants to use all the cheese slices and all the burgers.

- (ii) How many bread rolls does Rita need?

..... bread rolls

(Total for Question 7 is 4 marks)



8 ABC is a triangle.

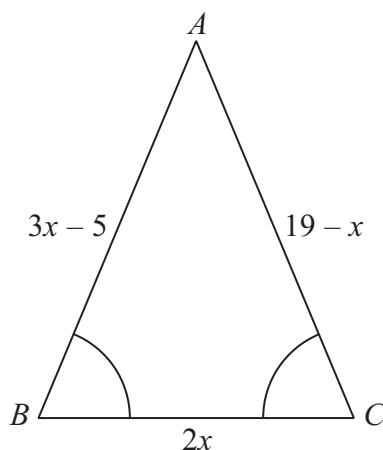


Diagram **NOT**
accurately drawn

Angle $ABC = \text{angle } BCA$.

The length of side AB is $(3x - 5)$ cm.

The length of side AC is $(19 - x)$ cm.

The length of side BC is $2x$ cm.

Work out the perimeter of the triangle.

Give your answer as a number of centimetres.

..... cm

(Total for Question 8 is 5 marks)



9 Julia is investigating how much exercise people do in a week.

She uses these two questions in a questionnaire.

Question 1 What is your age?

Under 15

15 to 25

25 to 40

over 40

Question 2 How much exercise do you do?

A bit

Some

A lot

(a) Write down **one** thing wrong with each of these questions.

Question 1

.....

.....

Question 2

.....

.....

(2)

Julia wants to know how much time people spend exercising.

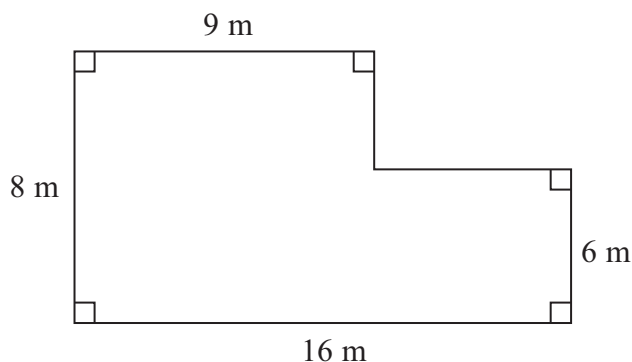
(b) Design a question Julia could use in her questionnaire.

(2)

(Total for Question 9 is 4 marks)



***10** The diagram shows the floor of a village hall.



The caretaker needs to polish the floor.

One tin of polish normally costs £19

One tin of polish covers 12 m^2 of floor.

There is a discount of 30% off the cost of the polish.

The caretaker has £130

Has the caretaker got enough money to buy the polish for the floor?

You must show all your working.

(Total for Question 10 is 5 marks)



11 Each day a company posts some small letters and some large letters.

The company posts all the letters by first class post.

The tables show information about the cost of sending a small letter by first class post and the cost of sending a large letter by first class post.

Small Letter

Weight	First Class Post
0–100 g	60p

Large Letter

Weight	First Class Post
0–100 g	£1.00
101–250 g	£1.50
251–500 g	£1.70
501–750 g	£2.50

One day the company wants to post 200 letters.

The ratio of the number of small letters to the number of large letters is 3 : 2

70% of the large letters weigh 0–100 g.

The rest of the large letters weigh 101–250 g.

Work out the total cost of posting the 200 letters by first class post.

£.....

(Total for Question 11 is 5 marks)

