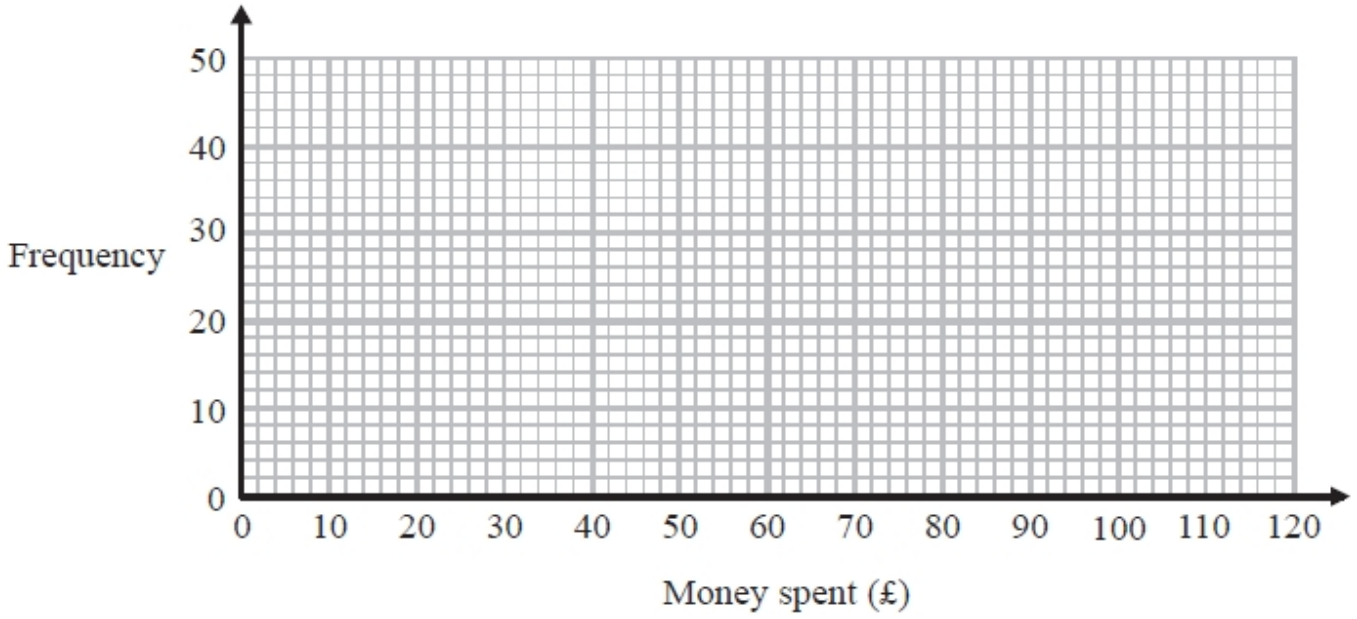
S033 Frequency diagrams 2

Q1.

The table gives information about the money, £*A*, some people spent on an internet site one day.

Money spent (£*A*)	Frequency
$0 < A \leqslant 20$	10
$20 < A \leqslant 40$	15
$40 < A \leqslant 60$	25
$60 < A \leqslant 80$	40
$80 < A \leqslant 100$	6

(a) On the grid, draw a frequency polygon for this information.



(2)

(b) Write down the modal class interval.

.....

(1)

(Total for question = 3 marks)

Q2.

The table shows information about the heights of 80 children.

Height (h cm)	Frequency
$130 < h \leqslant 140$	4
$140 < h \leqslant 150$	11
$150 < h \leqslant 160$	24
$160 < h \leqslant 170$	22
$170 < h \leqslant 180$	19

(a) Find the class interval that contains the median.

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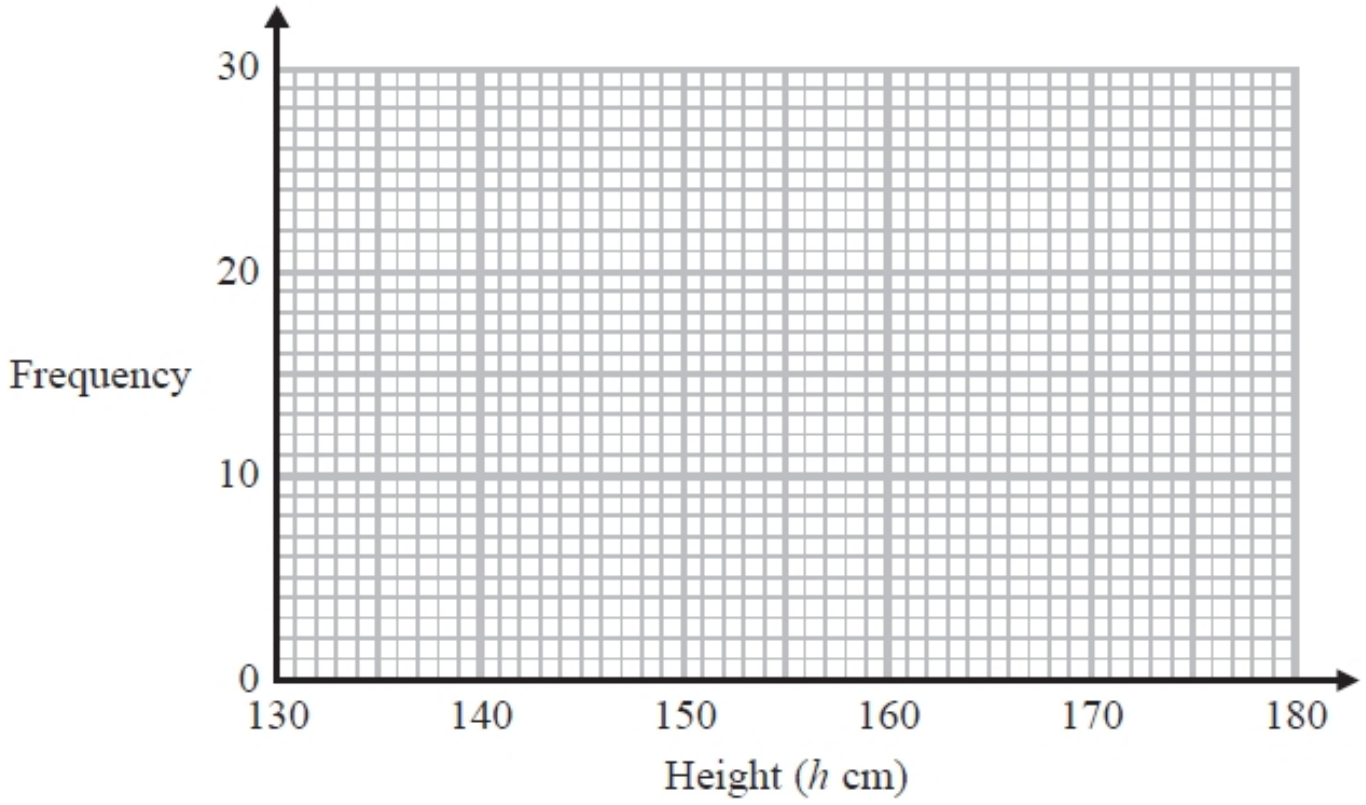
(1)

(b) Draw a frequency polygon for the information in the table.



(2)

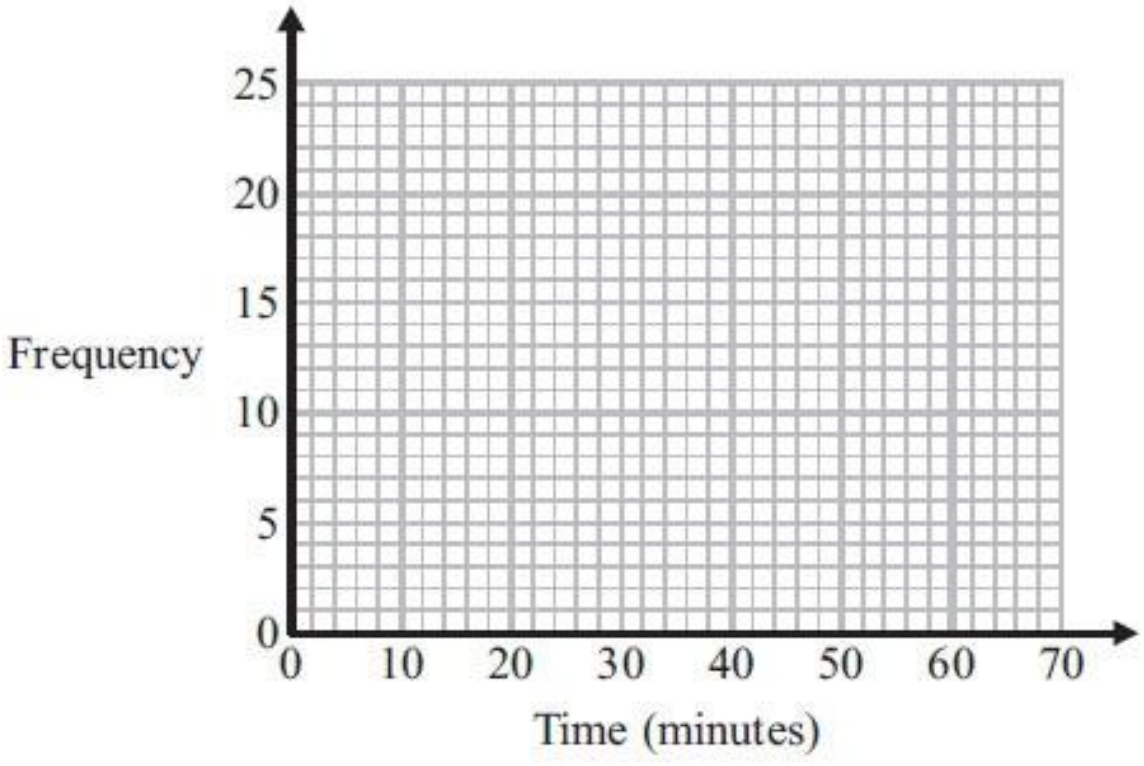
(Total for question = 3 marks)

Q3.

The frequency table gives information about the times it took some office workers to get to the office one day.

Time (t minutes)	Frequency
$0 < t \leq 10$	4
$10 < t \leq 20$	8
$20 < t \leq 30$	14
$30 < t \leq 40$	16
$40 < t \leq 50$	6
$50 < t \leq 60$	2

(a) Draw a frequency polygon for this information.



(2)

(b) Write down the modal class interval.

.....

(1)

One of the office workers is chosen at random.

(c) Work out the probability that this office worker took more than 40 minutes to get to the office.

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(2)

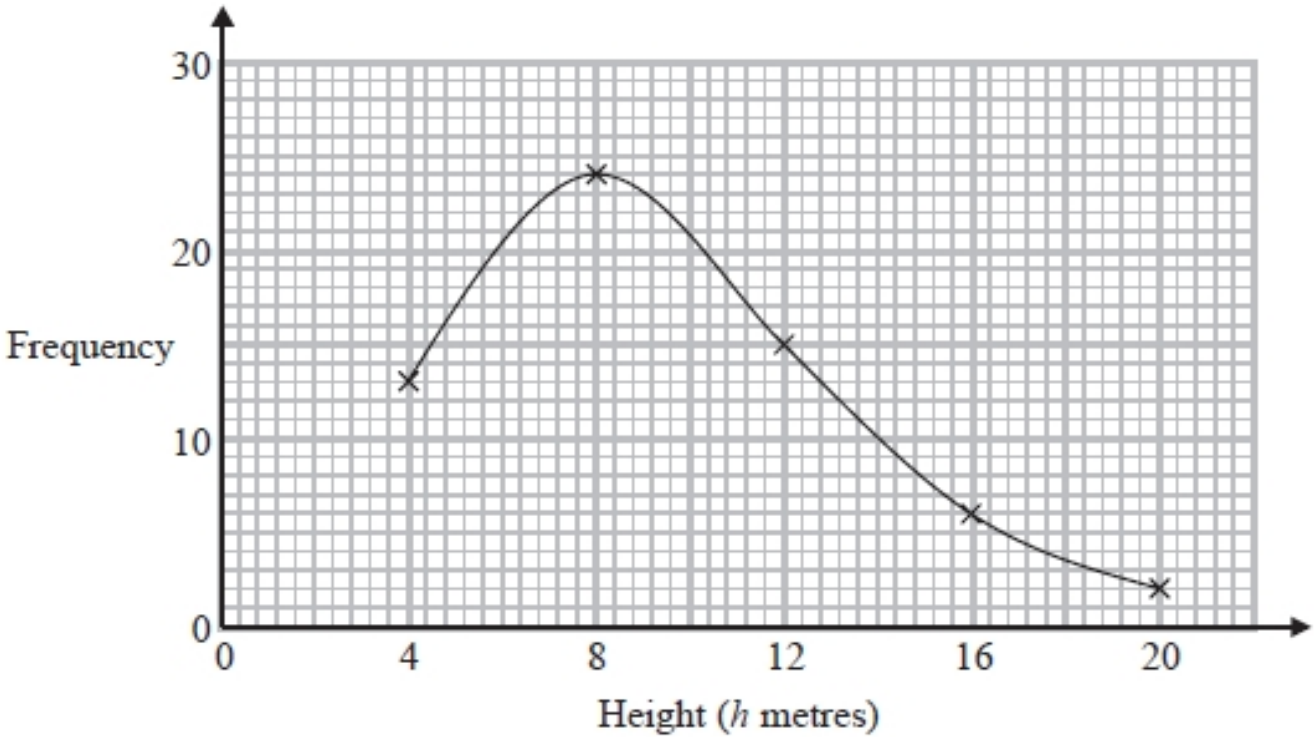
(Total for Question is 5 marks)

Q4.

The table shows information about the heights of 60 trees.

Height (h metres)	Frequency
$0 < h \leqslant 4$	13
$4 < h \leqslant 8$	24
$8 < h \leqslant 12$	15
$12 < h \leqslant 16$	6
$16 < h \leqslant 20$	2

Jacob drew this frequency polygon for the information in the table.
The frequency polygon is **not** correct.



Write down **two** things that are wrong with the frequency polygon.

1 .....

2 .....

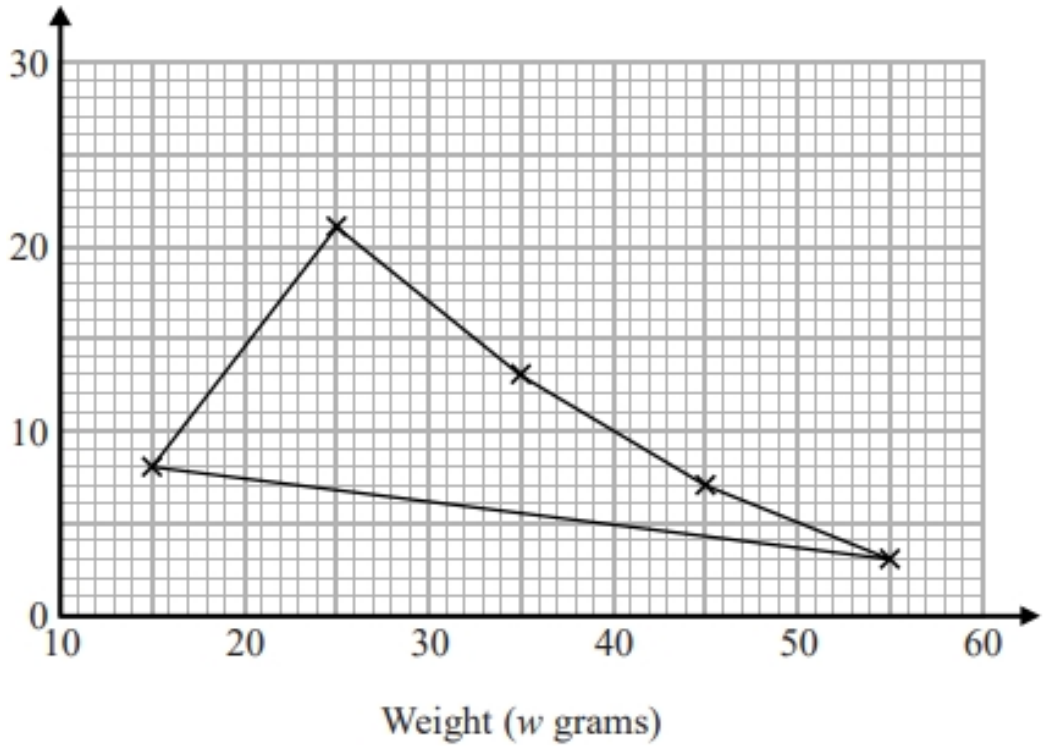
(Total for question = 2 marks)

Q5.

The table shows some information about the weights of 50 potatoes.

Weight (w grams)	Frequency
$10 < w \leqslant 20$	6
$20 < w \leqslant 30$	21
$30 < w \leqslant 40$	13
$40 < w \leqslant 50$	7
$50 < w \leqslant 60$	3

Iveta drew this frequency polygon for the information in the table.
The frequency polygon is **not** fully correct.



Write down **two** things that are wrong with the frequency polygon.

1 .....

.....

2 .....

.....

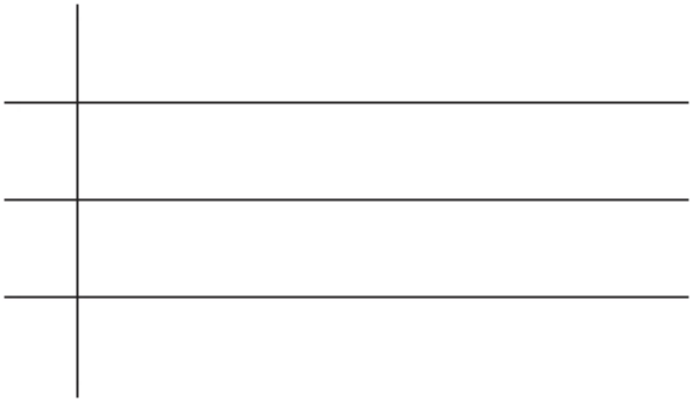
(Total for question = 2 marks)

Q6.

Chloe recorded the test marks of 20 students.

22	29	38	16	36	18	30	21	27	43
14	41	25	38	46	19	48	34	23	46

(a) Show this information in an ordered stem and leaf diagram.



(3)

One of these students is going to be chosen at random.

(b) Find the probability that this student has a test mark less than 28

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(2)

(Total for question = 5 marks)

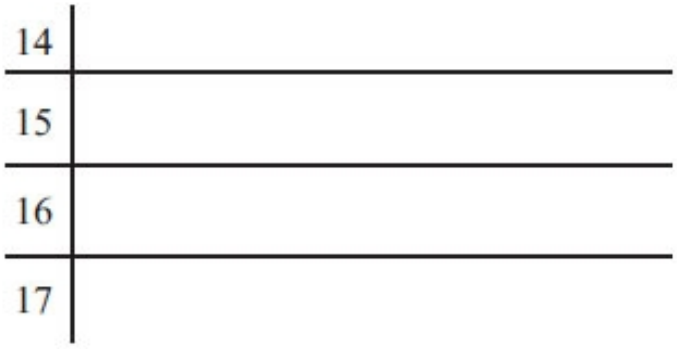
Q7.

There are 25 students in a class.
12 of the students are girls.

Here are the heights, in cm, of the 12 girls.

160 173 148 154 152 164 179 164 162 174 168 170

(a) Show this information in an ordered stem and leaf diagram.



(3)

There are 13 boys in the class.

Here are the heights, in cm, of the 13 boys.

157 159 162 166 168 169 170 173 174 176 176 181 184

***** (b) Compare the heights of the boys with the heights of the girls.

(3)

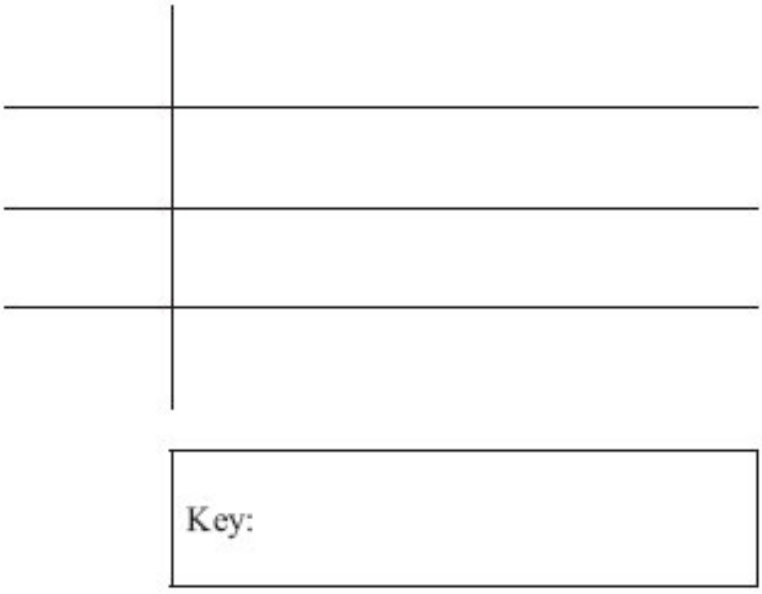
(Total for Question is 6 marks)

Q8.

Here are the heights, in cm, of 20 sunflower plants.

73	84	78	96	98	84	101	93	71	104
81	92	95	103	100	96	87	91	88	96

(a) Draw an ordered stem and leaf diagram for these heights.



(3)

(b) Work out the range.

. . . . . cm

(1)

(c) Find the median height.

. . . . . cm

(1)

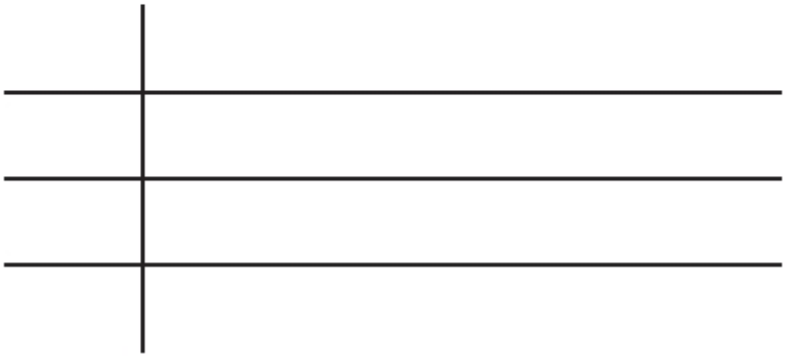
(Total for Question is 5 marks)

Q9.

Here are the heights, in centimetres, of 15 children.

123	147	135	150	147
129	148	149	125	137
133	138	133	130	151

(a) Show this information in a stem and leaf diagram.



(3)

One of the children is chosen at random.

(b) What is the probability that this child has a height greater than 140 cm?

.....

(2)

(Total for question is 5 marks)

Q10.

Here are the ages, in years, of 20 footballers.

17	32	25	41	23	26	29	29	32	30
21	17	40	35	34	28	32	19	27	31

Wayne drew this stem and leaf diagram to show this information.

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

Key: 1 | 7 represents 17 footballers

Write down two things that are wrong with the stem and leaf diagram.

1 .....

2 .....

(Total for question = 2 marks)

Q11.

The stem and leaf diagram shows information about the heights, in cm, of the boys in a class.

14	0 2 9
15	1 1 3 5 7
16	2 4 5 7 8 9
17	6 6 7 9
18	0 0 1

Key: 15 | 1 represents 151 cm

(a) Find the median height.

..... cm

(1)

The girls in the class have a median height of 162 cm.
Their heights have a range of 45 cm.

(b) Compare the distribution of the heights of the boys with the distribution of the heights of the girls.

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(2)

(Total for question = 3 marks)

Q12.

The stem and leaf diagram gives information about the speeds of 27 cars.

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

Key:
3 | 8 means 38 miles per hour

(a) Find the median speed.

..... miles per hour

(1)

(b) Work out the range.

..... miles per hour

(1)

One of the cars is chosen at random.

Jack says,

"The probability that the speed of this car is more than 60 miles per hour is $\frac{1}{3}$"

(c) Jack is wrong.
Explain why.

.....

.....

(2)

(Total for question = 4 marks)

Q13.

***** Zoe recorded the heart rates, in beats per minute, of each of 15 people.
Zoe then asked the 15 people to walk up some stairs.
She recorded their heart rates again.

She showed her results in a back-to-back stem and leaf diagram.

Before							After			
				9	8	5				
7	6	6	4	1	0	6	5	8	8	9
	9	8	6	3	2	7	2	4	7	8
				4	1	8	5	6	8	
						9	1	3	7	
						10	2			

Key for before
8 | 5 means 58
beats per minute

Key for after
6 | 5 means 65
beats per minute

Compare the heart rates of the people before they walked up the stairs with their heart rates after they walked up the stairs.

(Total for Question is 6 marks)