

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

Tuesday 16 June 2009 – Morning

Time: 2 hours

Examiner's use only

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Team Leader's use only

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Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, 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. Check that you have the correct question paper.

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

You must NOT write on the formulae page 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

Show all stages in any calculations.

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

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

Return at the end to those you have left out.

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Turn over

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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 $= \frac{\sum fx}{\sum f}$

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



SECTION A

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

You must write down all stages in your working.

1. The table shows information about the weather at fourteen places on July 7th 2007

Weather in England			
	Hours of Sunshine	Maximum Temperature (°C)	Rain (mm)
Birmingham	0.2	16	4.4
Bristol	2.5	18	0.4
Hull	2.2	19	7.1
Ipswich	2.8	19	5.0
Leeds	4.9	16	5.0
Leicester	2.6	17	0.7
Lincoln	4.9	18	2.6
London	1.6	20	0.2
Manchester	0.1	17	5.6
Nottingham	2.0	16	3.4
Oxford	3.5	18	0.4
Peterborough	3.0	18	3.0
Portland	10.0	17	0.0
Southampton	5.2	19	0.3

(Source: Times and Telegraph newspapers)

- (a) Write down the name of **one** place which had more than 5 hours of sunshine.

.....
(1)

- (b) Complete the frequency table for the Maximum Temperatures at these 14 places.

Maximum Temperature (°C)	Tally	Frequency
16		
17		
18		
19		
20		

(2)

- (c) Write down the number of places that had a Maximum Temperature of **18°C or more**.

.....
(2)

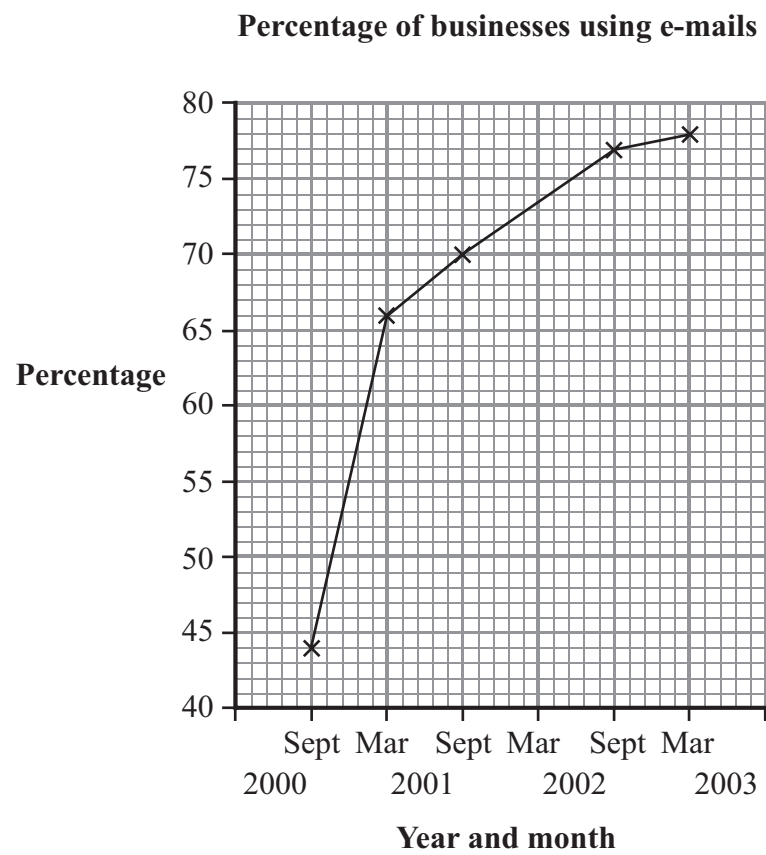
(Total 5 marks)

Q1



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2. Some businesses in West Yorkshire used e-mails in the years 2000 to 2003
The time series graph gives information about the percentage of businesses using e-mails.



(Source: Regional economic trends survey Yorkshire Forward)

The time series graph could be misleading.

- (a) Write down **one** reason why.

.....
.....

(1)

- (b) Estimate the percentage of businesses using e-mails in March 2002

..... %
(1)

(Total 2 marks)

Q2



3. A company posted 50 letters.
It kept a record of the number of days each letter took to arrive.

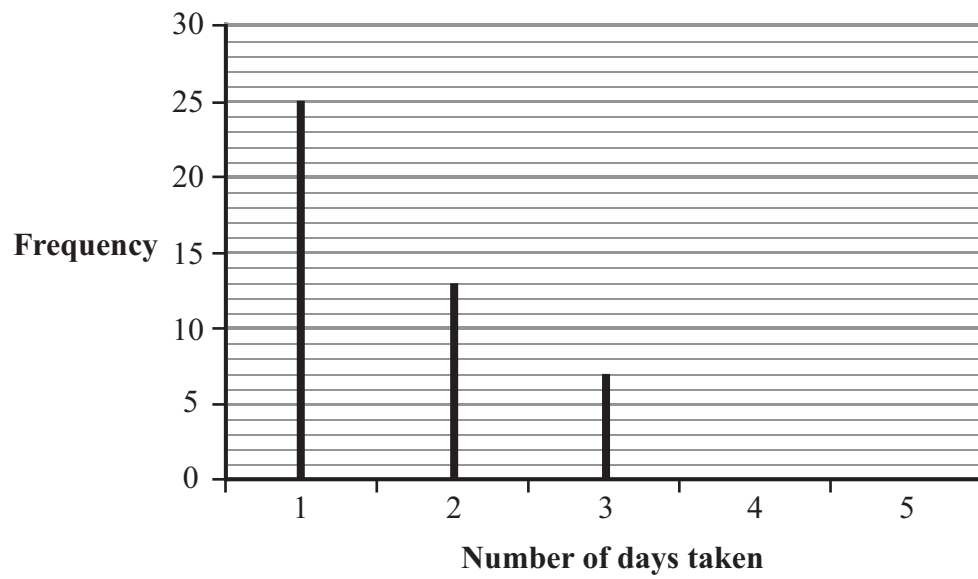
The frequency table shows the result.

Number of days taken	1	2	3	4	5
Frequency	25	13	7	3	2

- (a) Write down the mode of the number of days taken.

.....
(1)

- (b) Complete the vertical line graph for these data.



(2)

- (c) (i) State whether this distribution is symmetrical, positively skewed or negatively skewed.

.....

- (ii) Give a reason for your choice.

.....

.....

.....

(2)

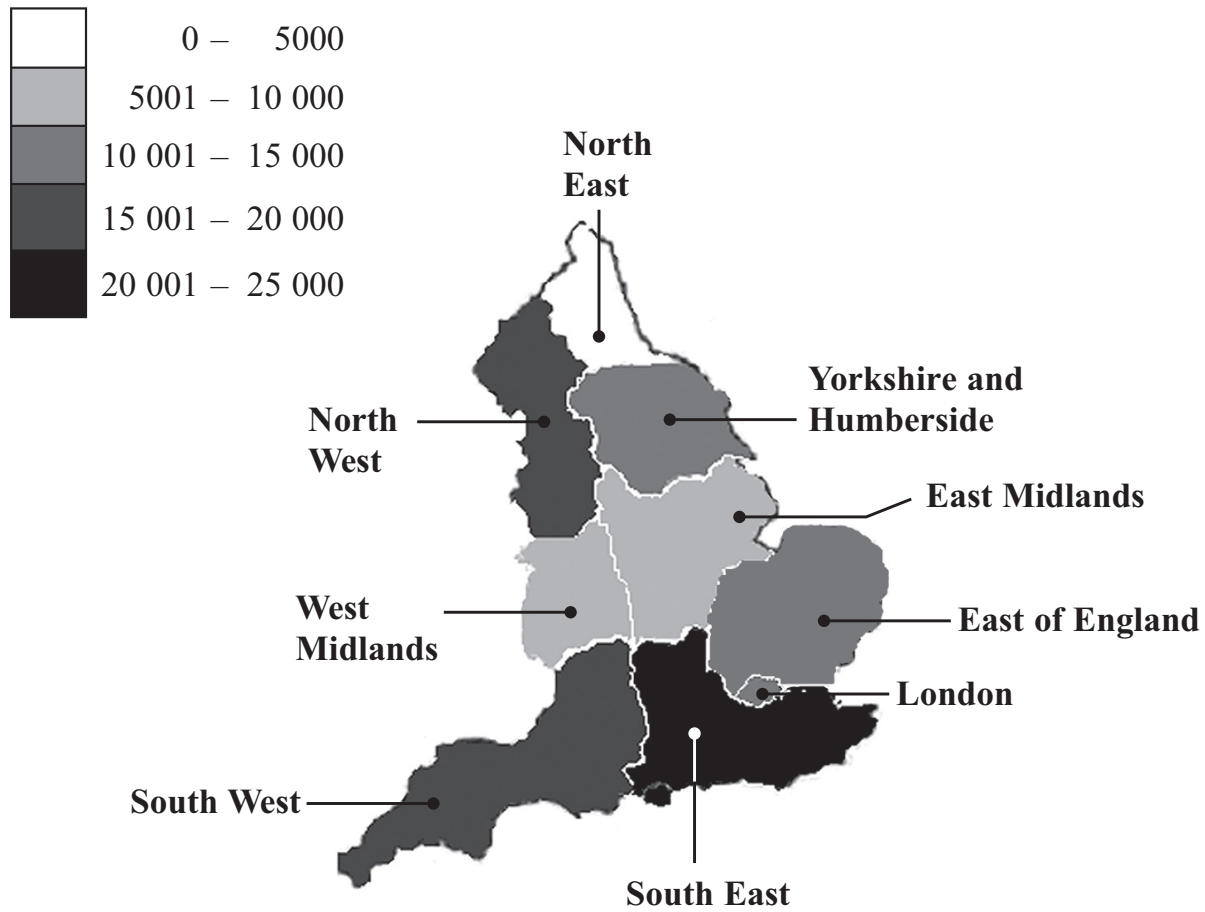
Q3

(Total 5 marks)



4. The map shows the number of successful planning applications in each region of England in the first quarter of 2007

Successful planning applications in England in the first quarter of 2007



(Source: Communities and Local Government)

(a) Write down the name of the region with the smallest number of successful planning applications.

..... (1)

Three regions had between 10 001 and 15 000 successful planning applications.

(b) Write down the names of **two** of these regions.

1

2

(2)

Q4

(Total 3 marks)



Leave
blank

5. A teacher took the pulse rates of a random sample of 27 pupils.
The pulse rates are shown in the stem and leaf diagram.

Pulse rate	
7	2 4 4
7	5 5 6 7 8 8 8
8	1 2 4 4
8	5 8 8 9
9	2 2 4 4
9	5 7 7 8 8

Key

7 | 5 = 75 beats per minute

- (a) Write down the median pulse rate.

..... beats per minute
(1)

- (b) Write down the mode of the pulse rates.

..... beats per minute
(1)

The sum of all the pulse rates was 2295

- (c) Work out the mean pulse rate.

..... beats per minute
(2)

The mode is to be used to summarise these data.

- (d) Write down a reason why.

.....
(1)

(Total 5 marks)

Q5

7

Turn over



Leave
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6. Here is a random number table.

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

Michael wants to take a random sample of **six** people from a list of 60 people.

He starts from the top left of the table then works across the table row by row.

(a) Write down the set of numbers Michael could use.

.....
.....

(2)

(b) Explain how Michael could use these numbers to obtain his sample.

.....
.....
.....
.....
.....

(2)

Q6

(Total 4 marks)



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blank

7. On January 1st 2007 a superstore employed 104 staff.
75 of the staff were women.

32 of the staff left the superstore during 2007
Only one was a man.

28 new staff joined the superstore during 2007
24 were women.

- (a) Complete the table.

	2007			2008
	Total at Jan 1st	Number who left the superstore	Number of new staff	Total at Jan 1st
Men				
Women	75		24	68
Total	104	32	28	100

(2)

On January 1st 2008 the superstore employed 100 staff.
One of these members of staff is going to be chosen, at random, for a prize.

- (b) Write down the probability that a woman will be chosen.

.....
(1)

- (c) Write down the probability that a woman, who was a new member of staff during 2007, will be chosen.

.....
(1)

(Total 4 marks)

Q7

TOTAL FOR SECTION A: 28 MARKS



SECTION B

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

You must write down all stages in your working.

1. Life expectancy is the number of further years that a person is expected to live.

Example: A male was aged 20 in 1997
He is expected to live another 55.4 years.

The table gives information about the life expectancy for people in the United Kingdom in the years 1997 to 2004

Life Expectancy in the United Kingdom											
	Males						Females				
	Age						Age				
Year	At Birth	20	30	60	80		At Birth	20	30	60	80
1997	74.5	55.4	45.9	18.8	6.7		79.6	60.2	50.4	22.5	8.4
1998	74.8	55.6	46.1	18.9	6.7		79.7	60.4	50.5	22.6	8.4
1999	75.0	55.9	46.3	19.2	6.8		79.9	60.5	50.7	22.8	8.5
2000	75.4	56.2	46.6	19.5	7.0		80.2	60.8	51.0	23.0	8.6
2001	75.7	56.5	46.9	19.8	7.1		80.4	61.0	51.2	23.2	8.7
2002	75.9	56.7	47.2	20.0	7.2		80.5	61.1	51.3	23.3	8.7
2003	76.3	57.0	47.4	20.2	7.3		80.7	61.3	51.5	23.4	8.7
2004	76.6	57.4	47.8	20.5	7.4		81.0	61.5	51.7	23.6	8.8

(Source: Statistics.gov.uk)

A female was aged 30 in 2002

- (a) Write down her life expectancy.

..... years
(1)

- (b) Discuss how the life expectancy of a male compares with the life expectancy of a female of the same age.

.....

(2)





<p>(c) (i) Describe how the life expectancy for both males and females has changed between the years 1997 and 2004</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>(ii) Give one possible reason for this.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(2)</p> <p style="text-align: right;">(Total 5 marks)</p>	<p>Leave blank</p> <p style="text-align: center;">Q1</p> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>



N 3 4 4 0 5 A 0 1 1 2 4



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2. Each class in a school is to be represented by **one** student on the school committee.

There are 30 students in class 10T.

Peter is in class 10T.

One student is to be chosen at random from this class to be on the school committee.

(a) Calculate the probability that Peter will be chosen.

.....
(1)

It was later decided that **one boy** and **one girl** should represent each class.

There are 20 boys and 10 girls in class 10T.

Peter and his sister Naomi are students in class 10T.

One boy is to be chosen at random from the boys and one girl is to be chosen at random from the girls in this class.

(b) Calculate the probability that both Peter and Naomi will be chosen.

.....
(3)

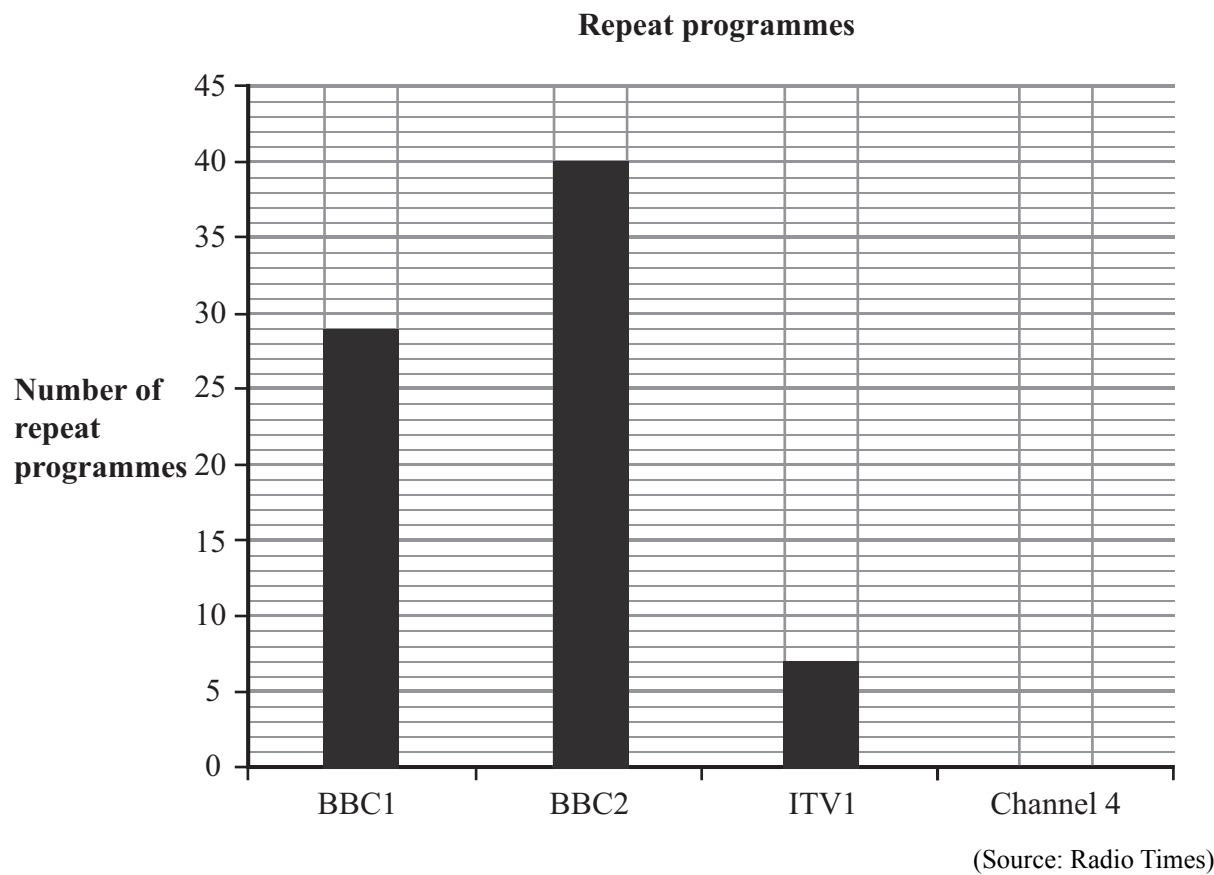
Q2

(Total 4 marks)



Leave blank

3. The bar chart shows the number of repeat programmes shown by BBC1, BBC2 and ITV1 during one week.



During the same week Channel 4 showed 39 repeat programmes.

(a) Complete the bar chart to show this information. (1)

(b) Work out the **total** number of repeat programmes shown during this week by BBC1, BBC2, ITV1 and Channel 4

.....
(2)

(c) Compare the numbers of repeat programmes on BBC1, BBC2, ITV1 and Channel 4

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

(Total 5 marks)

Q3



4. The manager of a factory wants to carry out a survey to find out the workers' views on selling them overalls.

There are 1200 workers in the factory.

(a) Give **two** reasons why the manager would take a sample rather than a census.

1

.....

.....

2

.....

.....

(2)

The manager wants the sample to be made up of both men and women.

There are 700 men and 500 women.

(b) Write down the name of a sampling process that would be suitable.

.....

(1)

The manager has decided to use a questionnaire to find out the workers' views on selling them overalls.

(c) Three of the questions are shown below.
Write down **one** criticism of each question.

Question 1 'Give one reason why you support the idea of having overalls sold at the factory.'

Criticism

.....

.....

.....

.....



Leave blank

Question 2 'How much would you be willing to pay for your overalls?' Please tick one box.

Less than £10

£10 to £20

£15 to £30

Over £30

Criticism

.....
.....
.....
.....

Question 3 'What colour should the overalls be?'

Criticism

.....
.....
.....
.....

(3)

The manager decided to do a pilot study.

(d) Write down **two** reasons for doing a pilot study.

1

.....
.....

2

.....
.....

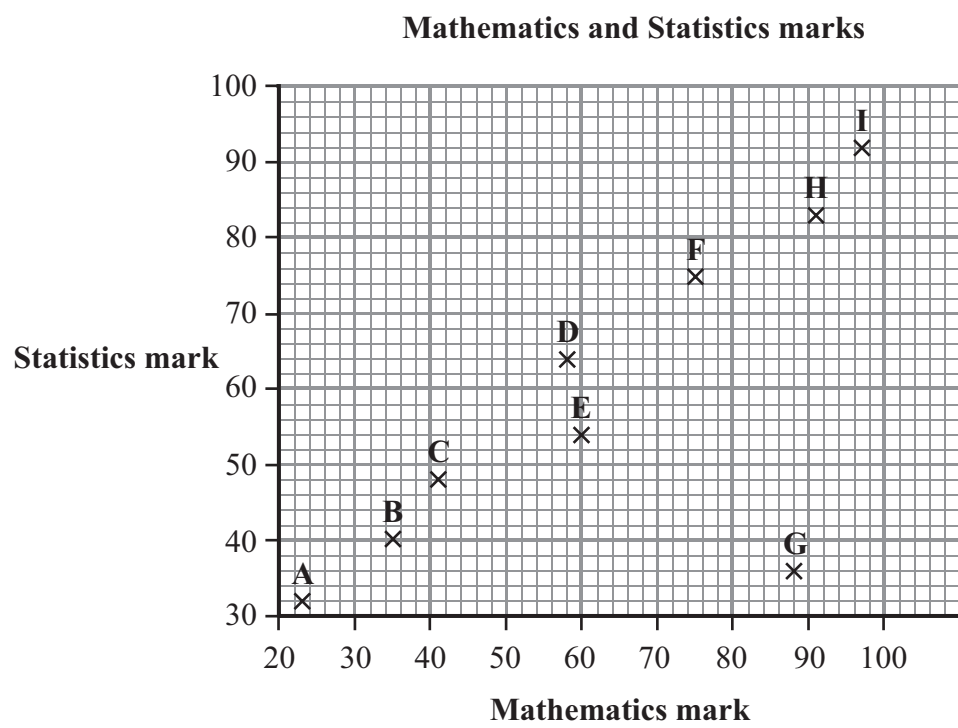
(2)

Q4

(Total 8 marks)



5. 9 students took both a Mathematics examination and a Statistics examination. The scatter diagram shows their marks for each examination.



- (a) Comment on the marks of student G.

.....

(1)

- (b) Ignoring the marks of student G, describe and interpret the correlation between the two sets of marks.

.....

(2)



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blank

Ignoring G;

The mean mark for Mathematics was 60
The mean mark for Statistics was 61

- (c) (i) Plot this mean point on the graph.
(ii) Draw a line of best fit on the scatter diagram.

(3)

Another student was absent from the Statistics examination.
He got a mark of 50 in the Mathematics examination.

- (d) (i) Estimate what his mark could have been in the Statistics examination.

.....

- (ii) Discuss how accurate this estimate is likely to be.

.....

.....

.....

.....

(4)

Q5

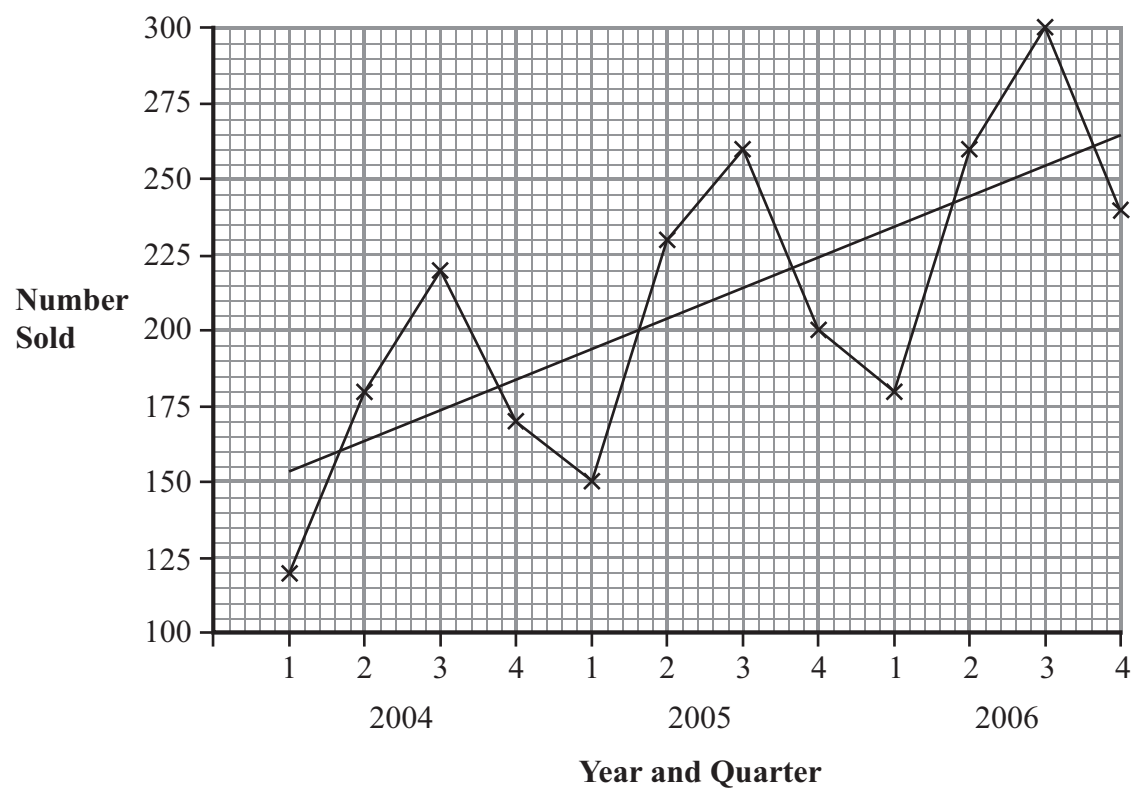
(Total 10 marks)

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6. This time series graph shows information about the quarterly sales of soft drinks in a shop.



A trend line has been drawn on the graph.

(a) Describe the trend of the sale of soft drinks over this period in this shop.

.....
.....
.....

(1)



Leave
blank

(b) Work out the seasonal variation for the 4th quarter of 2005

.....
(2)

(c) (i) Write down the quarter in which the sales were at their highest each year.

.....

(ii) Give **one** reason why the sales were highest in this quarter.

.....

.....

.....

.....

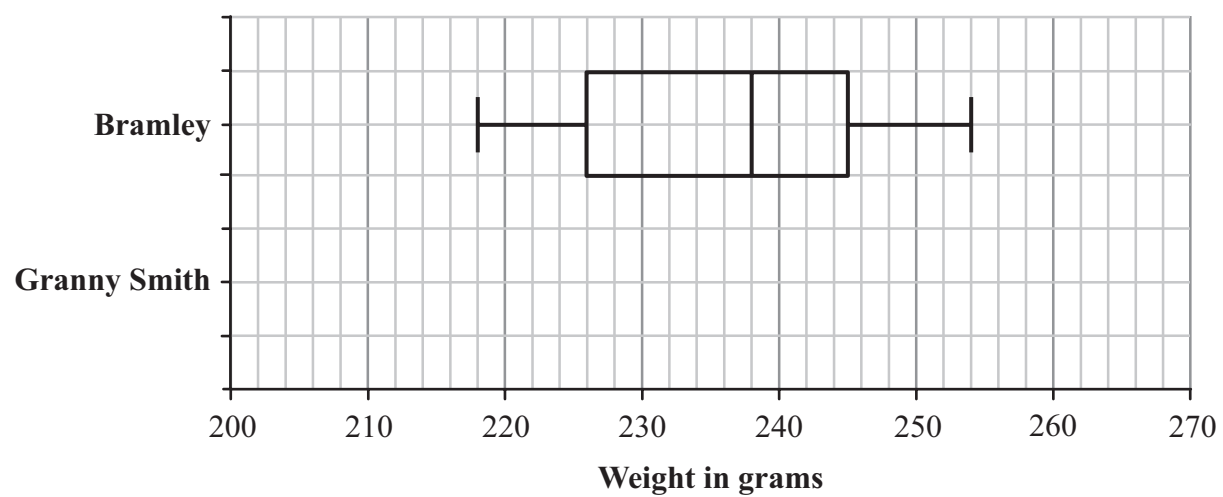
(2)

Q6

(Total 5 marks)



7. The box plot shows information about the distribution of the weights, in grams, of a random sample of 36 Bramley apples.



(a) Write down the median weight of the sample of Bramley apples.

..... grams
(1)

(b) Work out the inter-quartile range of the sample of Bramley apples.

..... grams
(2)

A random sample of 36 Granny Smith apples was taken.
The summary statistics are shown in the table.

	Smallest	Lower Quartile	Median	Upper Quartile	Largest
Weight (grams)	204	214	228	240	252

(c) Draw, on the grid above, a box plot to show this information.

(3)





<p>(d) Compare the distributions for the Bramley and the Granny Smith apples.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(2)</p> <p>(e) A supermarket wants to have a small variation in weight. Which of these two distributions has the smallest variation in weight? Give a reason for your answer.</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(1)</p> <p style="text-align: right;">(Total 9 marks)</p>	<p>Leave blank</p> <p>Q7</p> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>
Empty space for student answers	Empty space for marks

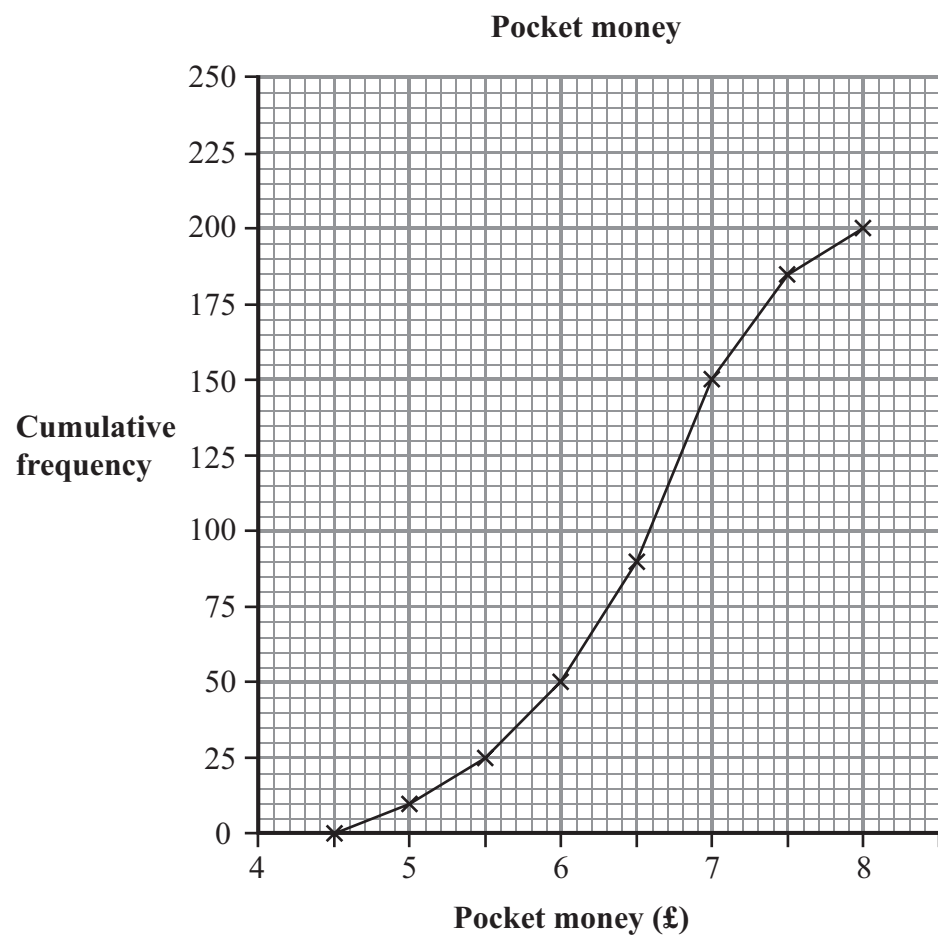


N 3 4 4 0 5 A 0 2 1 2 4



8. Corina asked 200 students how much pocket money they get each week.

The following cumulative frequency diagram gives information about her results.



(a) Use the graph to find an estimate for the median amount of pocket money.

£
(2)

(b) Use the graph to find an estimate for

(i) the lower quartile,

£

(ii) the upper quartile.

£
(2)



Justin is one of the students.
He gets £6.25 pocket money each week.

(c) Discuss how Justin's pocket money compares with the other students' pocket money.

.....
.....
.....
.....
.....

(2)

(Total 6 marks)

Leave
blank

Q8

TOTAL FOR SECTION B: 52 MARKS

TOTAL FOR PAPER: 80 MARKS

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