

3. Exam results are shown below though one value has been omitted:

Score	Frequency
1	1
2	2
3	4
4	x
5	5
6	3
7	1

- a) The mean score is 4.125. Determine the value of x .
- b) Each score is increased by 2 points. Determine the new mean.
- c) Find the variance of the original data and compare with the variance of the increased values in part b). Comment on your findings.

4. The results of an experiment are summarized as follows:

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

Key

0 | 4 represents a height of 0.4m

- a) Justify, with calculations, why 3.9 m is an outlier.

5. There scores of 10 students are as follows:

2, 3, 4, 5, 6, 6, 6, 7, 7, 8,

- a) Find the standard deviation for this data.
- b) Each value is multiplied by 3. Find the value of the standard deviation.

6. The speed of vehicles on a communal road are recorded as follows:

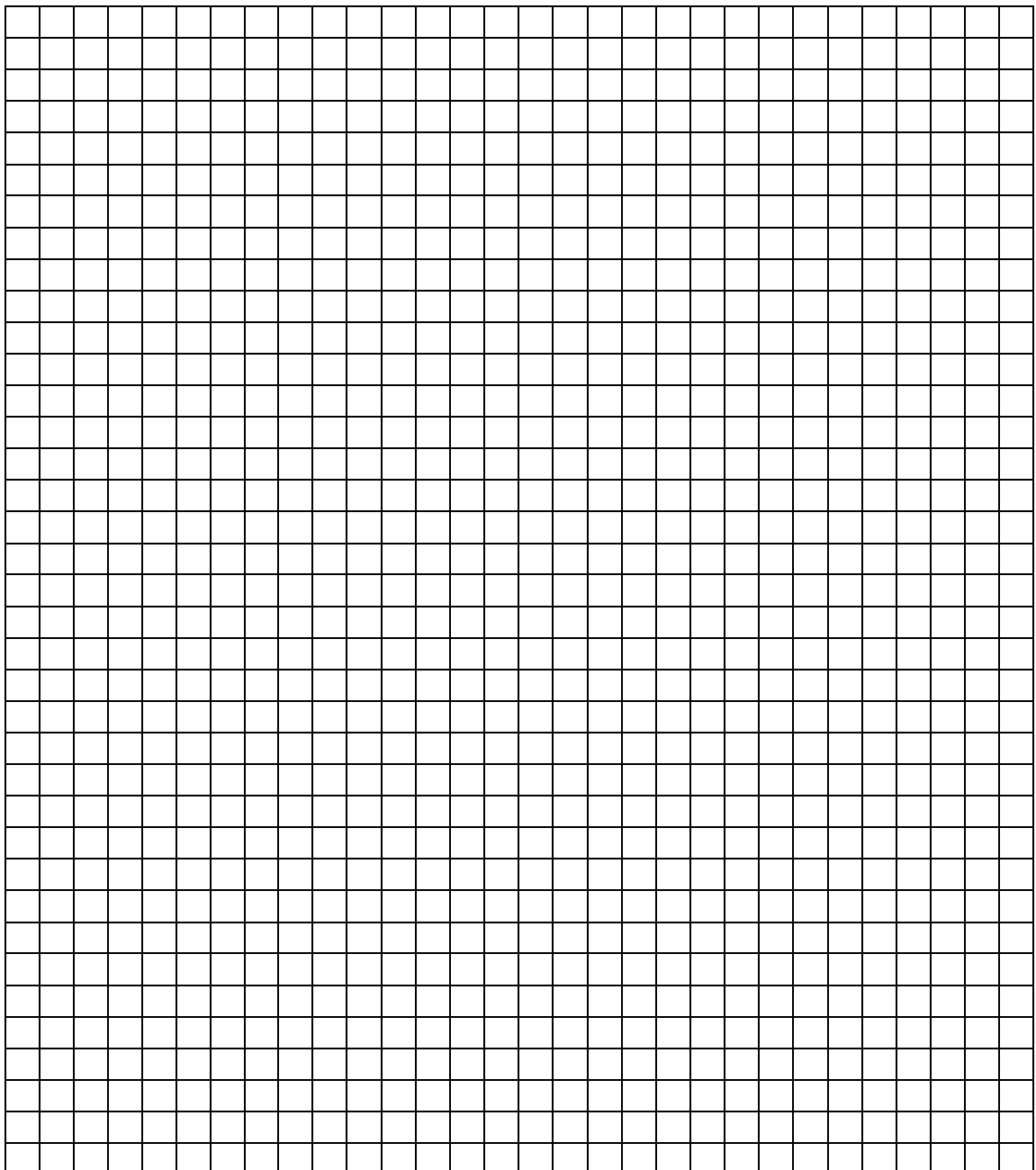
Speed, s , kmh^{-1}	Frequency
$0 < s \leq 10$	3
$10 < s \leq 20$	4
$20 < s \leq 30$	6
$30 < s \leq 40$	15
$40 < s \leq 50$	65
$50 < s \leq 60$	77
$60 < s \leq 70$	p
$70 < s \leq 80$	3
$80 < s \leq 90$	1

- a) State whether the data is continuous or discrete.
- b) The speeds of 200 cars were recorded. Determine the value of p .
- c) State the modal class.
- d) Find an estimate of the:
 - i. mean
 - ii. standard deviation

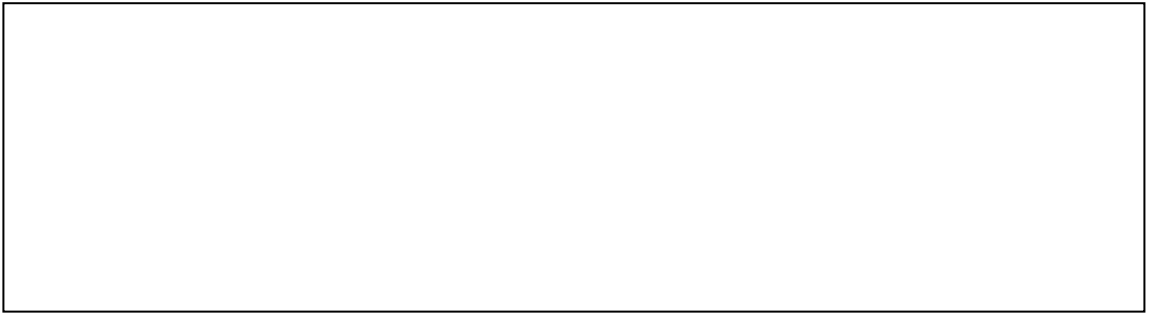
e) Complete the cumulative frequency table

Speed, s , kmh^{-1} .	Cumulative Frequency
$s \leq 10$	3

f) Plot the cumulative frequency curve for the data on the grid:



- g) Hence, find the
- i. median
 - ii. interquartile range



- h) The speed limit is 55 kmh^{-1} . Anyone driving over this limit will receive a fine.
- i. Approximate the number of fines that will be issued.
 - ii. Drivers travelling 20% or more above the speed limit will receive fines of 2000 CHF. Approximate how much money is collected from these drivers.

