Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						1	3	8	9	/	1	F	Signature	

Paper Reference(s)

1389/1F

Edexcel GCSE

Statistics

Paper 1F

Foundation Tier

Friday 17 June 2005 – Afternoon

Time: 2 hours

Examiner's use only

Team Leader's use only

Question Number	Leave Blank
Section A	
1	
2	
3	
4	
5	
6	
7	
Section B	
1	
2	
3	
4	
5	
6	
7	
8	
Total	

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, pen, HB pencil, eraser, electronic calculator

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Answer ALL questions in the spaces provided in this question paper.
You must NOT write on the formulae page or any blank pages. Anything you write on these pages will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
This question paper has 7 questions in Section A and 8 questions in Section B. The total mark for this paper is 80.
There are 24 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

Work steadily through the paper. Do not spend too long on one question.
Show all stages in any calculations.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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Turn over

edexcel

GCSE Statistics 1389

Foundation Tier Formulae

You must not write on this page.
Anything you write on this page will gain NO credit.

Mean of a frequency distribution $= \dfrac{\sum fx}{\sum f}$

Mean of a grouped frequency distribution $= \dfrac{\sum fx}{\sum f}$, where x is the mid-interval value.

Leave blank

SECTION A

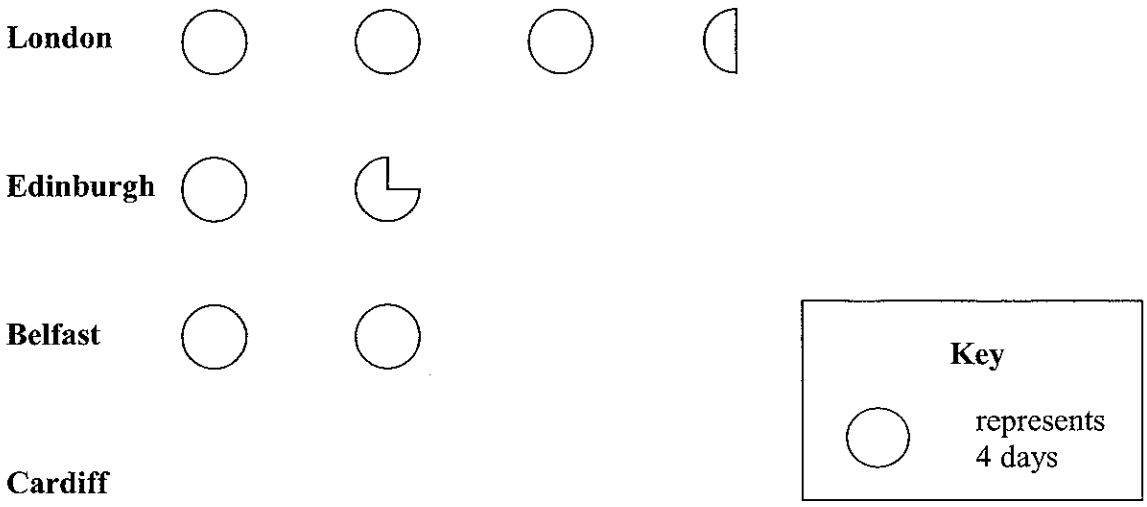
Answer ALL the questions. Write your answers in the spaces provided.

You must write down all stages in your working.

1. The pictogram shows the number of days in January with more than 1 hour of sunshine, in three cities.

The information for Cardiff is not shown on the pictogram.

Days in January with more than 1 hour of sunshine



Cardiff had 8 days with more than 1 hour of sunshine in January.

(a) Complete the pictogram.

(1)

(b) Write down the city that had the most days with more than 1 hour of sunshine.

.....

(1)

(c) Write down the number of days with more than 1 hour of sunshine in Edinburgh.

..... days

(1)

Q1

(Total 3 marks)

Turn over

Leave blank

2. A magician puts a set of ten numbered counters in a hat.

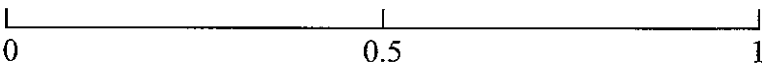
The counters are numbered 1 to 10.

A woman takes a counter at random from the hat.

The events A, B and C are:

A	She takes the number 10
B	She takes an odd number
C	She takes a number greater than 6

(a) Mark the events A, B and C on the probability scale below.



(2)

(b) For this set of counters, suggest a different event that has the same probability as event B.

.....

.....

(1)

(Total 3 marks)

Q2

Leave blank

3. A large group of students watched a play.

The drama teacher wants to find out what the students thought about the play.

He is going to ask a sample of the students.

(a) Write down **two** advantages of taking a sample.

(i) .....

.....

(ii) .....

.....

(2)

The teacher wants to take a sample of 50 students.

(b) Write down how he could take a **random** sample.

.....

.....

.....

(1)

Q3

(Total 3 marks)

Leave blank

4. There are 90 black cows and 10 brown cows in a herd of 100 cows.

(a) Use the best word from the list to complete each sentence below.

qualitative **continuous** **quantitative** **primary**

(i) The colours of the cows are ..... data.

(ii) The numbers of cows are ..... data.

(2)

The farmer wants to work out the average amount of milk produced per cow by the herd of cows.

He will take a 10% stratified sample.

(b) Write down how he could do this.

.....

.....

.....

(2)

Q4

(Total 4 marks)

Leave blank

5. The table gives some information about the number of male and female car drivers killed or injured in the UK in 1994.

It also shows the percentage of those killed or injured in each of the three age groups.

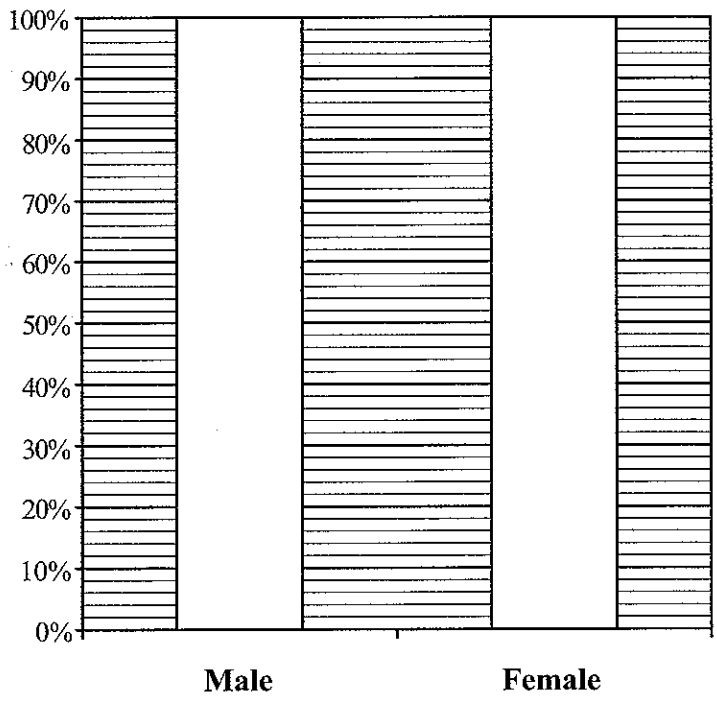
Males and females killed or injured

	Age of driver (years)			Number killed or injured
	17–21	**22–39**	**40 and over**	
Males	18%	48%	34%	70 100
Females	16%	52%	32%	54 700

Source: *Social Trends 1996*

(a) Use information from the table to complete the composite bar charts below.

Percentages of male and female car drivers killed or injured



(3)

(b) Write down the age group that had the most drivers killed or injured.

..... years

(1)

(Total 4 marks)

Q5

Leave blank

6. Here are the ages, in years, of seven people.

90 69 69 70 80 83 71

For this data,

(a) (i) write down the mode,

..... years

(ii) find the median,

..... years

(iii) work out the mean.

..... years
(4)

A person aged 73 joins the group.

(b) Find the median age of the eight people.

..... years
(1)
(Total 5 marks)

Q6

Leave blank

7. A city council wishes to know what people think about the plan to build a new ring road. The council will carry out an opinion poll of residents' views.

(a) Write down **one** reason why the council should not take a census.

.....

.....

(1)

(b) Write down the population from which it should take its sample.

.....

(1)

The council will use a questionnaire.

(c) It will use closed questions. Write down **one** reason why.

.....

.....

(1)

One question suggested for the questionnaire was,

'You do agree with building a new road, don't you?'

(d) (i) This is not a good way to find out what people think about the plan to build a new road.
Write down **one** reason why.

.....

.....

(ii) Design a suitable question the council could use to find out what people think about the plan to build a new road.

.....

.....

.....

(3)

(Total 6 marks)

Q7

TOTAL FOR SECTION A: 28 MARKS

Leave blank

SECTION B

Answer ALL the questions. Write your answers in the spaces provided.

You must write down all stages in your working.

1. A farmer wants to find out if a vaccine can stop his sheep getting foot rot.

He uses a sample of 100 sheep that do not have foot rot.

He vaccinates 60 of these sheep.

The two-way table below shows the results after a period of time.

The effect of vaccine on foot rot

	Number with foot rot	Number without foot rot	Total
Vaccinated	10	50	60
Not vaccinated	20	20	40
Total	30	70	100

He chooses one of the 100 sheep at random.

(a) Write down the probability that the sheep,

(i) does not have foot rot,

.....

(ii) had been vaccinated and has foot rot.

.....

(2)

Leave blank

(b) Did the vaccine help to stop foot rot?
Write down the reason for your answer.

.....

.....

.....

(2)

The farmer did not give the vaccine to all of the 100 sheep.

(c) Explain why.

.....

.....

.....

(1)

(Total 5 marks)

Q1

Leave blank

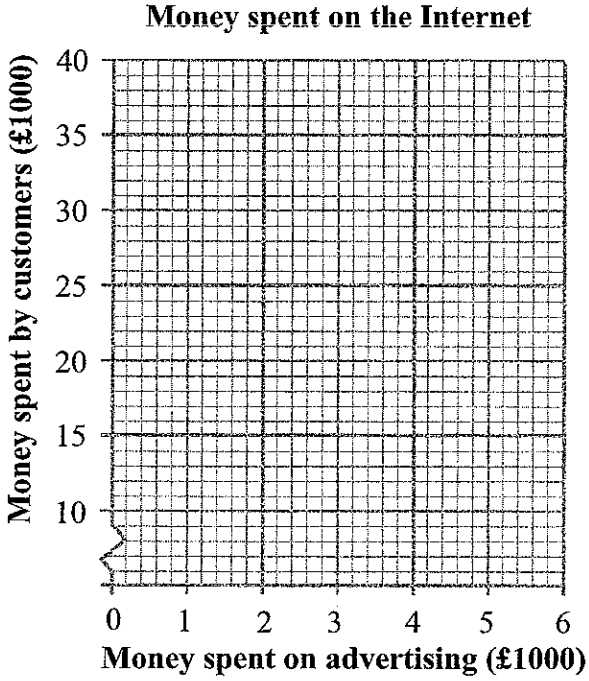
2. An Internet company wants to know if its advertising works.

The table shows the amount of money it spent, per quarter, on advertising over 5 quarters.

It also shows the amount of money customers spent using the company's Internet site.

Money spent on advertising (£1000)	1.2	2.0	3.4	3.9	5.0
Money spent by customers on the Internet site (£1000)	12	20	25	35	38

(a) On the graph paper below, draw a scatter diagram for the data.



(2)

(b) Draw a line of best fit.

(1)

(c) The company spends £3000 on advertising.

Use your line of best fit to find an estimate for the amount of money spent by customers.

£ .....

(1)

(d) Write down the effect advertising appears to have on the amount spent on the Internet.

.....

.....

.....

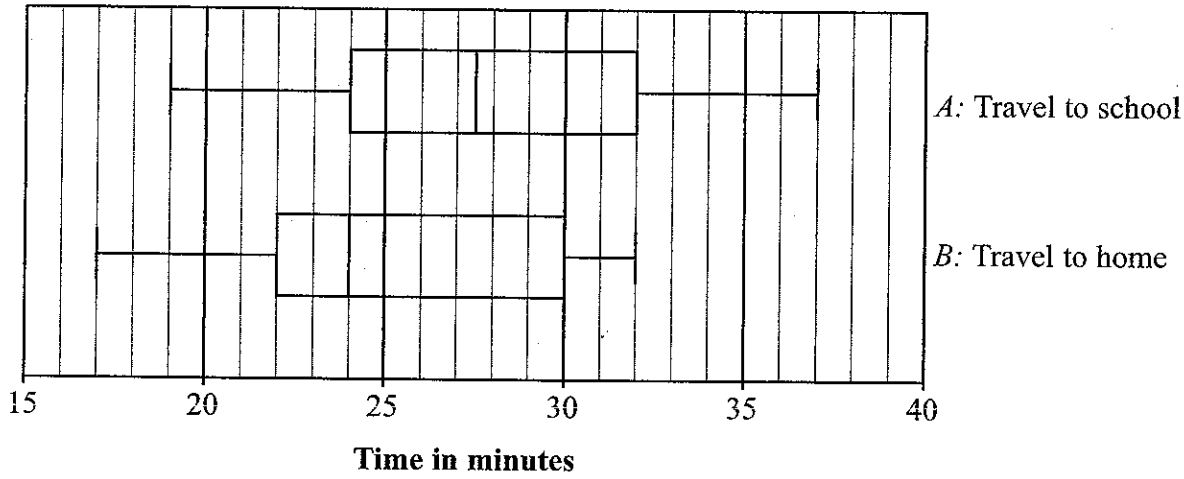
(1)

(Total 5 marks)

Q2

Leave blank

3. The box plots give information about the time, in minutes, some students take to travel from home to school (*A*), and from school to home (*B*).



(a) Work out the range for the times taken to travel to school.

..... minutes
(2)

(b) Write down the median time taken to travel home.

..... minutes
(1)

(c) Write down the shortest time taken to travel home from school.

..... minutes
(1)

The students say that it takes longer to travel to school in the morning than it does to travel home in the evening.

(d) Give **one** way that the box plots support this claim.

.....

.....

.....
(1)

(e) Write down which of the box plots shows the most skewness.
Describe this skewness.

.....

.....
(2)

Q3

(Total 7 marks)

Leave blank

4. The table gives the life expectancy at birth, in years, for men and women born in 1960, 1970, 1980 and 1989.

Life expectancy at birth									
	Men					Women			
Country	Year					Year			
	1960	1970	1980	1989		1960	1970	1980	1989
Belgium	67.7	67.8	70.0	72.4		73.5	74.2	76.8	79.0
Denmark	70.4	70.1	71.4	72.0		74.4	75.9	77.2	77.7
Germany				71.8					78.4
Greece	67.3	70.1	72.2	72.6		70.4	73.6	76.6	77.6
Spain	67.4	69.2	72.5	73.1		72.2	74.8	78.6	79.6
France	66.9	68.4	70.2	72.5		73.6	75.9	78.4	80.7
Ireland	68.1	68.8	70.1	71.0		71.9	73.5	75.6	76.7
Italy	67.2	69.0	70.6	72.6		72.3	74.9	77.4	79.1
Luxembourg	66.5	67.2	69.1	70.6		72.2	73.4	75.9	77.9
Netherlands	71.5	70.7	72.7	73.7		75.3	76.5	79.3	80.0
Portugal	61.2	64.2	67.7	70.7		66.9	70.8	75.2	77.6
UK	67.9	68.7	70.2	72.4		73.7	75.0	76.2	78.1

Source: *Europe in Figures,* 3rd edition

A woman was born in Ireland in 1980.

(a) Write down her life expectancy at birth.

.....years
(1)

(b) Work out the increase in life expectancy at birth, from 1960 to 1989, for men born in the UK.

..... years
(1)

Leave blank

Men and women born in the UK in 1989 had different life expectancies at birth.

(c) Work out the difference between them.

..... years
(1)

(d) Write down the way life expectancy at birth in these countries changed from 1960 to 1989.

.....

.....

.....
(1)

(e) Compare the life expectancy at birth for men and women.

.....

.....

.....
(1)

Q4

(Total 5 marks)

Leave blank

5. On one day a rail company records the number of trains arriving late.

The results are summarised in the table.

Trains arriving late

Number of minutes late (m)	Frequency (f)
$0 < m \leqslant 5$	26
$5 < m \leqslant 10$	20
$10 < m \leqslant 15$	14
$15 < m \leqslant 20$	10
$20 < m \leqslant 30$	6
$30 < m \leqslant 50$	4
$m > 50$	0

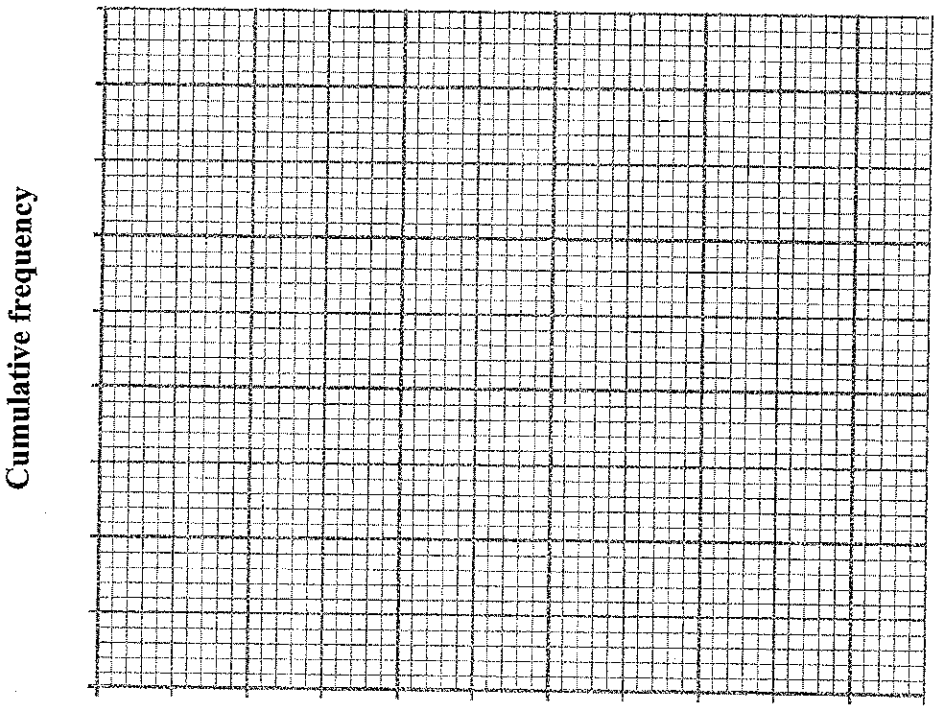
(a) Complete the cumulative frequency table below.

Minutes late (m)	Cumulative frequency
$m \leqslant 5$	
$m \leqslant 10$	
$m \leqslant 15$	
$m \leqslant 20$	
$m \leqslant 30$	
$m \leqslant 50$	

(1)

Leave blank

(b) On the grid, draw a cumulative frequency diagram for the data.



(4)

(c) Use your cumulative frequency diagram to find an estimate of the median number of minutes a train is late.

..... minutes

(2)

(Total 7 marks)

Q5

Turn over

Leave blank

6. Town Clinic recorded the blood group of each of 60 blood donors.

The table shows information about 50 of these blood donors.

Blood group	Tally	Frequency
A	𝍸 𝍸 𝍸 ||	
O	𝍸 𝍸 𝍸 ||||	
B	𝍸 |||	
AB	𝍸 |	

The blood groups of the other 10 donors are given below.

A O O B O B O A O A

(a) Put in the tallies for the other 10 donors and complete the table.

(2)

A pie chart is drawn to show this information.

The angle for blood group AB is 36°.

(b) Show how the 36° angle was worked out.

(1)

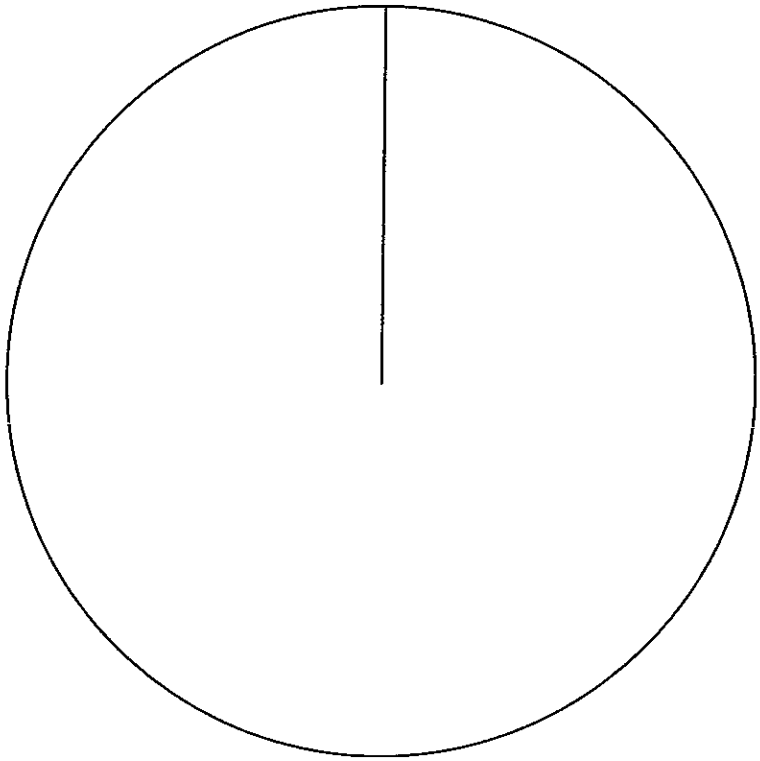
(c) Complete the table below.

Blood group	Angle in pie chart
A	120°
O	144°
B	
AB	36°

(1)

Leave blank

(d) Draw and label the pie chart.



(3)

The table below gives the proportion of each blood group in Sussex.

Blood group	Proportion
A	33%
O	40%
B	17%
AB	10%

(e) Do you think that Town Clinic could be in Sussex? Give a reason for your answer.

.....

.....

.....

(1)

Q6

(Total 8 marks)

Leave blank

7. There are 800 children living in Finton.

500 of the children have had chickenpox.

One of the 800 children is chosen at random.

(a) Write down the probability that this child has had chickenpox.

.....

(1)

Some of the 800 children have had measles.

A child is chosen at random.

The probability that this child has had measles is $\frac{1}{10}$

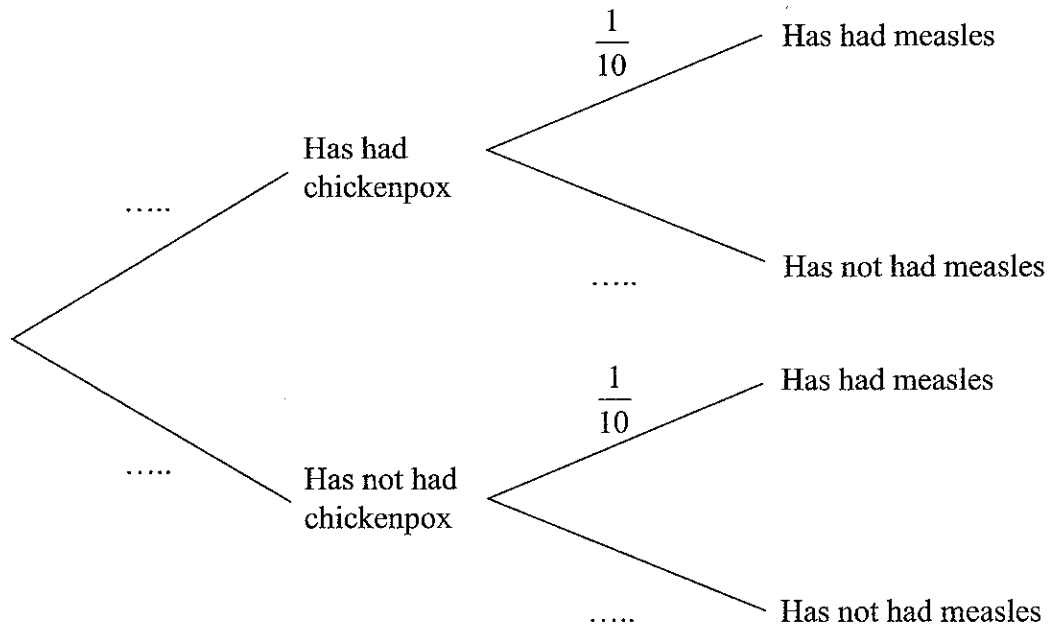
(b) Write down the probability that a child selected at random has **not** had measles.

.....

(1)

(c) Having had measles is independent of having had chickenpox.

Complete the probability tree diagram below.



(2)

Leave blank

(d) Work out the probability that a child has had both chickenpox and measles.

.....

(2)

(e) Work out the probability that a child has had chickenpox or measles or both.

.....

(2)

Q7

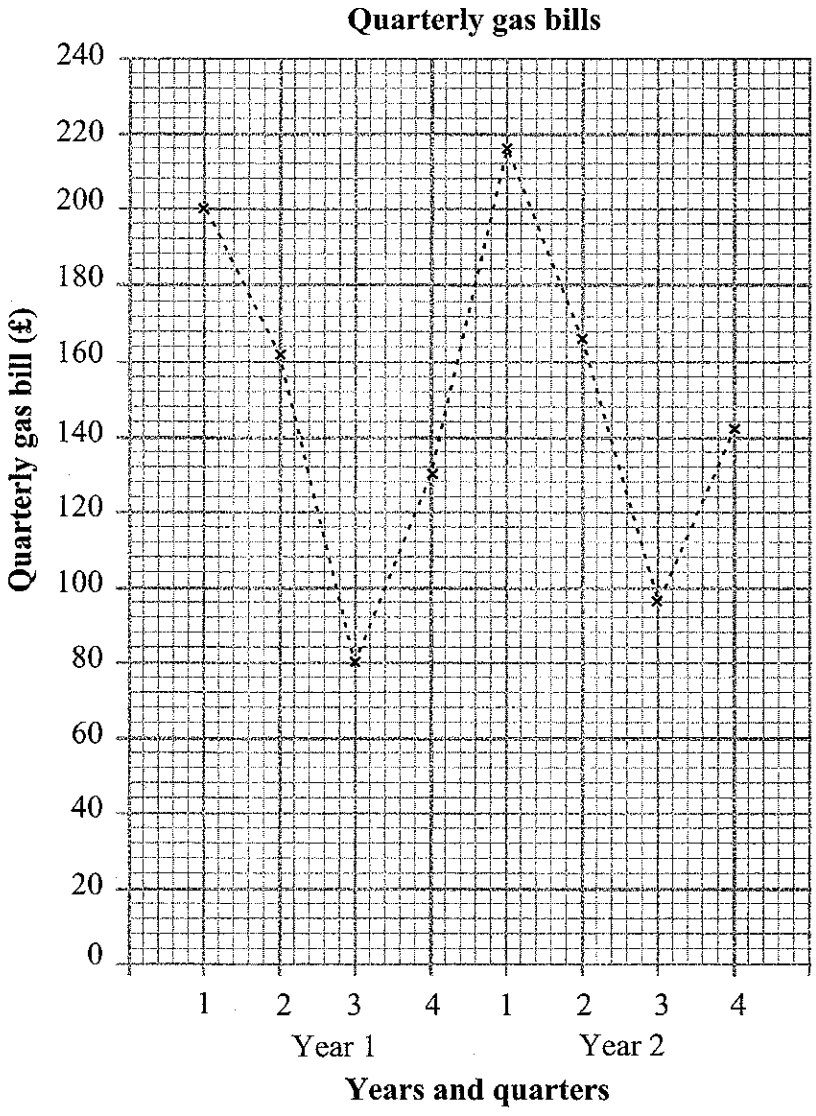
(Total 8 marks)

Leave blank

8. The table shows information about the quarterly gas bill, in £s, for Samira's house, over a period of two years.

	Quarter			
Year	**1**	**2**	**3**	**4**
1	£200	£162	£80	£130
2	£216	£166	£96	£142

The data has been plotted as a time series



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(a) The first three 4-point moving averages are £143, £147 and £148.

(i) Work out the last two 4-point moving averages.

£..... and £ .....

(ii) Plot all five of the moving averages on the graph.

(4)

(b) What do the moving averages show about the trend of the quarterly gas bills?

.....

.....

.....

(1)

The time series shows that the quarterly gas bills are varying from the general trend.

(c) (i) Write down what these variations are called.

.....

(ii) Write down a reason for these variations.

.....

.....

(2)

Q8

(Total 7 marks)

TOTAL FOR SECTION B: 52 MARKS

TOTAL FOR PAPER: 80 MARKS

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