FOUNDATION
MATHEMATICS EXAMINATION
CALCULATOR 2013A

NAME ....

SURNAME ....

SCHOOL/UNIVERSITY
APPLIED FOR ....

CONTACT NUMBER ....

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14	
15	
16	
17	
Total	

Time Allowed 1 Hour
1 In addition to this paper you may need
2 A ruler
3 A protractor
4 A pair of compasses

Instructions to Candidates
1 Write your name and other details in the spaces above
2 Answer all questions in the spaces provided
3 Additional sheets may be used
4 Calculators **MAY BE USED** in this paper

Information to candidates
1 The marks available are given at the end of each question and
   part questions eg (2)
2 There are 17 questions in this paper

Advice to candidates
1 Work steadily through the paper
2 Don't spend to long on one question
3 If you can not answer a question leave it and move to the next one
4 Return at the end to those you have left out
5 If you have time at the end, go back and check your answers

Examiners Signature

Answer ALL SEVENTEEN Questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

You may use a calculator.

1.   (a) Write down **two pounds eighty pence** in figures.

£........................

(b) Write down **two pounds and six pence** in figures.

£........................

(Total 2 marks)

2.

Impossible	Unlikely	Even chance	Likely	Certain

From the words above, choose what best describes the probability.

(a) that the sun will shine in July next year in London.

....

(b) that the next baby to be born will be a boy.

....

(c) that there will be 50 days next month.

....

(Total 3 marks)

3.   Here is a two stage number machine. It multiplies by 10 and then adds 3.

Input ⇨   X10 ⇨   +3 ⇨   Output
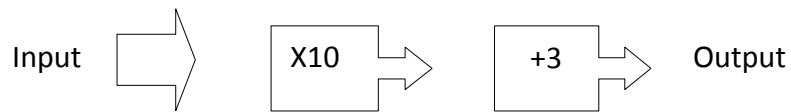
Complete the table below.

Input	Output
1	13
2	23
5	
8	83
	103

(Total 2 marks)

4.   Complete this table by writing a sensible unit for each measurement.

	Metric	Imperial
The height of a door		Feet
The weight of a man	kilograms	
The volume of water in a bucket		gallons

(Total 3 marks)

5.   (a) Work out 5^2

....

(1)

(b) Find the square root of 3.24

....

(1)

(Total 2 marks)

6. Here are the first four terms of a number sequence.

    7   10   13   16

    (a) Write down the next term in the sequence.

    ....

    (1)

    Explain in words how you found your answer.

    ....

    ....

    (Total 2 marks)

7. Tulips cost 85p each.
   Sarah has £20 to spend on tulips.
   She buys the greatest possible number of tulips.

    (a) Work out the number of tulips Sarah buys.

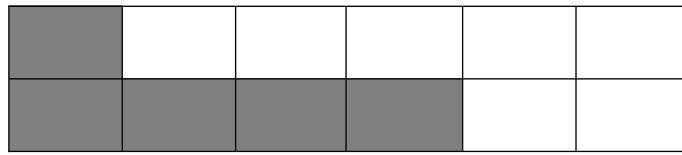   ....tulips

    (2)

    Sarah pays with a £20 note.
    (b) Work out how much change Sarah should get.

    ....p

    (2)

    (Total 4 marks)

8.

(a) What fraction of the shape is shaded?

....
(1)

(b) Here is a list of fractions.

$$\frac{2}{10} \qquad \frac{4}{20} \qquad \frac{5}{25} \qquad \frac{10}{20} \qquad \frac{3}{10}$$

Two of the fractions are not equivalent to $\frac{1}{5}$

Write down these two fractions.

.... and ....
(2)

(c) Work out $\frac{3}{4}$ of 64

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

9. The two-way table gives information about the subjects studied by 50 students.

	Law	Engineering	Medicine	Total
Male	6			
Female		6		25
Total	11		18	50

(a) Complete the two-way table.

(3)

One of these students is chosen at random.
(b) Find the probability that this student is male and studies Law.

(2)
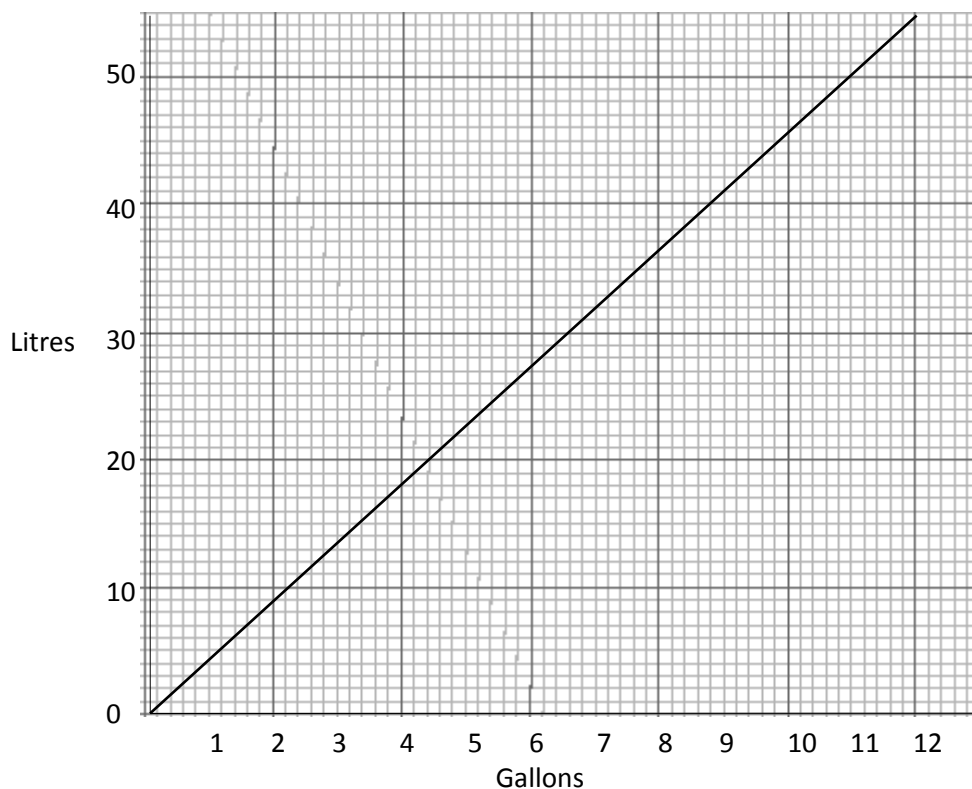
(Total 5 marks)

10. (a) Solve $\dfrac{x}{5} = 3$

X = ...
(1)

(b) Solve $2y - 4 = 9$

Y = ...
(2)

(Total 3 marks)

11. This conversion graph can be used to change between litres and gallons.

(a) Use the graph to change 50 Litres to gallons.

..................gallons

(1)

(b) use the graph to change 6 gallons to litres

.....................litres

(1)

1 litre of petrol costs £1.35

(c) Work out the cost of 50 Litres of petrol.

£................

(2)

(d) Work out an estimate for the cost of 1 gallon of petrol.

£................

(2)

(Total 6 marks)

12. Here is part of a train timetable for six trains from Birmingham to London.

Train	A	B	C	D	E	F
Birmingham	06 35	07 00	07 15	07 30	07 45	08 00
London	08 09	08 39	08 48	09 04	09 59	09 39

(a) Which train takes more than 2 hours to go from Birmingham to London?

....
(1)

(b) Work out the number of minutes taken by train **D** to go from Birmingham to London.

.................minutes
(2)

Donna has to go to a meeting in London.
She will catch one of the six trains from Birmingham.
She needs to arrive in London before 9.00

(c) Write down the latest train that she can catch.

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

13. Use your calculator to work out $\dfrac{2}{1.5+2.45}$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

....
(2)

(b) Write your answer to part (a) correct to 2 decimal places.

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

14.   In August 2011, Kevin hired a car in Italy.

The cost of hiring the car was £620
The exchange rate was £1 = €1.15

(a) Work out the cost of hiring the car in Euros (€).

€............................
(2)

Kevin bought some perfume in Italy for Bridget.

The cost of the perfume in Italy was €50
The cost of the same perfume in London was £42

The exchange rate was still £1 = €1.15

Work out the difference between the cost of the perfume in Italy and the cost of the perfume in London.
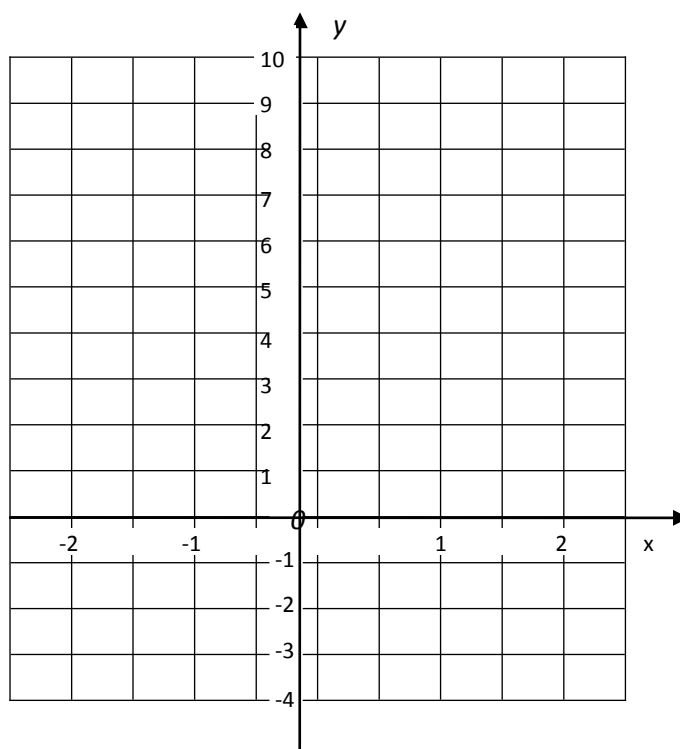Give your answer in pounds (£).

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

15.   (a) Complete the table of values for y = 3x + 4

X	-2	-1	0	1	2
y					

(2)

(b) On the grid, draw the graph of y = 3x + 4

(2)

(Total 4 marks)

16. There are some ribbons in a box.

The ribbons are green or red or yellow or white.

The table shows each of the probabilities that a ribbon chosen at random will be green or red or white.

Colour	Green	Red	Yellow	White
Probability	0.15	0.3		0.35

(a) Work out the probability that a ribbon chosen at random will be yellow.

....

(2)

There are 500 ribbons in the box.

(b) Work out the number of red ribbons.

....

(2)

(Total 4 marks)

17. Mr Jones sells umbrellas

The scatter graph shows some information about the number of umbrellas he sold and the rainfall, in cm, each month last year.
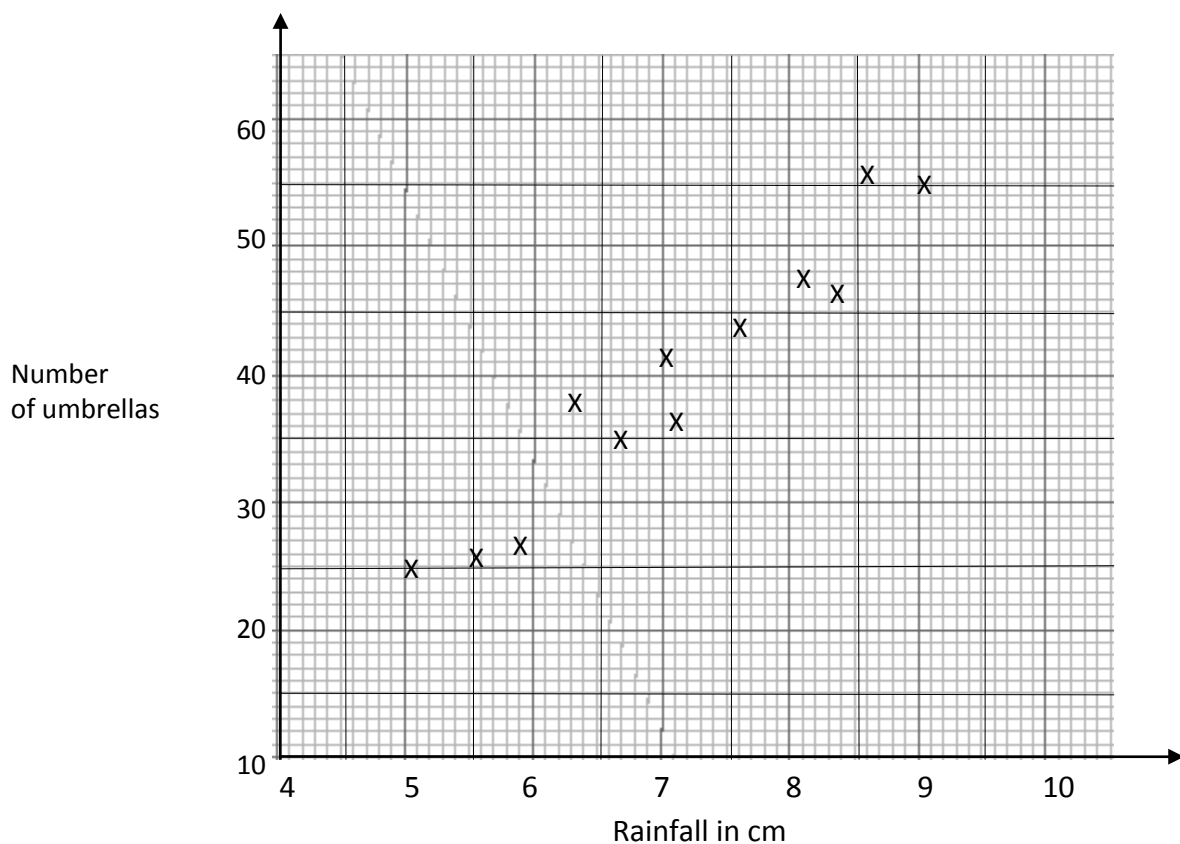
In January of this year, the rainfall was 6.1cm.
During January, Mr Jones sold 32umbrellas.

(a) Show this information on the graph. (1)

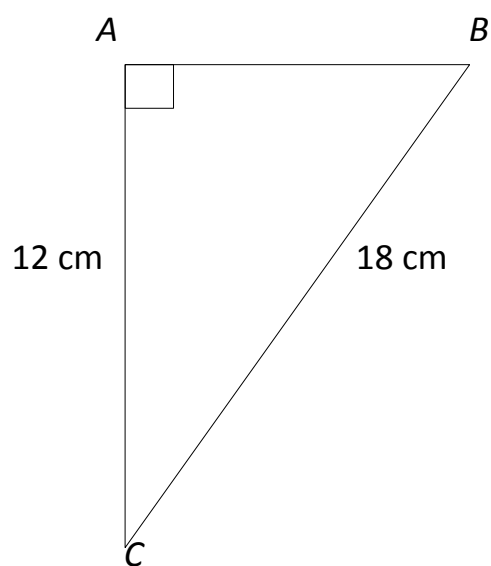(b)What type of correlation does this scatter graph show ?

....
(1)

In February of this year, Mr Jones sold 40 umbrellas.
(c) Estimate the rainfall for February.

....cm
(2)

Total 4 marks

18.   The shape shown is a right angled triangle ABC

Calculate the length of *AB*.

Give your answer correct to 1 decimal place.

....

(3)

TOTAL FOR PAPER 64 MARKS

FOUNDATION
MATHEMATICS EXAMINATION
NON-CALCULATOR 2013A

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Examiners Signiture

Answer ALL SEVENTEEN Questions.

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You must write down all stages in your working.

You must NOT use a calculator.

1. (a) Write the number **fifteen thousand, six hundred and seventy two** in   figures.

----

(1)

(b) Write the number 3020 in words.

----

(1)

(c) Write the number 8196 to the nearest hundred.

----

(1)

(d) Write down the value of the 6 in the number 236894.

----

(1)

(Total 4 marks)

2. Write these numbers in order of size. Start with the smallest.

(a) 7, -2, -6, 1, -3

----

(1)

Write these numbers in order of size. Start with the smallest.

(b) 0.06, 0.35, 0.63, 0.3, 0.56

----

(1)

(Total 2 marks)

3.   Kevin goes to a cafe. He can choose one drink and one snack.

Drinks   **Snacks**

Milk   Apple

Juice   Sandwich

Water   Biscuits

One possible combination is (Milk, Apple)

Write down all the possible combinations Kevin can choose.

The first one has been done for you.
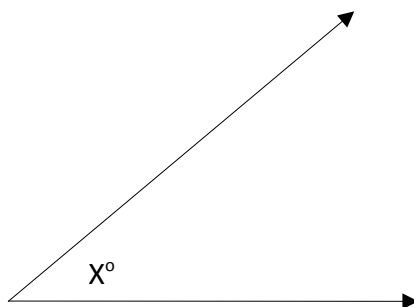

(M, A)_____

_____ (Total 2 marks)

4.   (a) Measure the length of PQ. Give your answer in centimetres.

P _____ Q

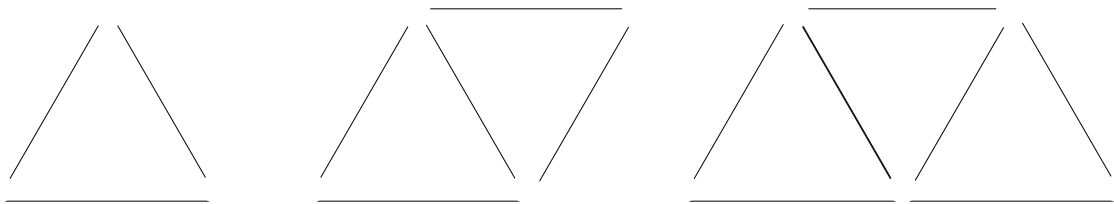
(1)

X°

(b) Measure the angle X

----

(1)

(c) What type of angle is angle X.

----

(1)

(Total 3 marks)

5. Here are some patterns made from sticks.

Pattern number 1   Pattern number 2   Pattern number 3

a) In the space below, draw pattern number 4

(1)

(b) Complete the table.

Pattern number	1	2	3	4	5
Number of sticks	3	5	7		

(1)

(c) How many sticks are in Pattern number 12?

----

(1)

Ben wants to find the number of sticks in Pattern number 100

(d) Write down a method he could use.

_____

_____

(1)

(Total 4 marks)

6.   Here is a list of 8 numbers.

4   7   10   16   18   20   21   32

From the numbers in the list write down a number that is
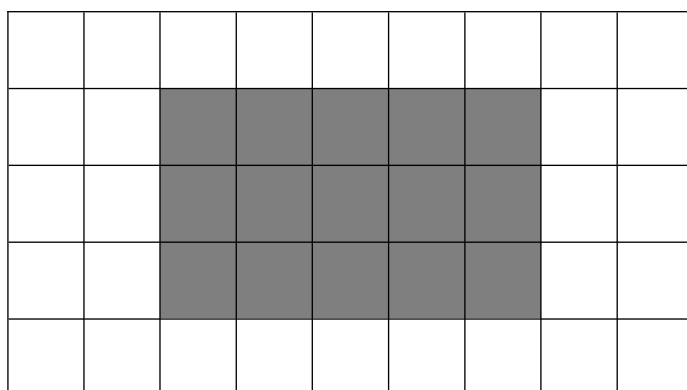

(i) an odd number   ....

(ii) a multiple of 5   ....

(iii) a square number   ....

(iv) a factor of 12   ....

(Total 4 marks)

7.   The diagram shows a shaded rectangle drawn on a centimetre grid.

(a) Find the area of the shaded rectangle.

   State the units of your answer.

                                                    ----

                                                         (2)

(b) Find the perimeter of the shaded rectangle.

                                                    -----------cm

                                                         (1)

(Total 3 marks)

8.   The table shows some information about boxes of cereal on sale in a supermarket.

Cereal	Weight of 1 box	Cost of 1 box
Coco Pops	600 g	£2.79
Cornflakes	375 g	£1.26
Frosties	500 g	£1.55
Rice Krispies	600 g	£2.43
Shreddies	500 g	£1.85

(a) How much does a box of Frosties cost?

£...........................
(1)

A box of cereals has a weight of 375 g.

(b) Write down the name of this cereal.

....
(1)

A box of cereal has a weight of 600 g and costs less than £2.50
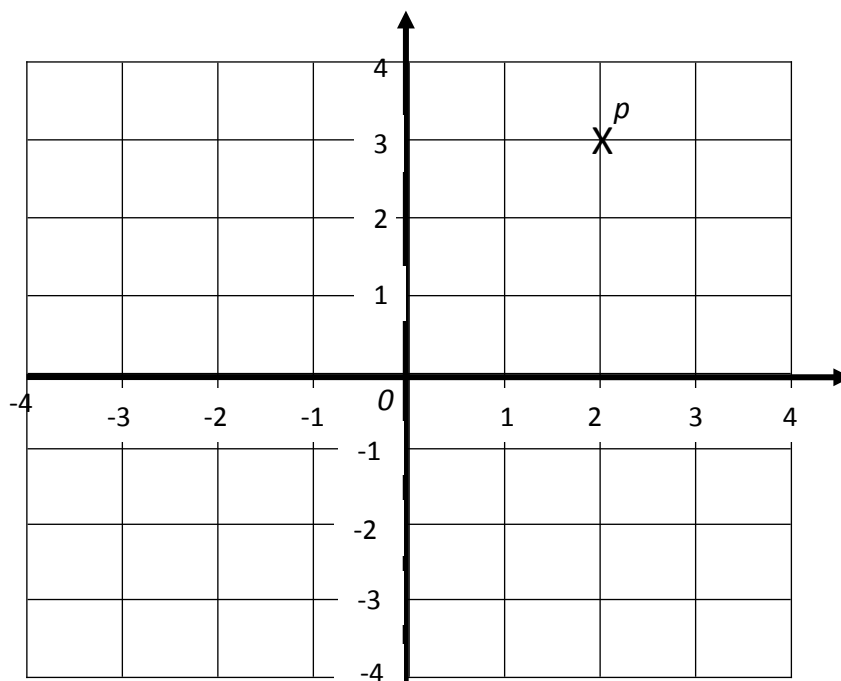
(c) Write down the name of this cereal.

....
(1)

Mark buys **one** box of Coco Pops and **two** boxes of Shreddies.

(d) How much money does Mark spend?

£...........................
(2)

(Total 5 marks)

9.

(a) Write down the coordinates of the point P.

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

(1)

(b) (i) On the grid, plot the point (1, 2) and label the point Q.

(ii) On the grid, plot the point (-3, -2) Label the point R.

(2)

(Total 3 marks)

10. David recorded the number of text messages sent by 7 people one day.

6   9   15   4   8   12   6

(a) Find the mode.

....

(1)

(b) Work out the range.

....

(2)

(c) Find the median

....

(1)

(Total 4 marks)

11. The table shows the percentage of each type of book in a library.

Type of book	Percentage
Children's	24%
General	42%
Mystery	13%
Romance	15%
Science fiction	2%
Thriller	4%

(a) What type of book has the smallest percentage?

....

(1)

(b) Write 13% as a decimal.

....

(1)

(c) Write24% as a fraction, giving your answer in its simplest form.

....

(2)

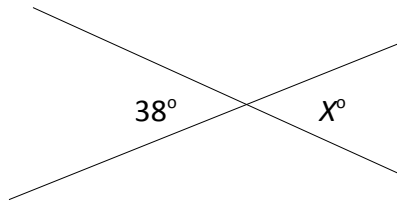There are 3000 books in the library.

(d) Work out 15% of 3000

....

(2)

(Total 6 marks)

12. Diagram NOT accurately drawn.
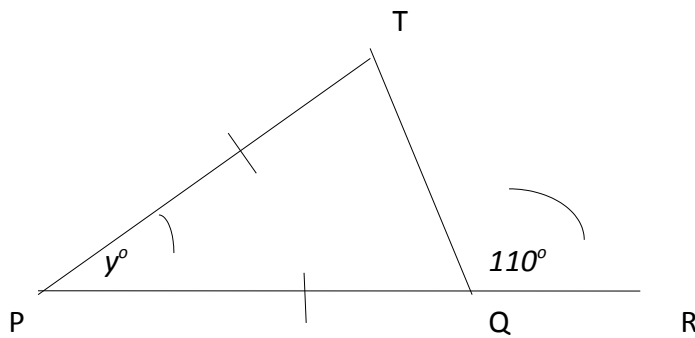
38°　　　X°

(a) (i) Write down the value of X°

....

(ii) Give a reason for your answer.

....

(2)

Diagram NOT accurately drawn.

T

y°

110°

P   Q   R

PQR is a straight line.

PT = PQ.

(b) (i) Work out the value of *y.*

....

(ii) Give reasons for your answer.

....

....

.... (4)

(Total 6 marks)

13.　　(a) Simplify　　$p + p + p + p$

....
(1)

(b) Simplify   *m x m x m*

....
(1)

B = 2k + 12

k = 5

(c) Work out the value of B.

B = ...
(2)

T = 4w − 2

T = 22

(d) Work out the value of w.

W = ...
(2)

(Total 6 marks)

14. Lucy goes to the cinema.

The film starts at 18 10

The film lasts for 135 minutes.

(a) At what time does the film finish.

....

(3)

There are 300 people in the cinema.

1/6 of the 300 people are boys.

3/10 of the people are girls

The rest of the people are adults.
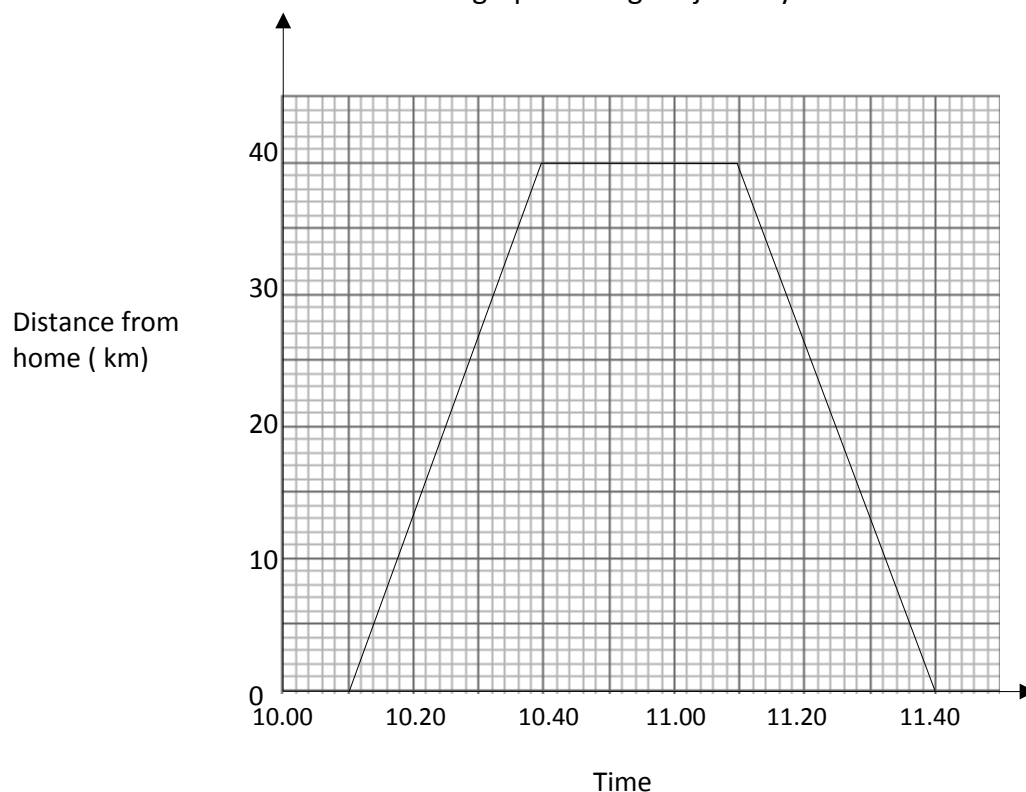
(b) Work out how many people are adults.

....

(4)

(Total 7 marks)

15. Nigel travelled from his home to his friend's house 40km 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?

....
(1)

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

....
(1)

(Total 3 marks)

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

Work out how much each person gets.

Anna   £................

Bill   £................

(Total 3 marks)

17.   Work out 4.52 x 36

You must show all your working out.

....

(Total 3 mark

TOTAL FOR PAPER 68 MARKS

Answer Sheet 2013A

Calculator paper		Non-Calculator paper	
1 (a)	£2.80	1 (a)	15,672
(b)	£2.06	(b)	Three thousand and twenty
		(c)	8200
		(d)	Six thousand
2 (a)	Likely	2 (a)	-6 -3 -2 1 7
(b)	Even Chance	(b)	.06 0.3 0.35 0.56 0.63
(c)	Impossible		
3	53 and 10	3	MS, MB, JA, JS, JB, WA, WS, WB
4	Metres, Stones, Litres	4 (a)	6cm
		(b)	40^0
		(c)	Acute angle
5	25 and 1.8	5 (a)	Complete diagram
		(b)	9, 11
		(c)	25
		(d)	X2 then add 1
6 (a)	19,	6	7, 20, 16, 4
(b)	Continue to add 3		
7 (a)	25 Tulips	7 (a)	15 cm^2
(b)	45p change	(b)	16 cm
8 (a)	5/12	8 (a)	£1.55
(b)	10/20 and 3/10	(b)	Cornflakes
(c)	48	(c)	Rice Krispies
		(d)	£6.49
9 (a)	6 15 4 25 5 6 14 25 11 21 18 50	9 (a)	(2, 3)
		(b)	Both points plotted
9 (b)	6/11		
10 (a)	X = 15	10 (a)	6 mode
(b)	Y = 6.5	(b)	11 range
		(c)	8 median
11 (a)	On graph 11 gallons	11 (a)	Science Fiction
(b)	On graph 28 litres	(b)	0.13
(c)	£67.50	(c)	6/25
(d)	£6.00	(d)	450
12 (a)	E	12 (a)	38^0 Opposite angles
(b)	94	(b)	40^0 Isosceles triangle
(c)	C		

13 (a)	0.5063291	13 (a)	4p
(b)	0.51	(b)	M^3
		(c)	22
		(d)	6
14 (a)	€ 713	14 (a)	20.25
(b)	£1.48	(b)	160 Adults
15 (a)	-2 1 4 7 10	15 (a)	10.10
(b)	Draw graph	(b)	14Km
		(c)	30 mins.
16 (a)	0.2	16	Anna £16
(b)	150		Bill £24
17 (a)	Point plotted	17	£162.72
(b)	Positive correlation		All working out must be shown
(c)	7		
18	$18^2 - 12^2 = \sqrt{180} = 13.42$		