

Name

Edexcel GCSE

Mathematics A

Paper 1 (Non-Calculator) 1st 4 Pages Higher Tier

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.

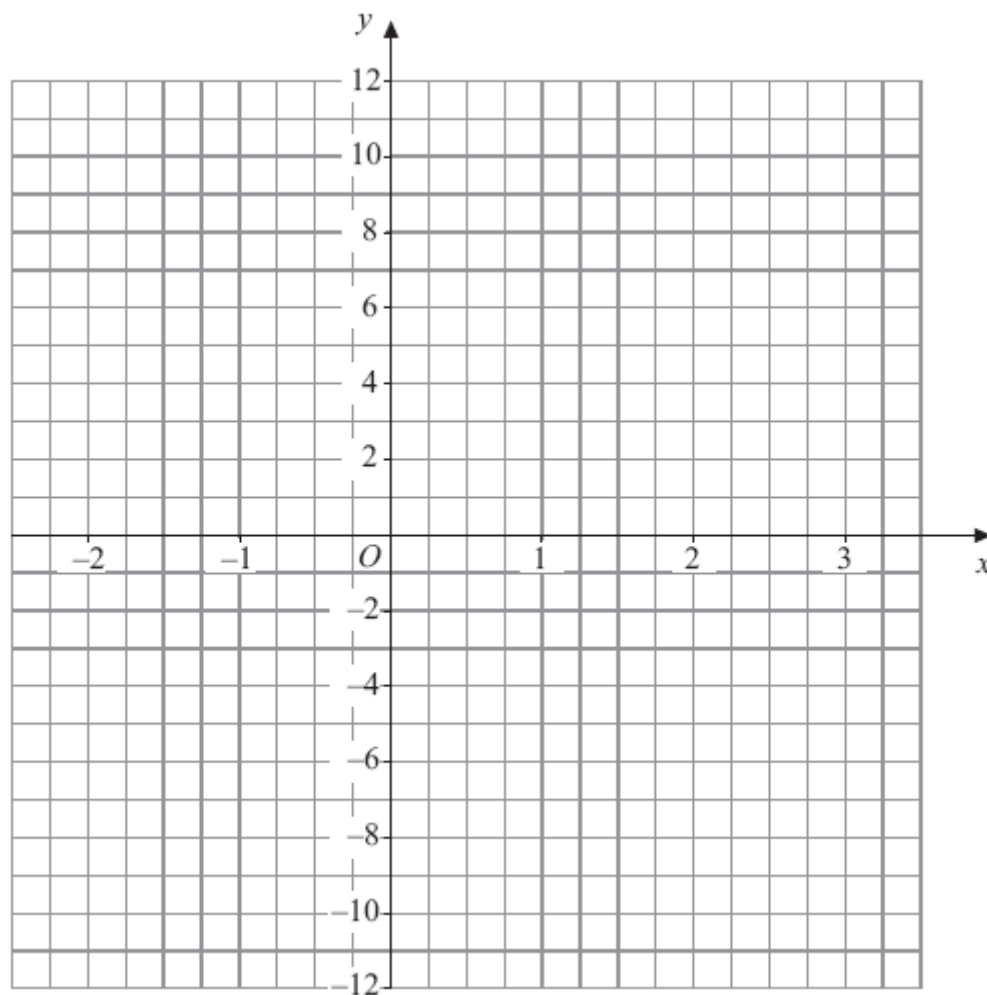
..... pence
(2)
(Total 4 marks)

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)

$$y = 4n - 3d$$

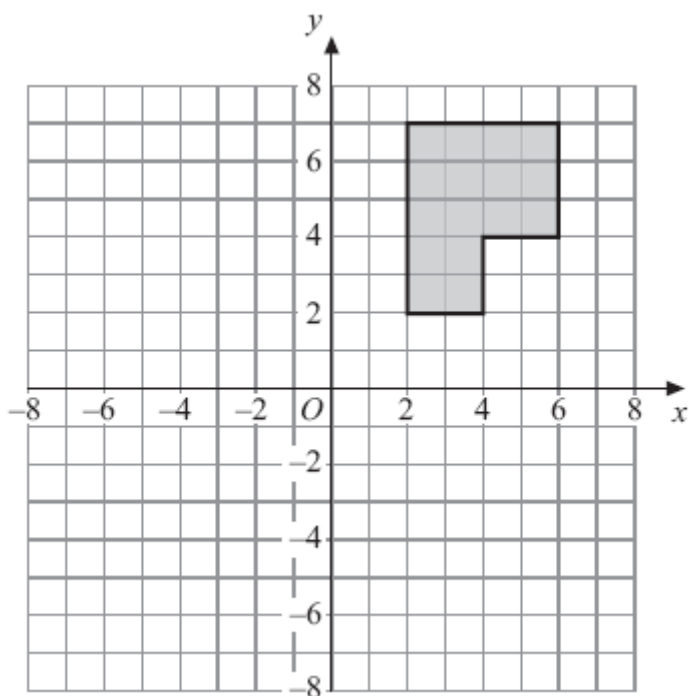
$$n = 2$$

$$d = 5$$

(b) Work out the value of y .

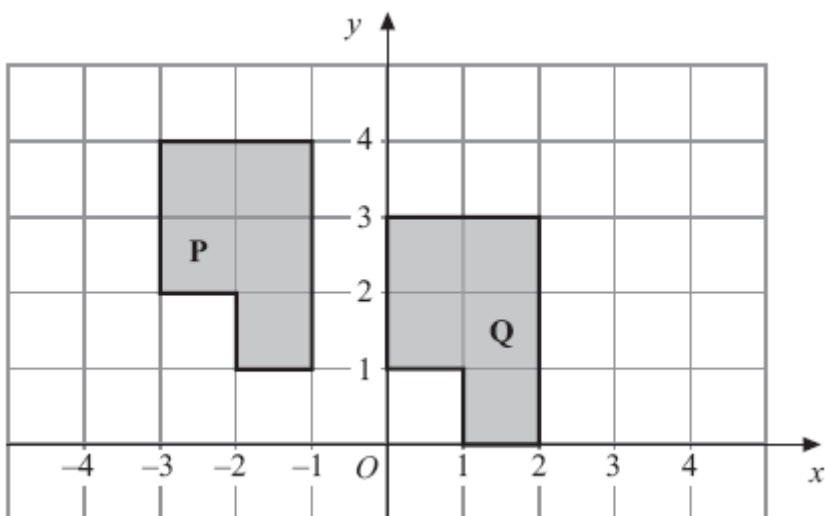
.....
(2)
(Total 4 marks)

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)

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)

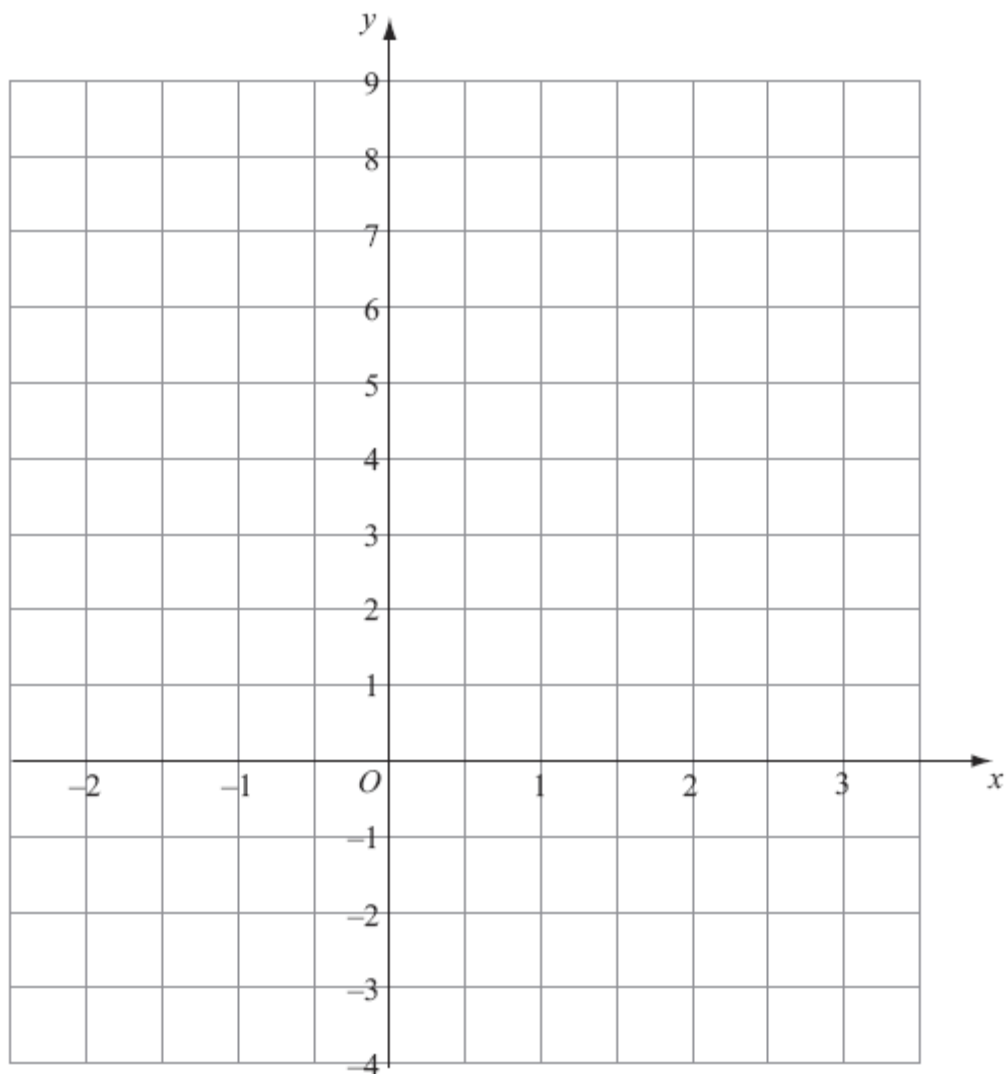
2. Work out an estimate for the value of $\frac{31 \times 4.92}{0.21}$

.....
(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)

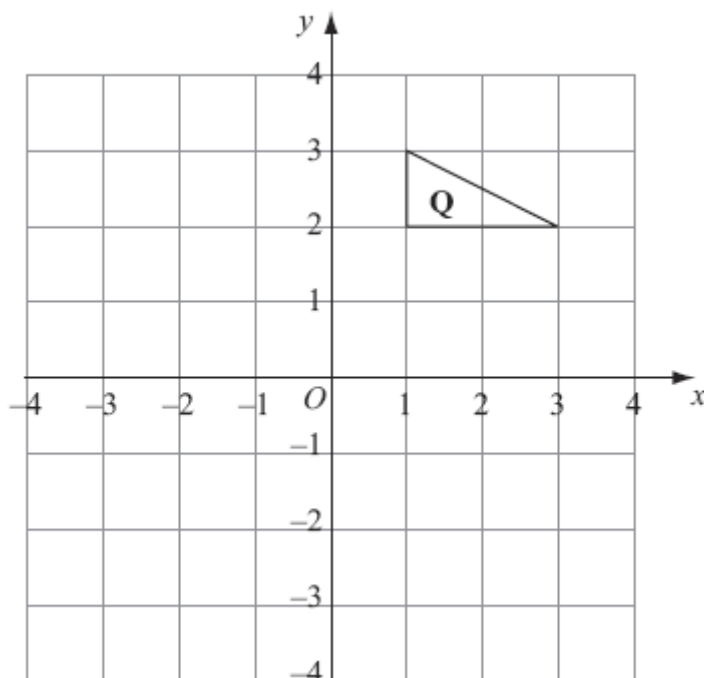
4.



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 .

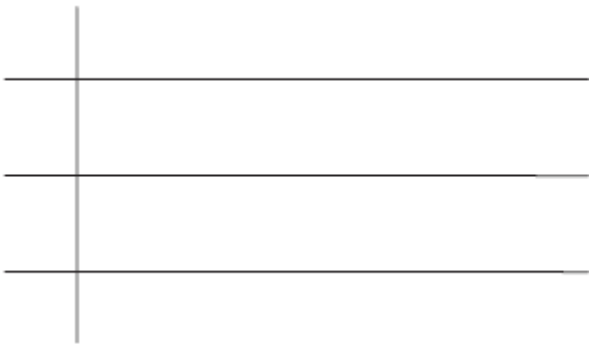
(3)

(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)

June 2010

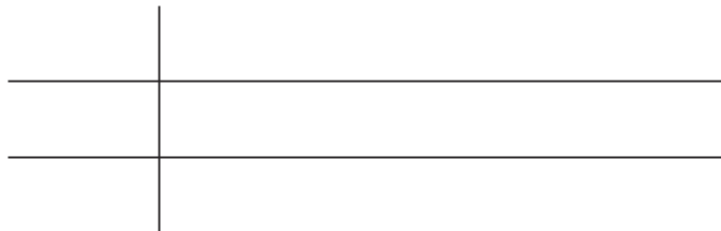
1. Simplify $6x + 9y + 2x - 3y$

.....
(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.

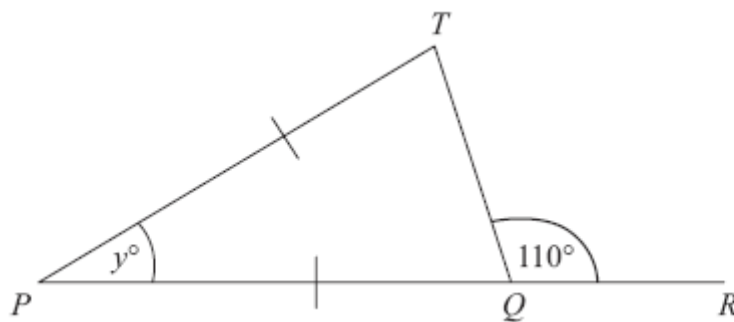


Diagram **NOT**
accurately drawn

PQR is a straight line.

$PT = PQ$.

(i) Work out the value of y .

.....

(ii) Give reasons for your answer.

.....

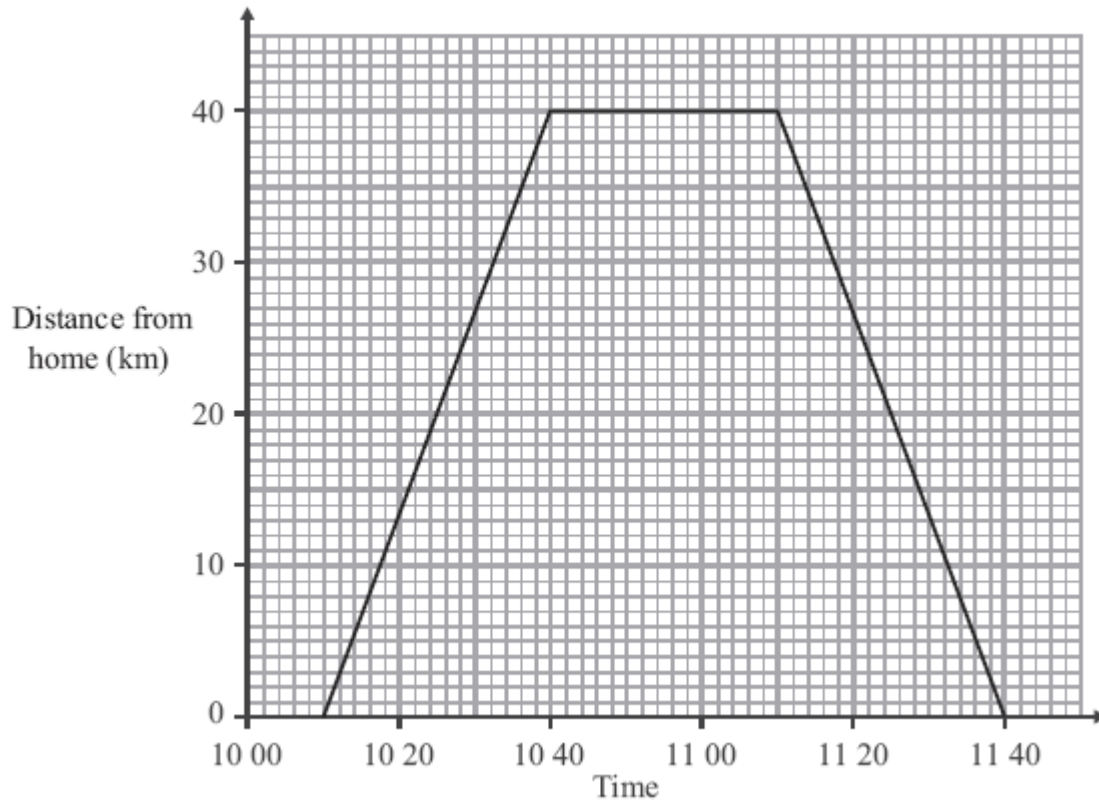
.....

.....

(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?

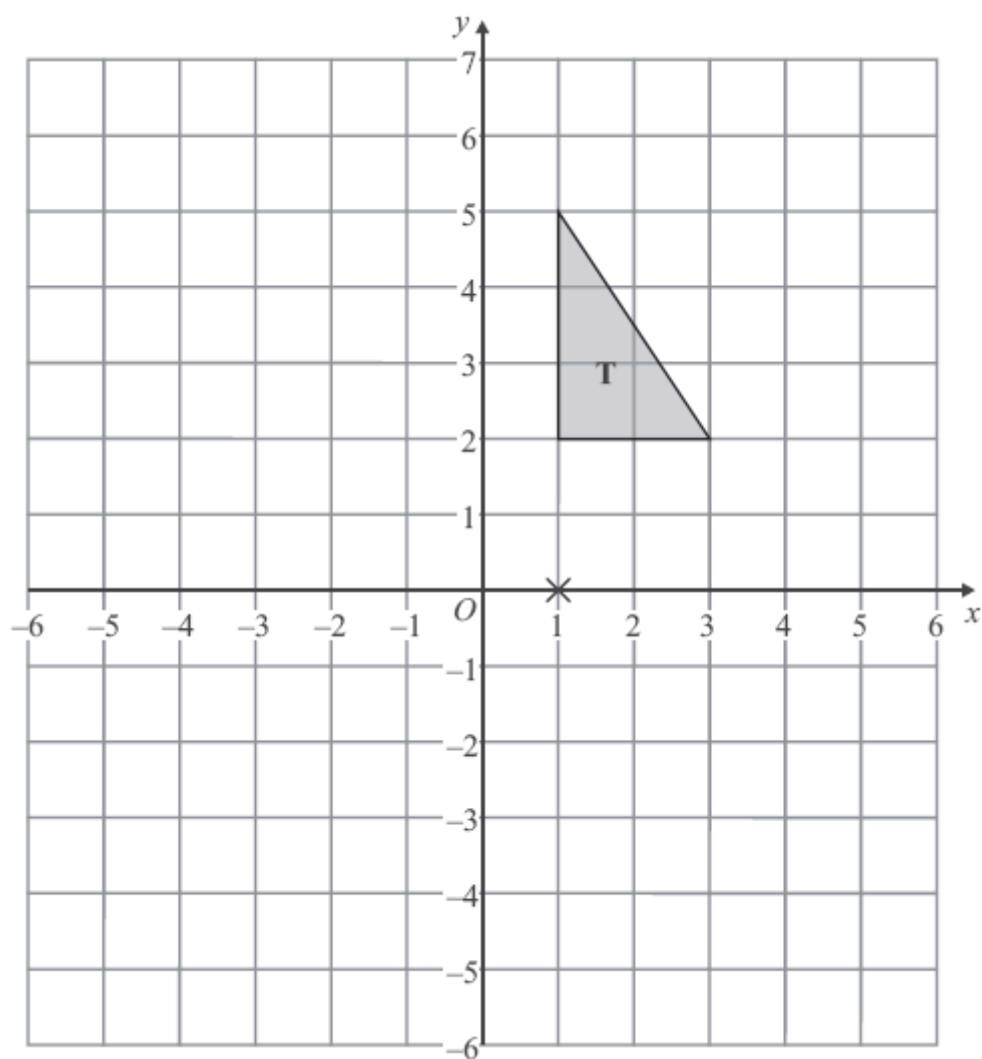
..... km
(1)

- (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)

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)

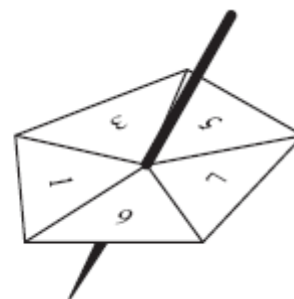
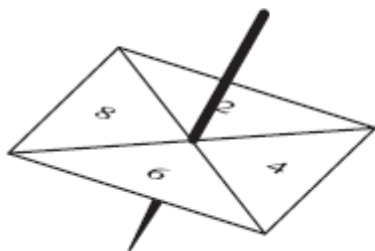
2. (a) Simplify $p \times p \times p \times p$

.....
(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.

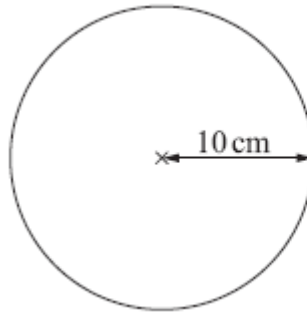


Diagram **NOT**
accurately drawn

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)

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

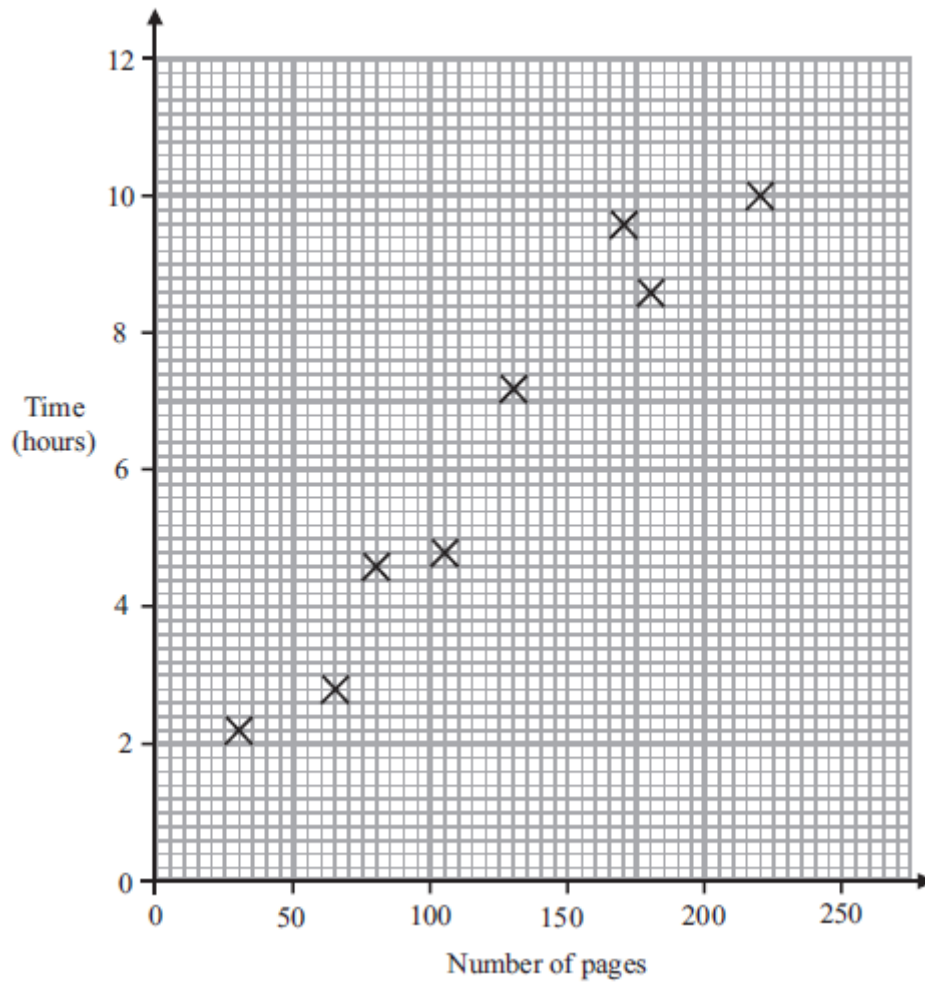
..... g light brown sugar

(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.

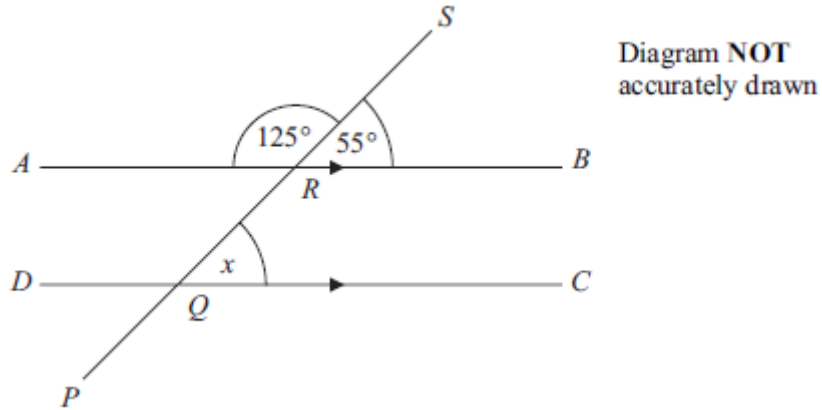
The book has 150 pages.

- (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)

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.

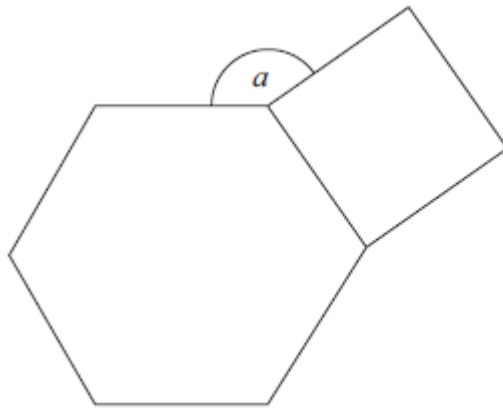


Diagram NOT
accurately drawn

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								

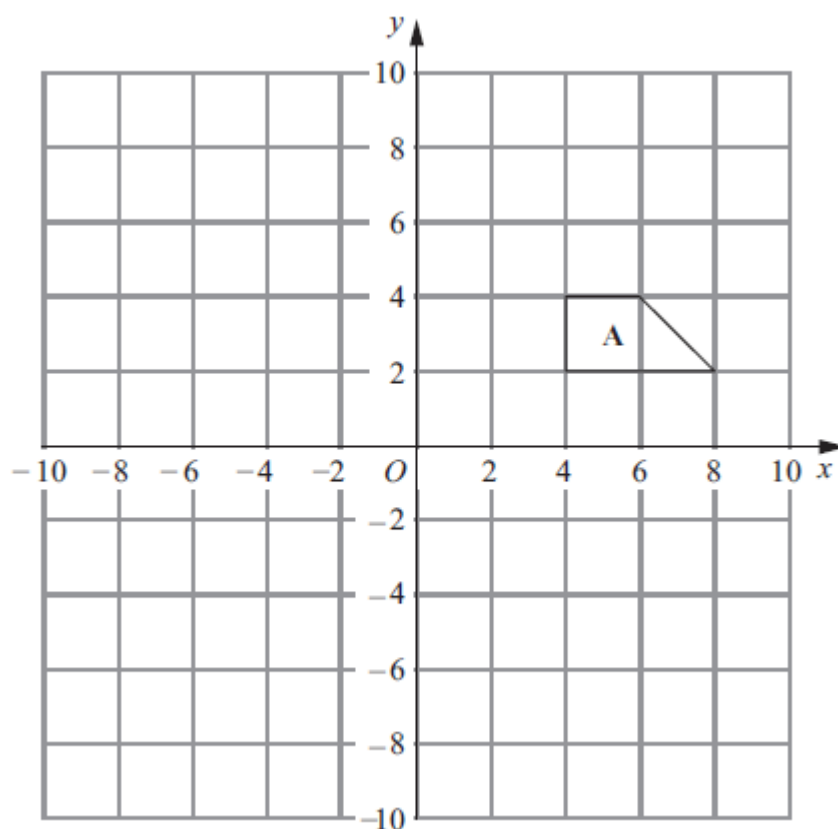
Key: 5|2 means 5.2 cm

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)

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 $\frac{60.2 \times 0.799}{223}$
Give your answer as a decimal.

.....

(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.

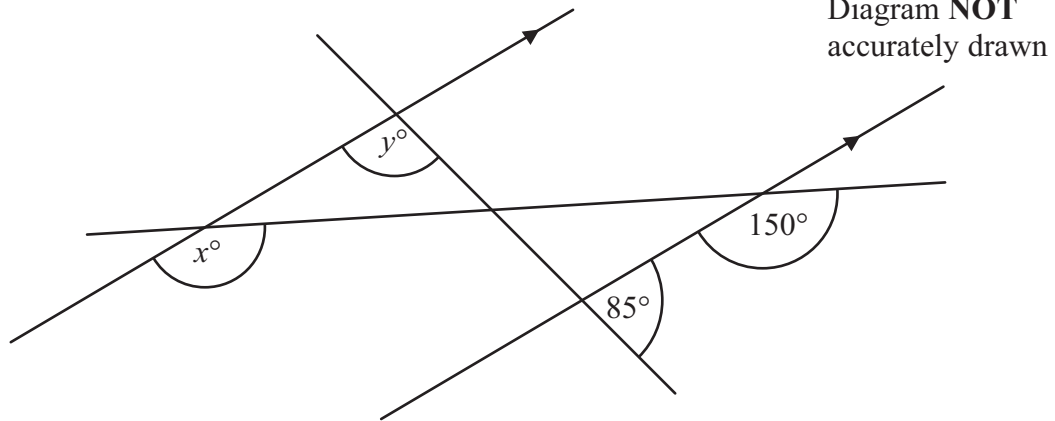
£
(3)

(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



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.

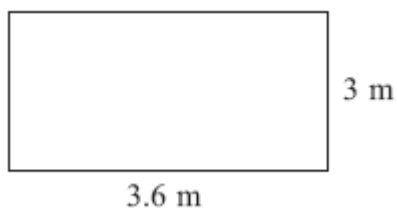


Diagram **NOT**
accurately drawn

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.

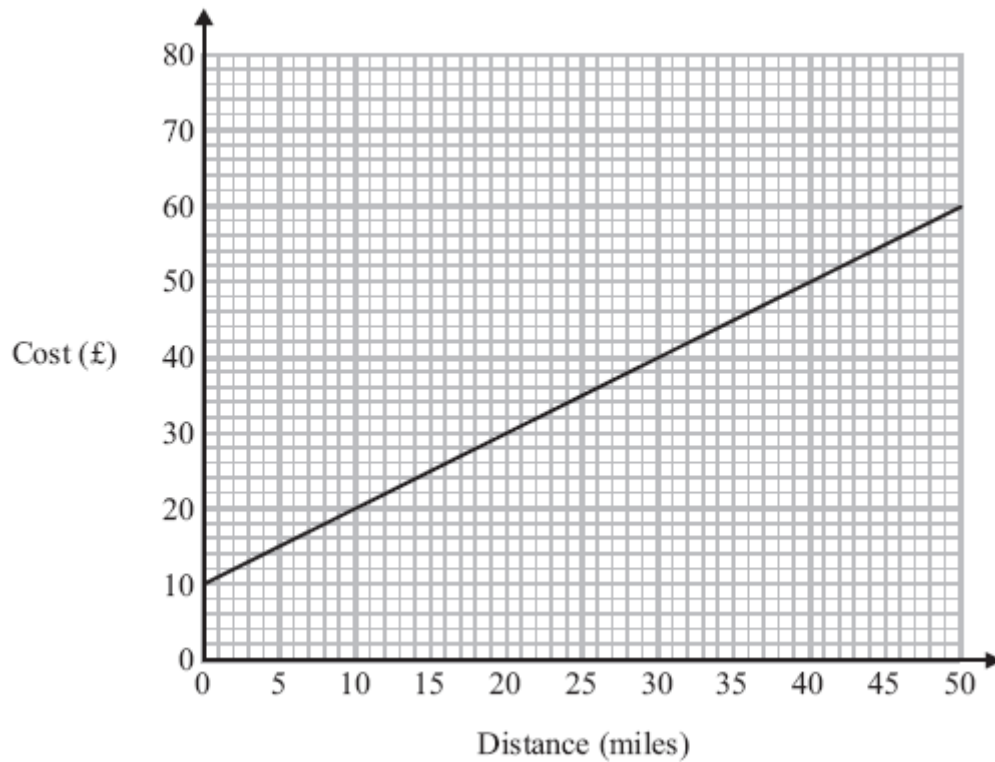
- (b) Work out the total cost of the 32 paving slabs.

£
(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)

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

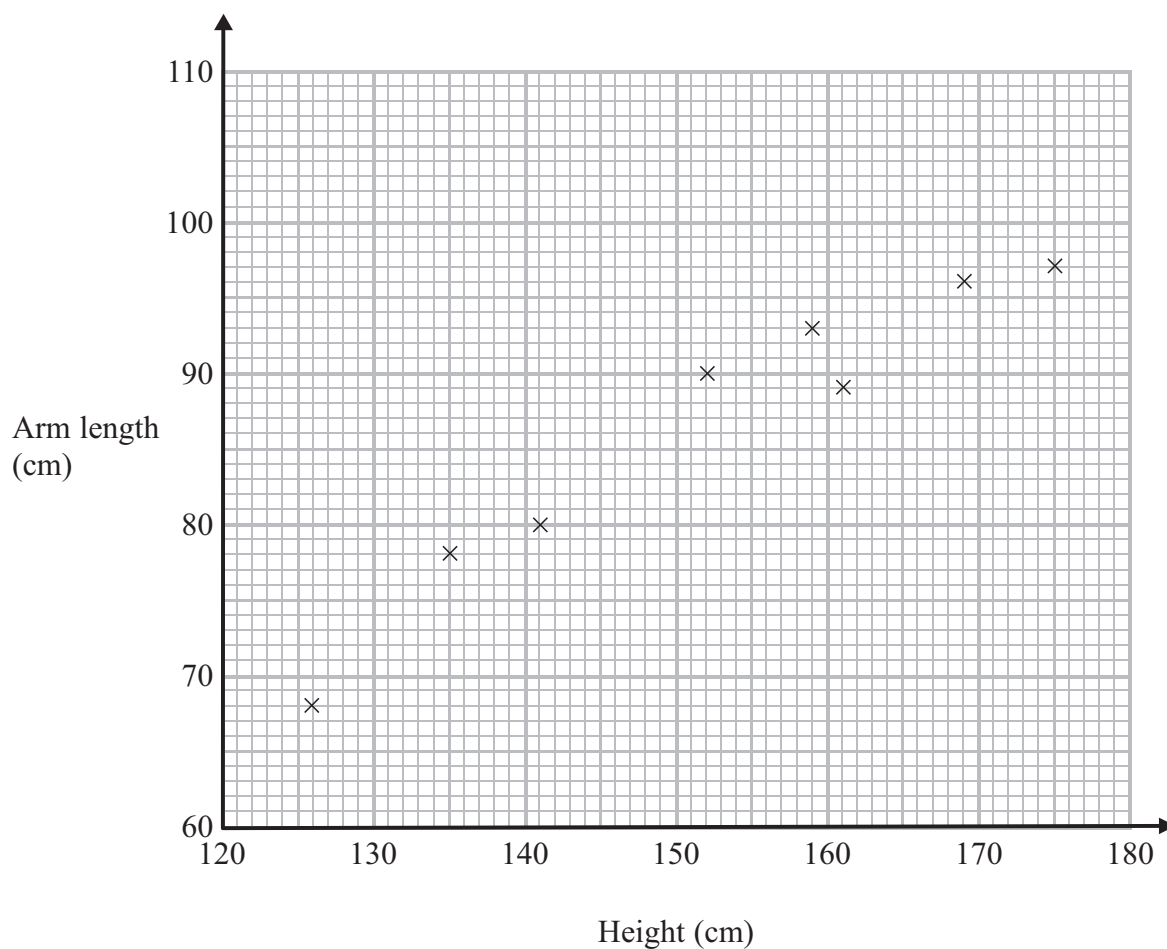
.....g butter

.....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)



March 2013

1 Work out 1.83×47

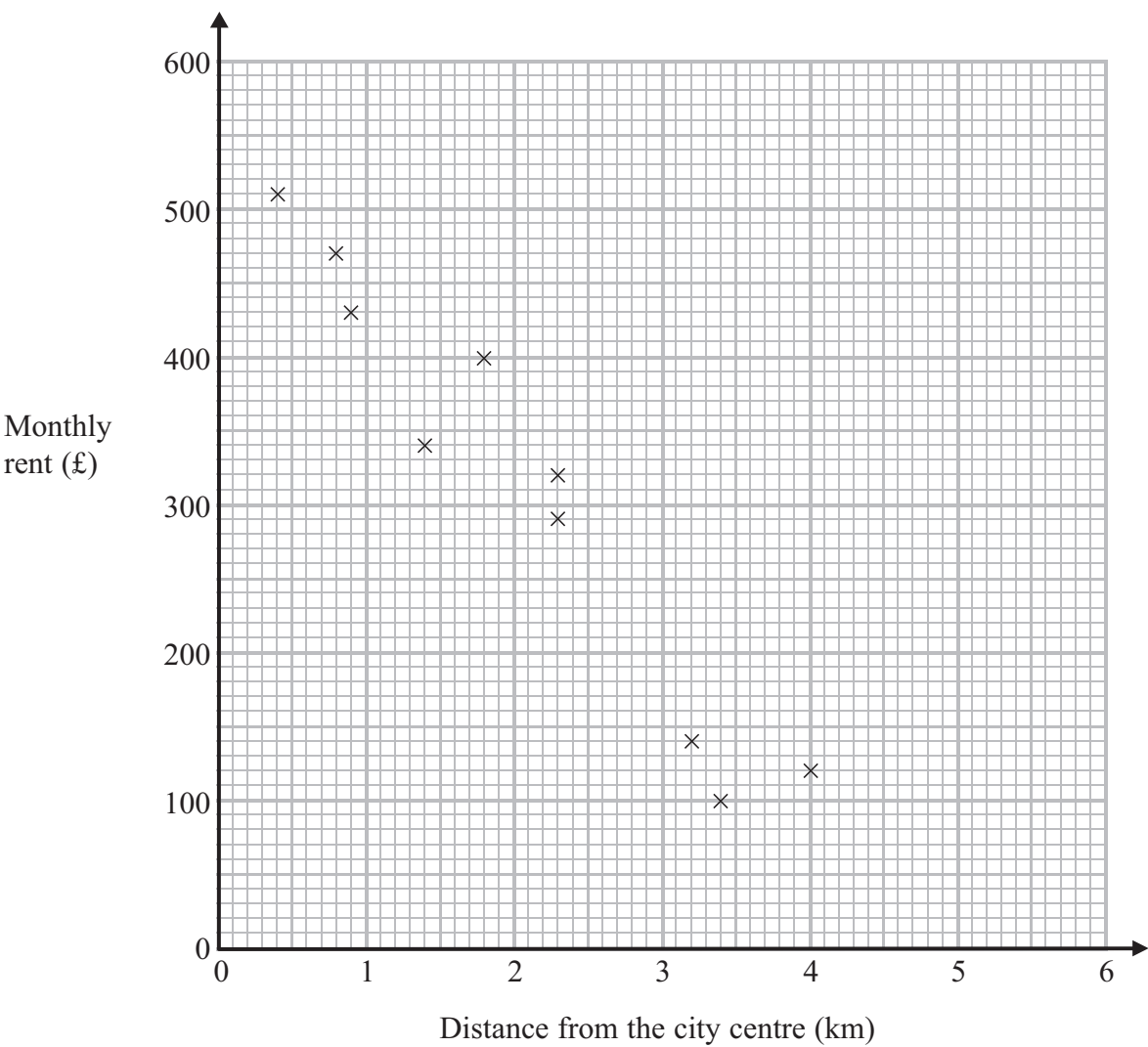
.....
(Total for Question 1 is 3 marks)



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)

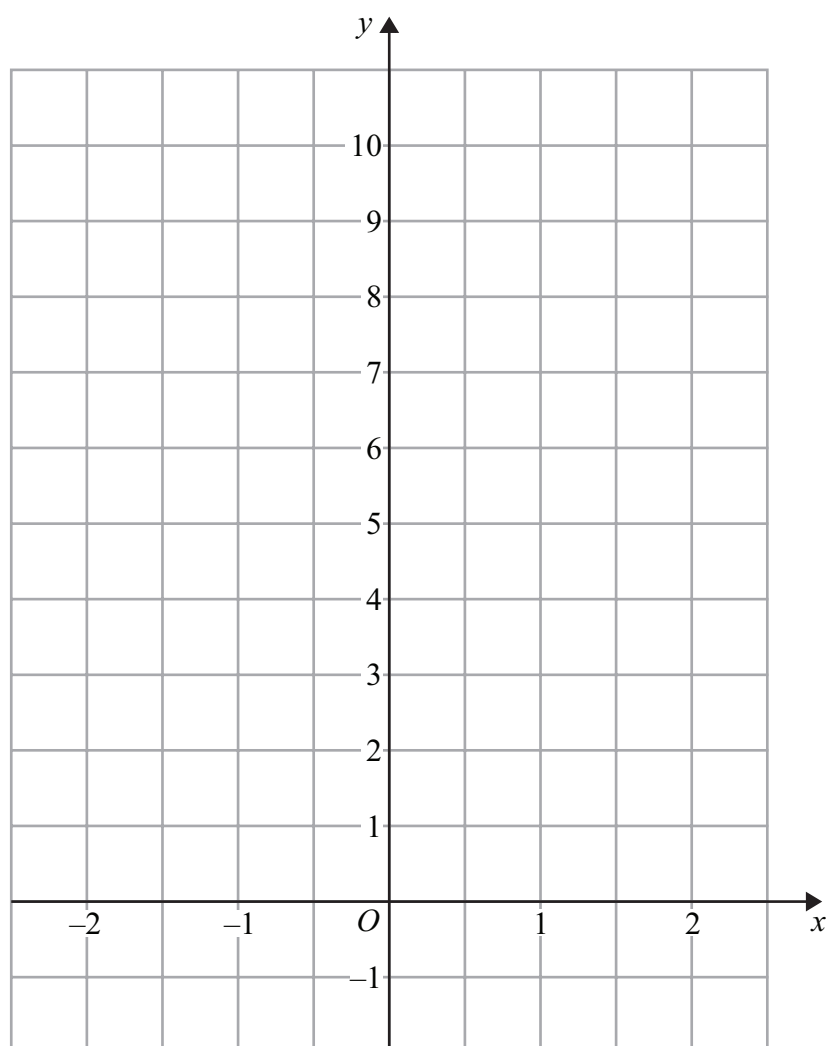


4 (a) Complete the table of values for $y = 2x + 5$

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)



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

?

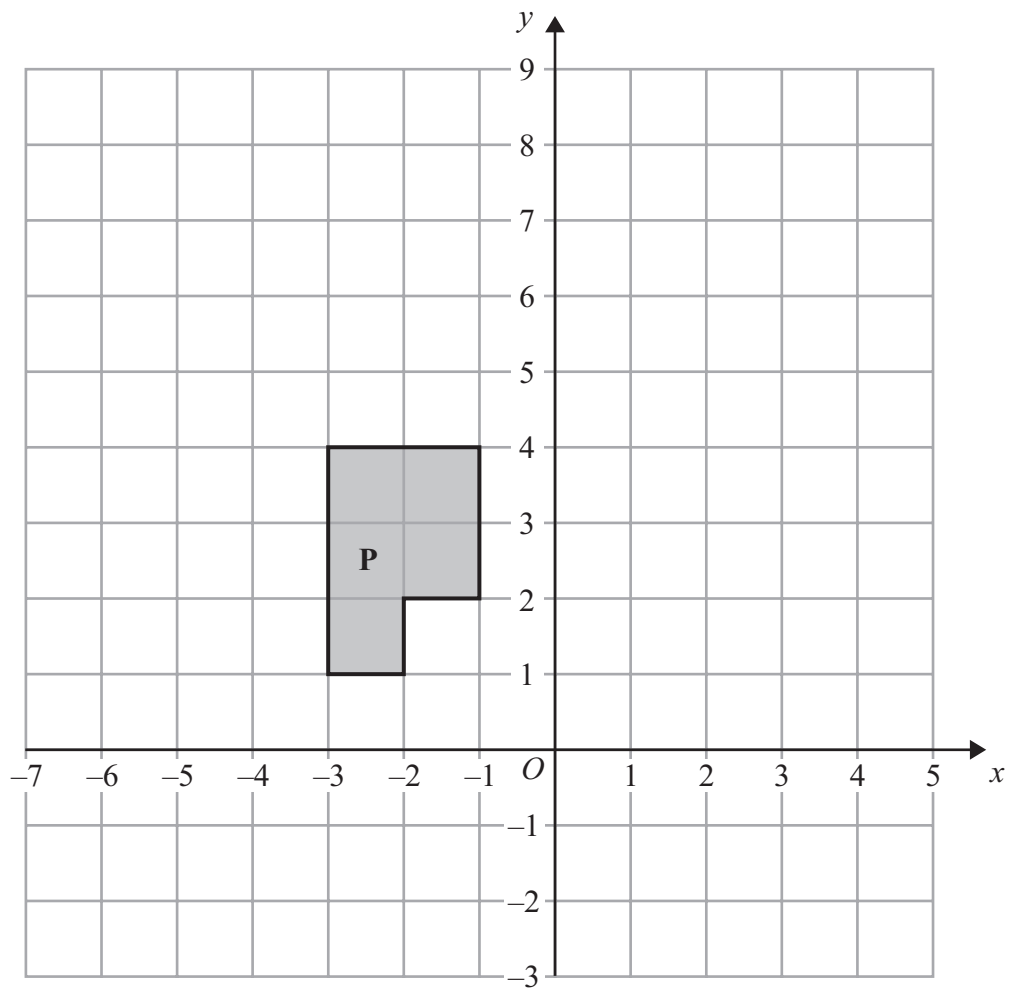
The mean of the 4 numbers on Ed's cards is 10

Work out the number on the 4th card.

.....

(Total for Question 6 is 3 marks)





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

(2)



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)

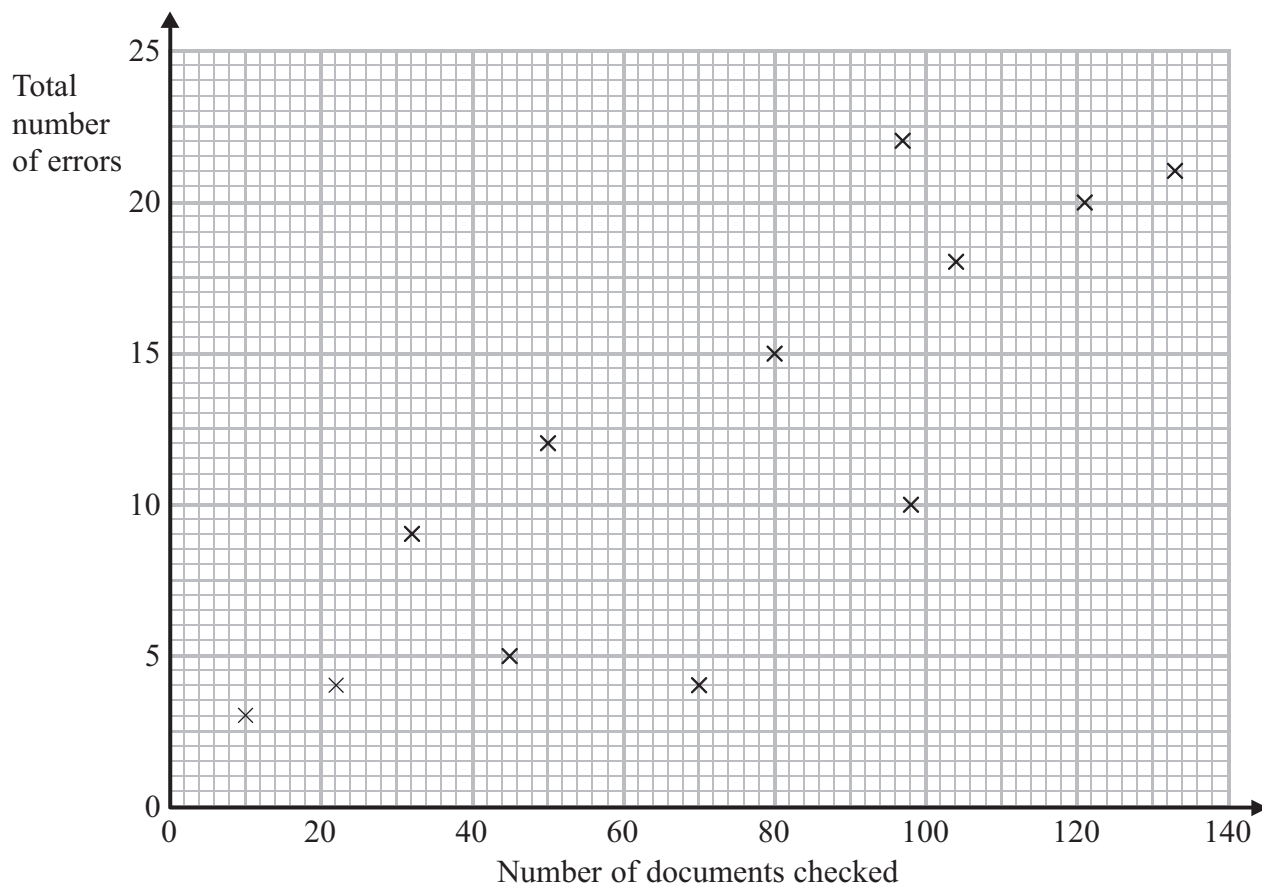


2 A publisher checks documents for errors.

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.

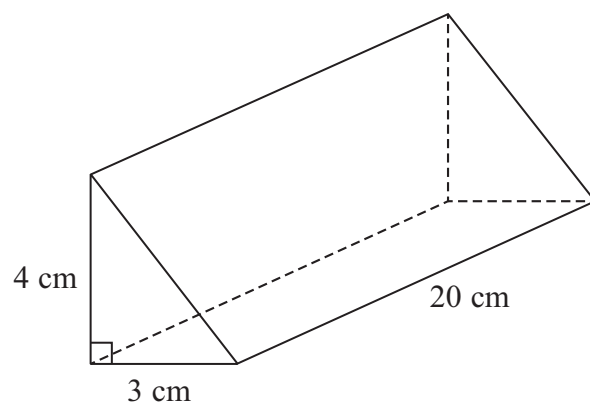


Diagram **NOT**
accurately drawn

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)

