

You have one week to complete this. What you hand in should be your best work, and you must attempt every question.

If you are stuck then please either consult notes or textbooks, attend a workshop, or ask your teacher.

You may need to refer to the formula book, found [here](#):



or financial information, found [here](#):



- 1) Jess wants to know the number of people who live in her street. She carries out a survey.

Which **two** words describe the data she collects?
Circle your answers. (on the answer sheet)

[2 marks]

	A	B	C	D
1	Item	Price in London	Price in Boston	Price in Boston as a percentage of price in London
2	Apple iPod Nano	£115.00	£87.74	
3	Elizabeth Arden '8 hour cream'	£25.00	£11.56	
4	Women's 'Roxanne' skinny jeans	£160.00	£101.79	
5	Sesame Street Let's Rock Elmo	£85.00	£40.13	

The prices were correct in November 2011.

- (a) Complete the spreadsheet above to give the price in Boston as a percentage of the price in London. (another copy is on the answer sheet)

Give the percentages to one decimal place.

[4 marks]

- (b) State a formula which would give the content of cell D3.

[1 mark]

- 3) The number of County Council officers whose remuneration, excluding pension contributions, was £ 50 000 or more is shown below. The numbers involved have increased since the previous year due to pay awards and redundancies. The third column in the table shows the number of officers who were included in the totals as a result of severance payments.

Remuneration band	Number of employees	
	Total	Severance
£ 50 000 to £ 59 999	172	6
£ 60 000 to £ 69 999	38	3
£ 70 000 to £ 79 999	26	6
£ 80 000 to £ 89 999	9	4
£ 90 000 to £ 99 999	6	2
£ 100 000 to £ 109 999	5	2
£ 110 000 to £ 119 999	2	1
£ 120 000 to £ 129 999	2	–
£ 130 000 to £ 139 999	4	4
£ 140 000 to £ 149 999	3	1
£ 150 000 to £ 159 999	–	–
£ 160 000 to £ 169 999	–	–
£ 170 000 to £ 179 999	1	1
£ 180 000 to £ 189 999	–	–
£ 190 000 to £ 199 999	1	1
£ 280 000 to £ 289 999	1	1
£ 290 000 to £ 299 999	1	1
Total	271	33

- (a) (i) Calculate an estimate of the mean remuneration paid to the 33 County Council officers that had severance payments. (3 marks)

- (ii) Calculate an estimate of the standard deviation of these 33 remunerations. Give your answer to a sensible degree of accuracy. (4 marks)

- (b) The mean and the standard deviation of the remunerations for all of the 271 council officers are £ 67 000 and £ 28 300 respectively. Compare and contrast these statistics with those found in part (a). (3 marks)

- 4) In Victorian times, people who were sick or who had no job or home were often forced to live in the local workhouse.

The stem-and-leaf diagram shows the ages of the residents of a workhouse in 1881.

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

Key: 0 | 3 | 5 represents a female aged 30 years and a male aged 35 years

- (a) Residents up to the age of 15 years were classed as children.

How many children lived at the workhouse?

[2 marks]

- (b) James was a resident at the workhouse in 1881.

11 residents in the workhouse were older than him.

Write down the age of James.

[1 mark]

- (c) Make **two** comments about the ages of the males living in the workhouse.

[2 marks]

- 5) Anna borrows £3000 and is informed that the interest rate which she will be charged is 1.9% per month.

find the annual rate of interest, expressing this as a percentage.

- 6) A small chapel was open to visitors for 55 days during the summer of 2015. The table summarises the daily numbers of visitors.

Number of visitors	Number of days
20 or fewer	1
21	2
22	3
23	6
24	8
25	10
26	13
27	7
28	2
29	1
30 or more	2
Total	55

- (a) For these data:

(i) state the modal value;

[1 mark]

(ii) find values for the median and the interquartile range.

[2 marks]

- (b) Name one measure of average **and** one measure of spread that cannot be calculated exactly from the data in the table.

[2 marks]

- (c) Reference to the raw data revealed that the 3 unknown exact values in the table were 13, 37 and 58.

Making use of this additional information, together with the data in the table, calculate the value of **each** of the two measures that you named in part (b).

[3 marks]

- 7) Tom wanted to borrow £1500. He wanted to pay this back in two equal instalments, one at the end of 1 year and the final instalment at the end of a second year.

(a) One lender offered the loan on the basis that Tom paid back £1000 for each of the two instalments. Show calculations in this case that confirm that the APR is approximately 21.5%.

(3 marks)

(b) A different lender offered an APR of 20%. In this case, how much would Tom pay back in each instalment?

(3 marks)

- 1) Primary Secondary Discrete Continuous

2)

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