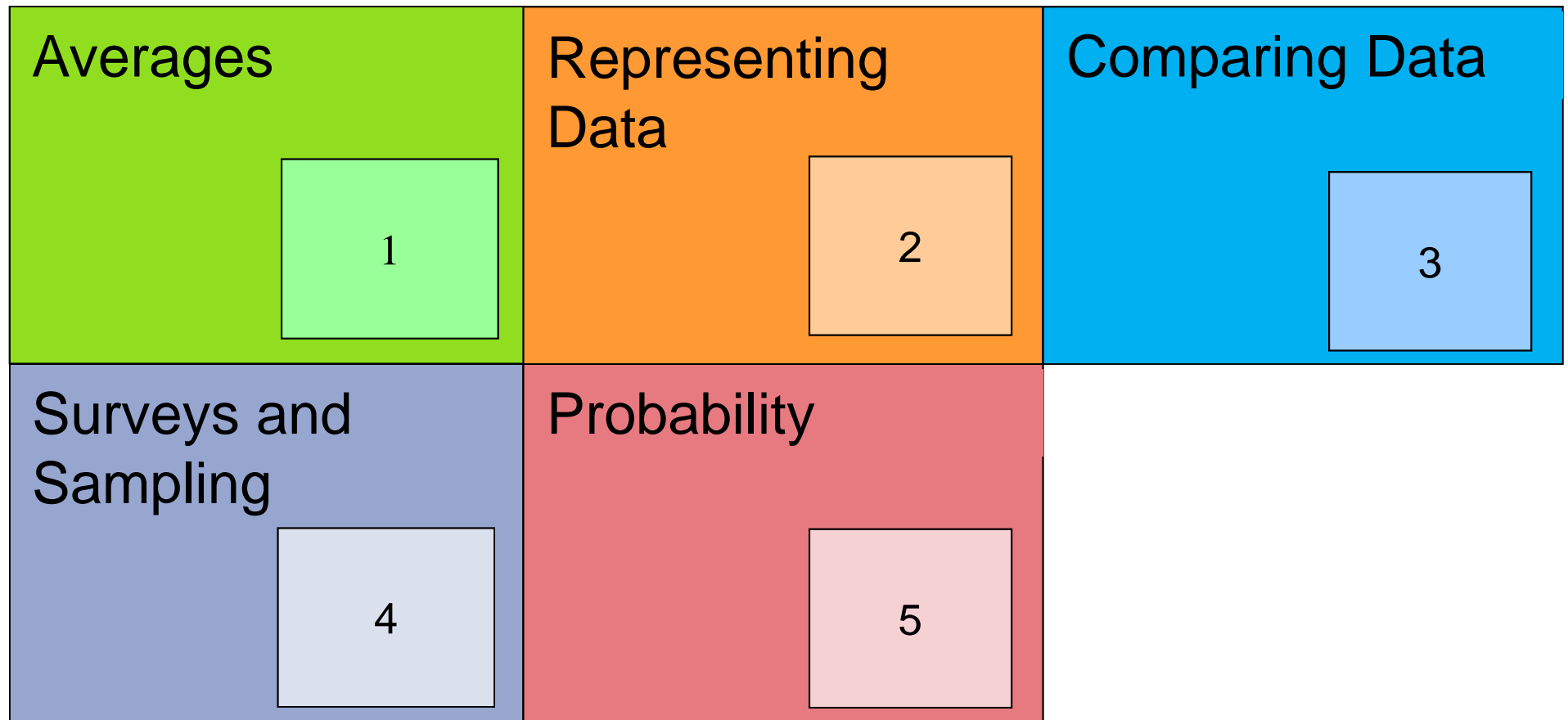


TOPICS - PROBABILITY AND STATISTICS



Averages

1

Notes

A book has 120 pages. The mean number of words per page for the whole book is 231. The mean number of words per page for the first 20 pages is 236.

Calculate the mean number of words per page for the other 100 pages.

.....
(Total 3 marks)

The table gives some information about the weights, in kg, of 50 suitcases at an airport check-in desk.

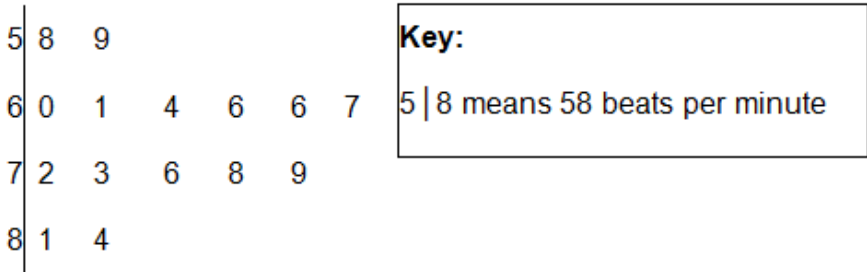
Weight (w kg)	Frequency
$0 < w \leq 10$	16
$10 < w \leq 15$	18
$15 < w \leq 20$	10
$20 < w \leq 35$	6

(a) Work out an estimate for the mean weight.

..... kg

(4)

Zoe showed heart rates of 15 people in a stem and leaf diagram.



(a) Find the median heart rate.

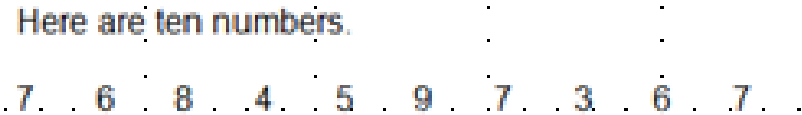
..... beats per minute (1)

(b) Work out the range of the heart rates.

..... beats per minute (2)

4 numbers have a mode of 11, a range of 8 and a mean of 8. What are the numbers?

Here are ten numbers.



Work out the median

Representing Data

2

Notes

The table shows some information about the weights, in grams, of 60 eggs.

Weight (w grams)	Frequency	Cumulative Frequency
$0 < w \leq 30$	0	
$30 < w \leq 50$	14	
$50 < w \leq 60$	16	
$60 < w \leq 70$	21	
$70 < w \leq 100$	9	

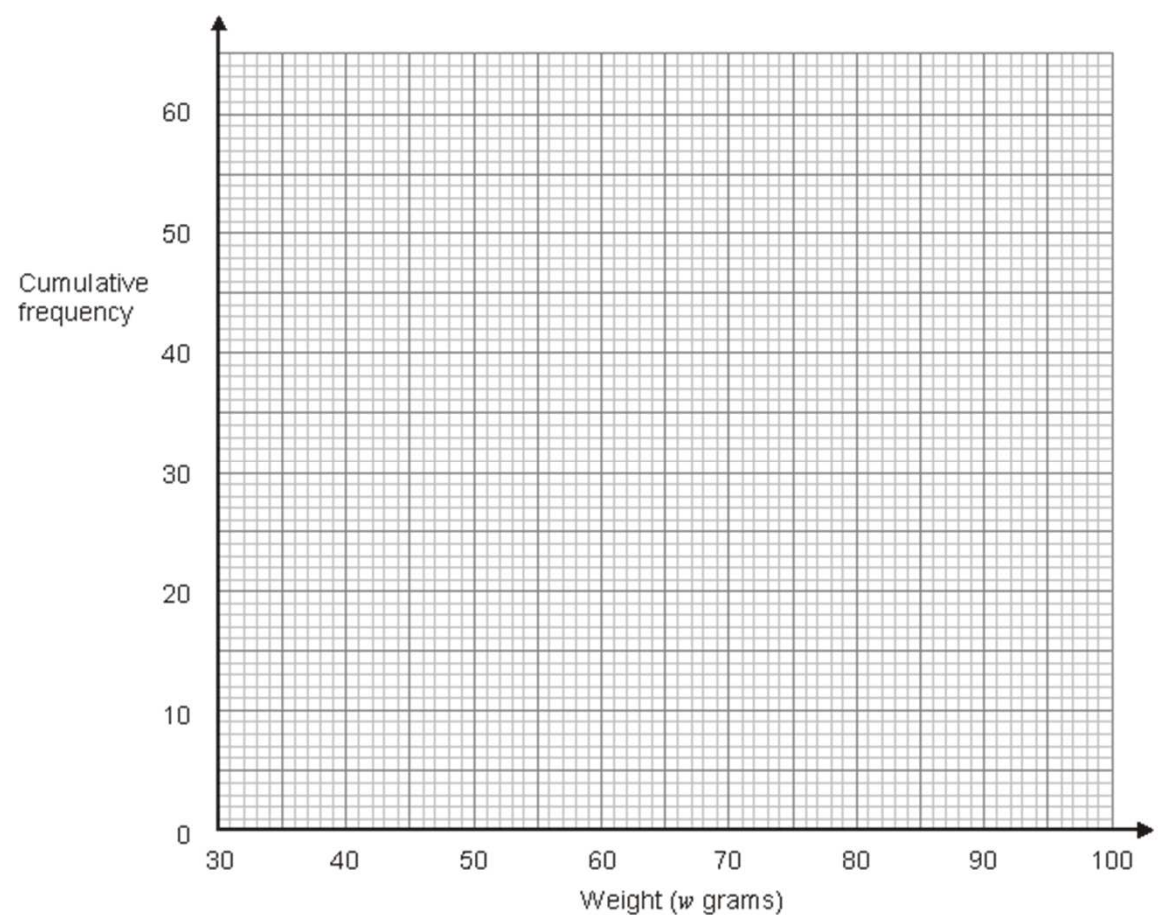
Complete the cumulative frequency table.

b) On the grid, draw a cumulative frequency graph for your table.

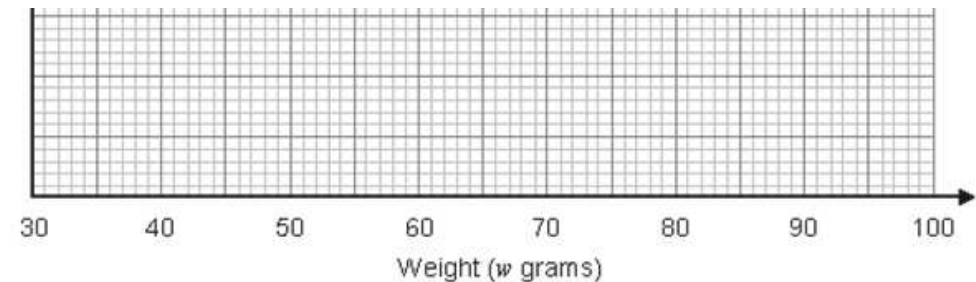
c) Estimate the median ^{weight} number of eggs.

d) Use your graph to find an estimate for the number of eggs with a weight greater than 63 grams.

(Total 9 marks)



2. For the data in the previous question, complete a box and whisker plot



b) Calculate the interquartile range

(Total 3 marks)

Comparing Data



3

Notes

Kelly recorded the length of time 48 teachers took to travel to school on Monday.

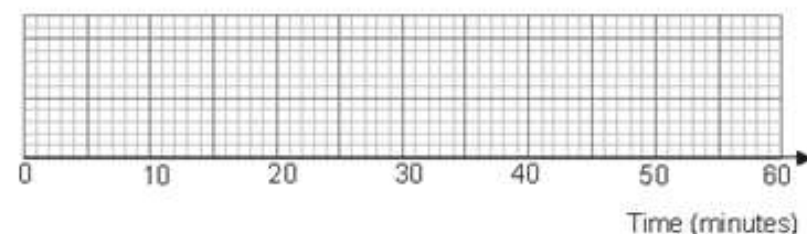
The table shows information about these travel times in minutes.

Least time	5
Greatest time	47
Median	28
Lower quartile	18
Upper quartile	35

(a) How many teachers travel 35 minutes or more.

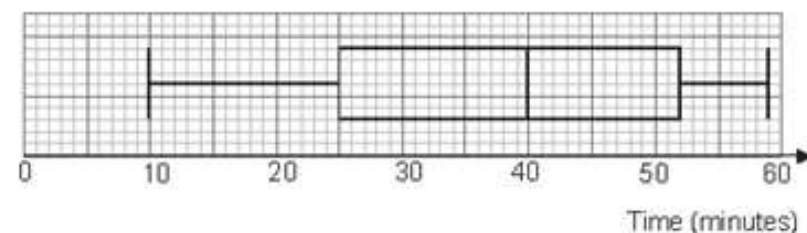
.....

(b) On the grid, draw a box plot to show the information in the table.



Kelly then recorded the times the same 48 teachers took to travel to school on Tuesday.

The box plot shows some information about these times.

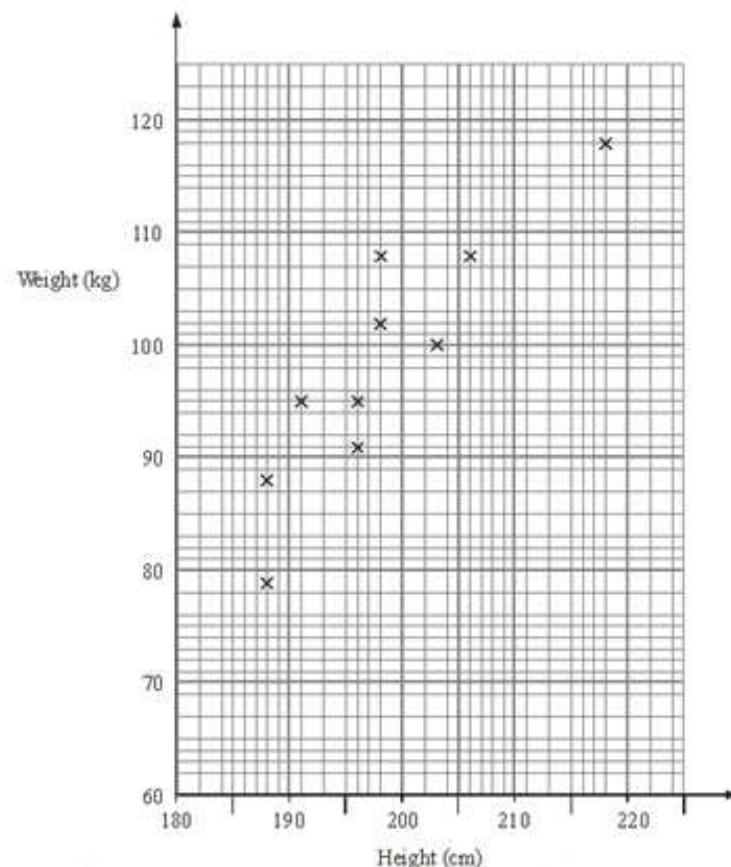


(c) Compare the travel times on Monday and on Tuesday.

.....

(Total 6 marks)

The scatter graph shows some information about a random sample of ten male players at a basketball club. For each player it shows his height and his weight.



(i) On the scatter graph, draw a line of best fit.

(ii) Work out the gradient of your line of best fit.

(iii) What is the expected height of someone who weighs 110kg

.....

(iv) Describe the correlation

.....

(v) Write down a practical interpretation of this

.....

(Total 7 marks)

Surveys and Sampling

4

Notes

Explain what is meant by

- (i) A random sample,

.....

- (ii) A stratified sample.

.....

The table below shows the population of each of three villages.

Village	Population
Ashley	243
Brigby	370
Irton	127

Mr. Akhtar carries out a survey of the people living in these three villages. He uses a sample stratified by village population.

There are 50 people from Brigby in his sample.

Work out the number of people from Irton in his sample.

.....
(Total 2 marks)

	Male	Female
First year	399	602
Second year	252	198

Anna wants to interview some of these students. She takes a random sample of 70 students stratified by year and by gender.

Work out the number of students in the sample who are male and in the first year.

.....
(Total 3 marks)

A factory makes 600 laptops. Mrs. Green is responsible for checking these laptops. She is going to take a random sample of 80 of the laptops.

- (a) Describe a method she could use to select the sample.

.....

Mrs. Green finds that 3 of the 80 laptops are faulty.

- (b) Work out an estimate for how many of the 600 laptops are faulty.

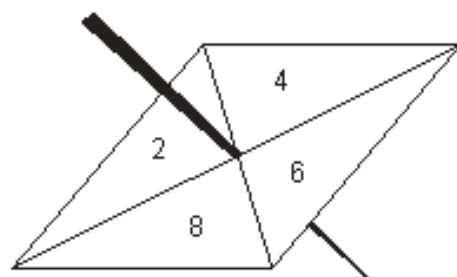
.....
(Total 3 marks)

Probability

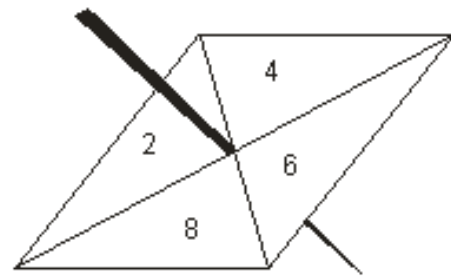
5

Notes

Here are two fair 4-sided spinners.
One is a Blue spinner and one is a Red spinner.



Blue Spinner



Red Spinner

Blue spinner Red spinner

Each spinner has four sections numbered 2, 4, 6 and 8

Each spinner is to be spun once.

Total score = Blue spinner score + Red spinner score.

(a) Find the probability that the total score will be 10.

.....
(3)

Phil has 20 sweets in a bag.

5 of the sweets are orange.

7 of the sweets are red.

8 of the sweets are yellow.

Phil randomly takes **two** sweets from the bag.

Work out the probability:

a) Both sweets will be red

b) Both sweets will be the same colour

c) Both sweets will be different colours

(Total 6 marks)

Mary plays a game of throwing a ball at a target.

The table shows information about the probability of each possible score.

Score	0	1	2	3	4	5
Probability	0.09	x	$3x$	0.16	0.21	0.30

(a) Work out the value of x .

Mary plays the game twice.

(b) Work out the probability of Mary scoring a total of 10.

(Total 6 marks)