

Learn all the foundation key facts and remember these top tips!

## Histograms

Remember that the frequency is given by the **area** of each bar.

$$\text{Frequency density} = \frac{\text{frequency}}{\text{class width}}$$

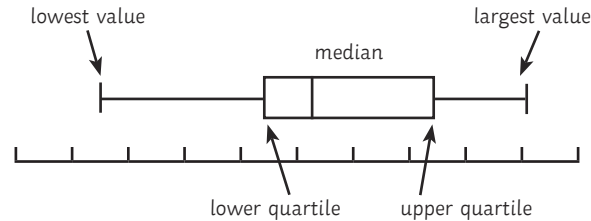
Remember, the height of the bar is the frequency density.

## Cumulative Frequency

Add the frequencies up as you go along and plot at the **end** of the class interval.

To find the **median**, draw a horizontal line from  $\frac{1}{2}$  of the total frequency to the graph then read off on the  $x$ -axis. To find the quartiles, draw horizontal lines from  $\frac{1}{4}$  and  $\frac{3}{4}$  of the total frequency to the graph then read off on the  $x$ -axis. The difference between these is the **interquartile range**.

## Box and Whisker Plots



When comparing two of these, make sure you compare the average (median) and the interquartile range. The smaller the IQR, the more **consistent** the data.

## Tree Diagrams

Remember these two formulae:

$$P(\text{A and B}) = P(\text{A}) \times P(\text{B})$$

$$P(\text{A or B}) = P(\text{A}) + P(\text{B})$$

Always leave your answer as a fraction if possible, it makes the sums easier!

## Capture/Recapture

Always remember these assumptions:

There is no death or migration of animals.

The sampling methods are always the same.

The marking does not affect the survival rate of the animals.

E.g. A scientist captures 30 fish, marks them and releases them back into a lake. The next day he captures 40 fish, 8 of which are marked. Estimate the total number of fish in the lake.

$$\frac{8}{40} = \frac{1}{5}$$

Therefore, 30 can be assumed to be  $\frac{1}{5}$  of the population. To find the total population,  $30 \times 5 = 150$  fish.

## Venn Diagrams

