

IB Math Studies 2 BELL WORK

Complete the Pea Problem questions quietly at your desk.
Be sure you have a reason for each answer.

Chapter

6

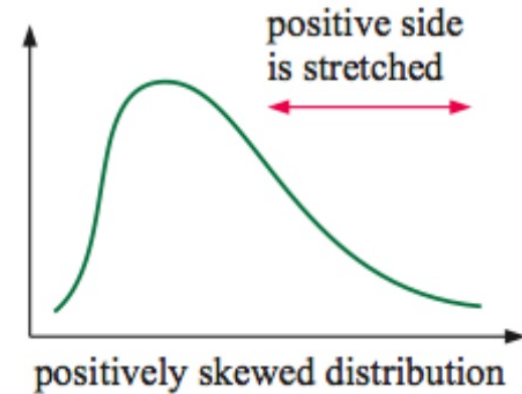
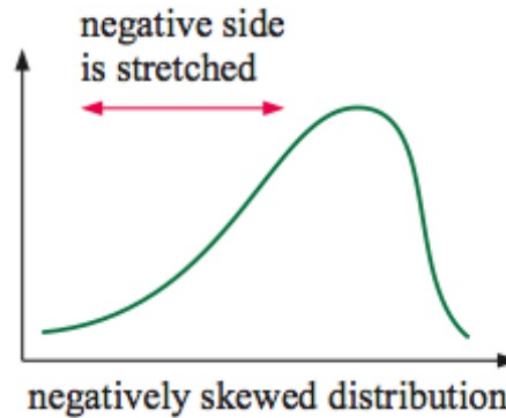
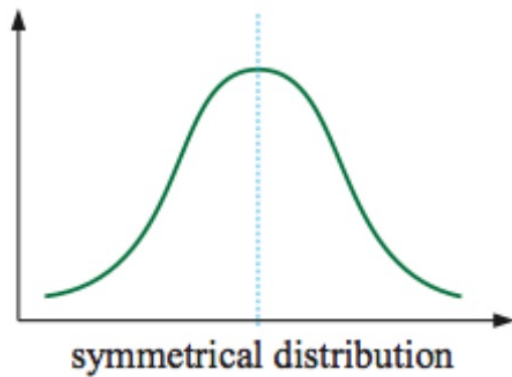
Descriptive statistics

Syllabus reference: 2.1, 2.2, 2.3, 2.4, 2.5, 2.6

Contents:	A Types of data
	B Simple quantitative discrete data
	C Grouped quantitative discrete data
	D Quantitative continuous data
	E Measuring the centre of data
	F Measuring the spread of data
	G Box and whisker plots
	H Cumulative frequency graphs
	I Standard deviation

Key take-aways from Chapter 6:

Negative vs. Positive skew



Key take-aways from Chapter 6:

Discrete vs. continuous

- Discrete (countable) data should be graphed in a column, or bar graph
- Continuous (measureable) data should be graphed in a histogram

Grouped data

- When using grouped data, you can get the best estimate of the mean or the standard deviation (more of SD later) by assuming all the data in each section of the histogram fall in the middle of the interval. This is almost definitely not true, but you are just estimating. There is not enough information to find the exact mean or standard deviation.

- Class intervals should be the same size

As a rule of thumb we use approximately \sqrt{n} classes for a data set of n individuals.

Measuring the spread of data

- The range, the interquartile range (IQR), and the standard deviation are measures of how spread out data are. They do not tell you anything about patterns in the data, simply whether the data lie close together or far apart.

- A note on quartiles:

One quarter or 25% of the data have values less than or equal to the lower quartile.

75% of the data have values greater than or equal to the lower quartile.

One quarter or 25% of the data have values greater than or equal to the upper quartile.

75% of the data have values less than or equal to the upper quartile.

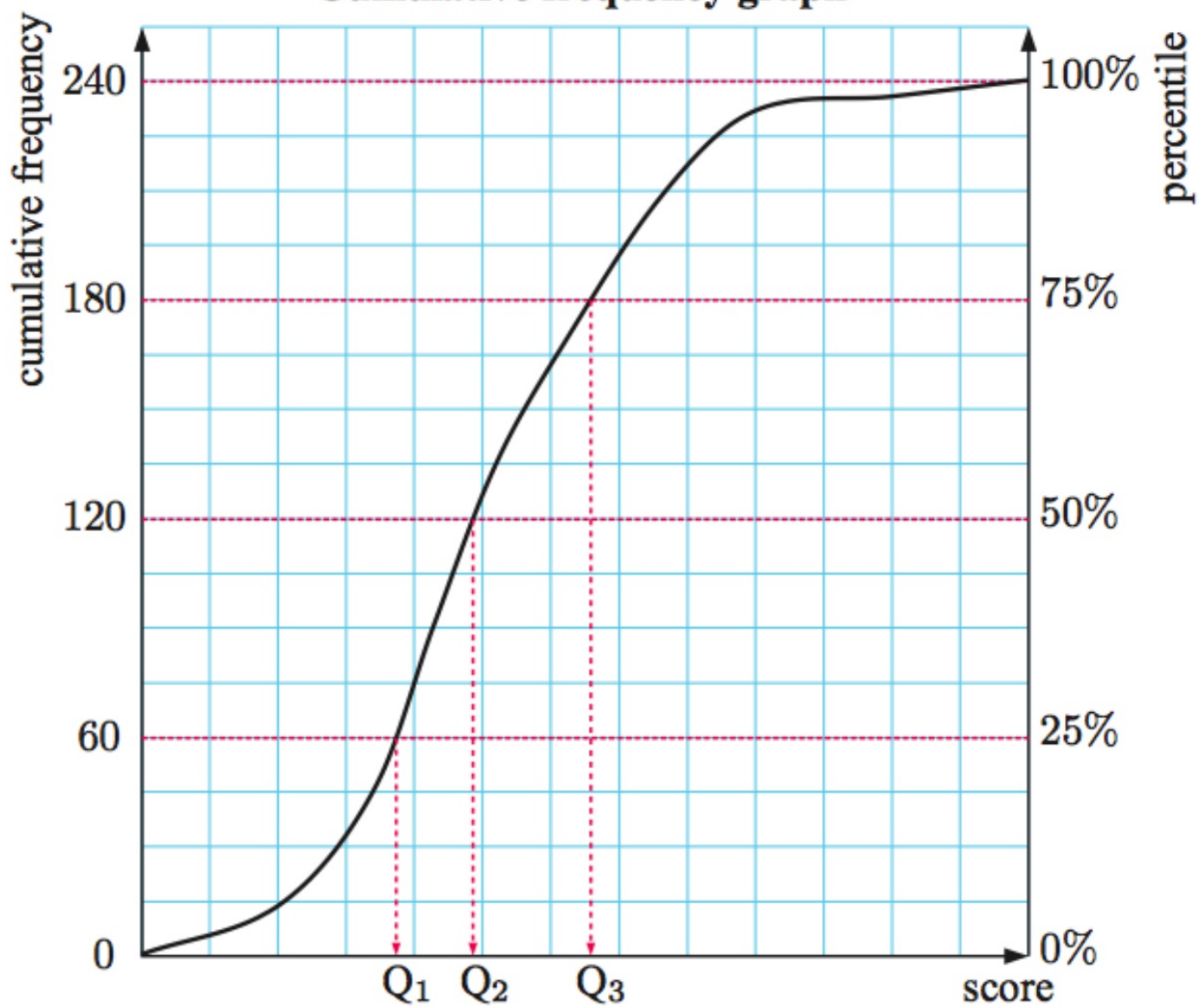
The **interquartile range** is the range of the middle half or 50% of the data.

Cumulative Frequencies

- On a cumulative frequency graph, the 50th percentile is at *half* the data listed, not at the number 50. The 25th percentile is at 1/4 of the data and the 75th percentile is at 3/4 of the data.

- Notice that:
- the **lower quartile** (Q_1) is the 25th percentile
 - the **median** (Q_2) is the 50th percentile
 - the **upper quartile** (Q_3) is the 75th percentile.

Cumulative frequency graph



The **standard deviation** of a distribution takes into account the **deviation** of **each score** from the mean. It is therefore a good measure of the **dispersion** of the data.

