

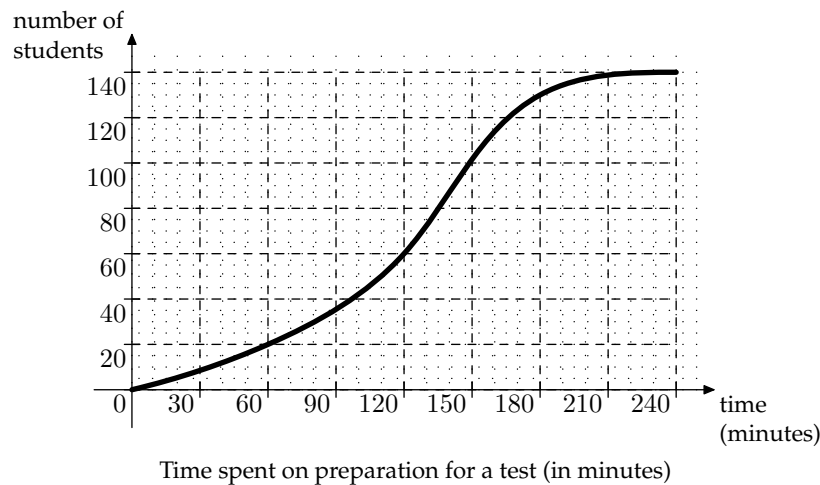
## One variable statistics

1. Goro conducted a research concerning weight of students. The results of his survey are listed in the table below.

41	54	37	55	52	60	45	56	56	47
54	51	64	53	64	57	65	40	73	53
57	46	76	56	46	59	55	63	48	43
47	72	41	51	67	44	53	63	58	63
50	49	56	57	48	55	55	53	63	35

Weight in a group of students (in kg)

- (a) Draw a stem-and-leaf diagram.
  - (b) Hence draw a frequency table with data grouped into intervals of length equal to 10 cm.
  - (c) Put the cumulative frequencies into your table.
  - (d) Represent the data on a histogram.
  - (e) Find the modal class.
  - (f) Using your table, estimate the mean and standard deviation.
  - (g) Use your GDC to find the *exact* values of the mean and standard deviation.
2. The average time spent on learning before a math test was measured in a certain school. The results are shown using a cumulative frequency curve.



- (a) How many students participated in the research?
- (b) How many students learned shorter than one hour? And longer than 3 hours?
- (c) How many students had a preparation time between 60 and 120 minutes?
- (d) Estimate the median and the quartiles.

3. Boris measured ten times the time he needs to get to school. The results (in minutes) are:

27, 31, 28, 27, 30, 26,  $t$ , 33, 28, 29.

- Find  $t$  knowing that the mean time was 28.7 minutes.
  - Determine the standard deviation.
  - List the data in ascending order.
  - Find the mode, the median, the quartiles and the interquartile range.
4. Felicyta is preparing a Math Studies project on pocket money. She asked different children about the amount of pocket money they receive each month. The results are as follows (in PLN):

40, 80, 50, 100, 40, 250, 75, 50, 120, 25, 70, 50, 15, 80, 100.

She is wondering whether she should analyse the data using mean and standard deviation or median and interquartile range. What would you advise? Calculate the measures you find useful.

*This material is copyright by Marcin Borkowski.  
It is published in hope it might be helpful for IB students.  
You are allowed to distribute and use it free of charge.  
You are not allowed to change it in any way.  
The author is not hired by the IBO and has no access to any inside information;  
the problems presented reflect the author's opinion  
and may differ substantially from problems set in IBO examinations.  
The author will take no responsibility for any errors and/or omissions.  
However, he will be thankful for reporting any of these.*