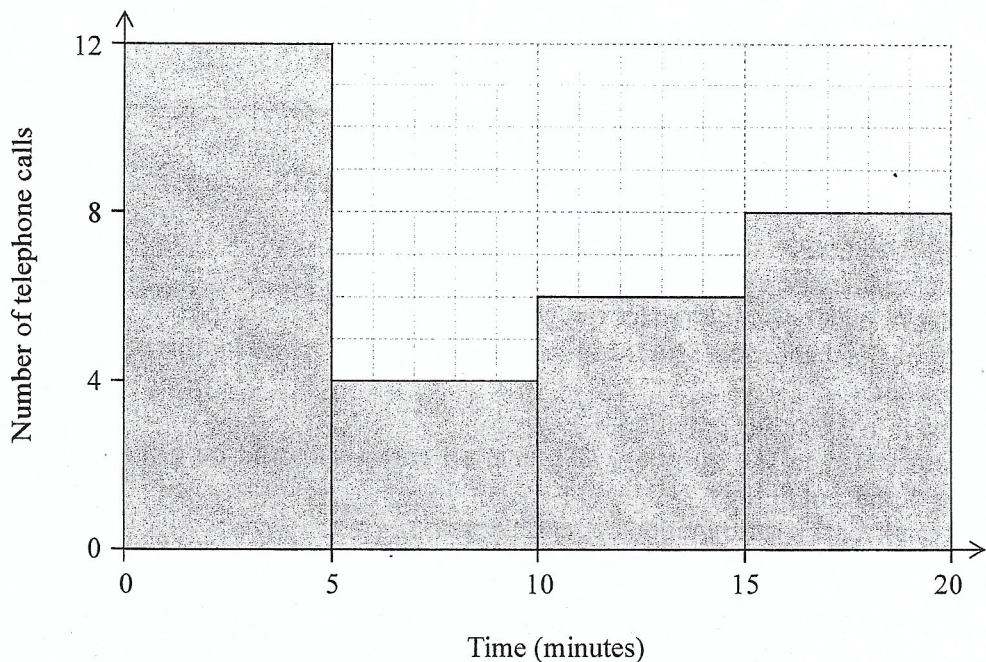


Maximum marks will be given for correct answers. Where an answer is incorrect, some marks may be given for a correct method, provided this is shown by written working. Write your answers in the answer boxes provided. Solutions found from a graphic display calculator should be supported by suitable working, e.g. if graphs are used to find a solution, you should sketch these as part of your answer.

- Consider the frequency histogram for the distribution of the time, t , in minutes of telephone calls that Helen made last week.



- Complete the frequency table for this distribution.

[2 marks]

Time (minutes)	Number of telephone calls
$0 < t \leq 5$	
$5 < t \leq 10$	
$10 < t \leq 15$	
$15 < t \leq 20$	

(This question continues on the following page)

(Question 1 continued)

- (b) Write down the modal class. *[1 mark]*

- (c) Write down the mid interval value of the $10 < t \leq 15$ class. *[1 mark]*

- (d) Use your graphic display calculator to find an estimate for the mean time. *[2 marks]*

Working:

Answers:

- (b)
- (c)
- (d)

Frequency 2

5. [Maximum mark: 15]

The table below shows the distribution of test grades for 50 IB students at Greendale School.

Test grade	1	2	3	4	5	6	7
Frequency	1	3	7	13	11	10	5

- (a) Calculate
- (i) the mean test grade of the students; [3]
 - (ii) the standard deviation. [3]
- (b) Find the median test grade of the students. [1]
- (c) Find the interquartile range. [2]

A student is chosen at random from these 50 students.

- (d) Find the probability that this student scored a grade 5 or higher. [2]

A second student is chosen at random from these 50 students.

- (e) Given that the first student chosen at random scored a grade 5 or higher, find the probability that both students scored a grade 6. [3]

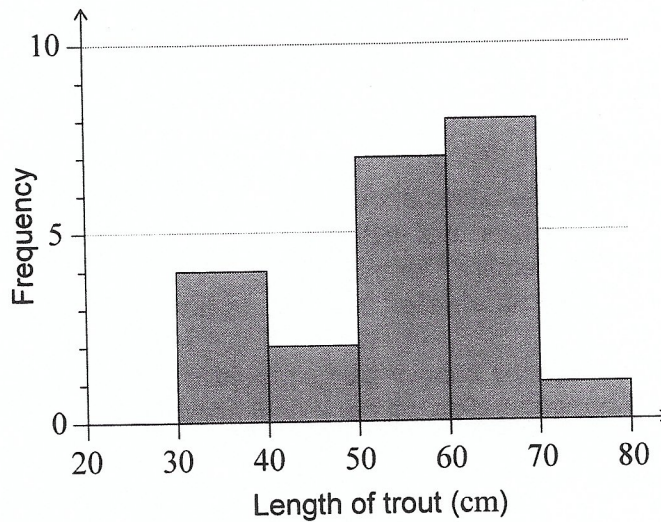
The number of minutes that the 50 students spent preparing for the test was normally distributed with a mean of 105 minutes and a standard deviation of 20 minutes.

- (f) (i) Calculate the probability that a student chosen at random spent at least 90 minutes preparing for the test.
- (ii) Calculate the expected number of students that spent at least 90 minutes preparing for the test. [4]

stats

Maximum marks will be given for correct answers. Where an answer is incorrect, some marks may be given for a correct method, provided this is shown by written working. Answers must be written within the answer boxes provided. Solutions found from a graphic display calculator should be supported by suitable working, for example, if graphs are used to find a solution, you should sketch these as part of your answer.

1. The lengths of trout in a fisherman's catch were recorded over one month, and are represented in the following histogram.



- (a) Complete the following table.

Length of trout	Frequency
20 cm < trout length ≤ 30 cm	0
30 cm < trout length ≤ 40 cm	
40 cm < trout length ≤ 50 cm	
50 cm < trout length ≤ 60 cm	
60 cm < trout length ≤ 70 cm	
70 cm < trout length ≤ 80 cm	1

[2]

- (b) State whether **length of trout** is a continuous or discrete variable.

[1]

- (c) Write down the modal class.

[1]

Any trout with length 40 cm or less is returned to the lake.

- (d) Calculate the percentage of the fisherman's catch that is returned to the lake.

[2]

(This question continues on the following page)

Please start each question on a new page. You are advised to show all working, where possible. Where an answer is incorrect, some marks may be given for a correct method, provided this is shown by written working. Solutions found from a graphic display calculator should be supported by suitable working, e.g. if graphs are used to find a solution, you should sketch these as part of your answer.

1. [Maximum mark: 13]

The lengths (l) in centimetres of 100 copper pipes at a local building supplier were measured. The results are listed in the table below.

Length l (cm)	Frequency
17.5	12
32.5	26
47.5	32
62.5	21
77.5	9

- (a) Write down the mode. [1 mark]
- (b) Using your graphic display calculator, write down the value of
- (i) the mean;
 - (ii) the standard deviation;
 - (iii) the median. [4 marks]
- (c) Find the interquartile range. [2 marks]
- (d) Draw a box and whisker diagram for this data, on graph paper, using a scale of 1 cm to represent 5 cm. [4 marks]
- Sam estimated the value of the mean of the measured lengths to be 43 cm.
- (e) Find the percentage error of Sam's estimated mean. [2 marks]