

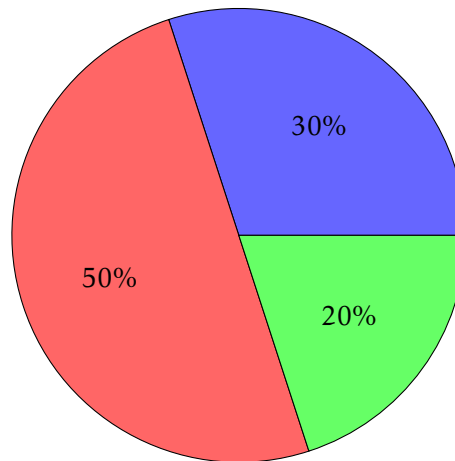
## Single variable data representation

### Fact —

- A variable is \_\_\_\_\_ if it is not possible for it to take a numerical value, eg
- A variable is \_\_\_\_\_ if it can take a numerical value, eg
- A quantitative variable which can take any value in a given range is \_\_\_\_\_
- A quantitative variable which has clear steps between its possible values is \_\_\_\_\_

### Pie Charts

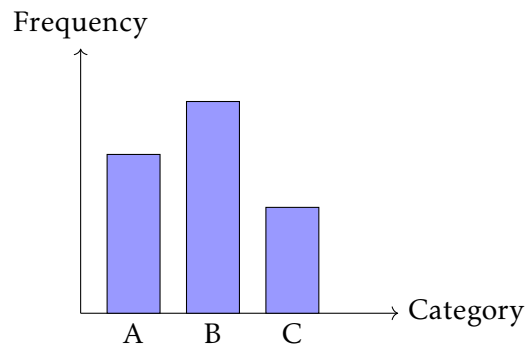
- Used for displaying parts of a whole
- Areas are proportional to the frequencies
- Sectors calculated using: \_\_\_\_\_
- Best used when: \_\_\_\_\_
- Limitations: \_\_\_\_\_



### Bar Charts

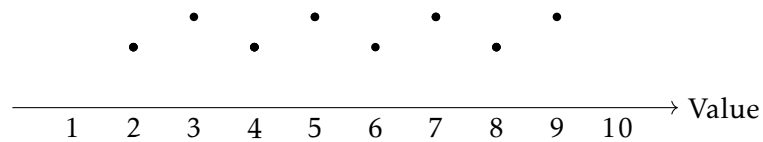
- Used for \_\_\_\_\_
- Height/length proportional to \_\_\_\_\_
- Types include:
  - Simple bar chart:
  - Multiple bar chart:
  - Component bar chart:
- Best used when: \_\_\_\_\_

- Limitations: \_\_\_\_\_



**Dot Plots**

- Each dot represents \_\_\_\_\_
- Stacked vertically when \_\_\_\_\_
- Best used when: \_\_\_\_\_
- Limitations: \_\_\_\_\_

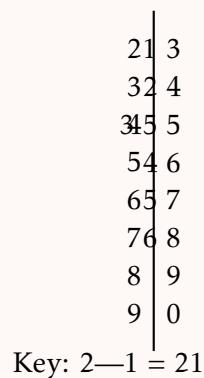


**Stem-and-Leaf Diagrams**

- Stem represents \_\_\_\_\_
- Leaf represents \_\_\_\_\_
- Key: \_\_\_\_\_
- Best used when: \_\_\_\_\_
- Limitations: \_\_\_\_\_

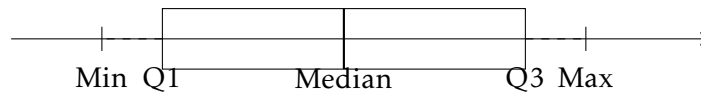
**Example**

Consider the following data: 23, 45, 67, 32, 54, 76, 43, 21, 65, 89, 90, 34, 56, 78, 45



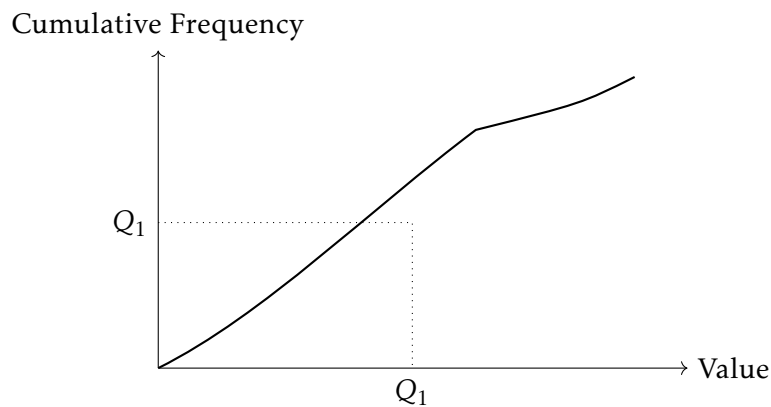
**Box-and-Whisker Plots**

- Five number summary:
  - Minimum: \_\_\_\_\_
  - Lower quartile: \_\_\_\_\_
  - Median: \_\_\_\_\_
  - Upper quartile: \_\_\_\_\_
  - Maximum: \_\_\_\_\_
- IQR = \_\_\_\_\_
- Outliers: \_\_\_\_\_



**Cumulative Frequency Diagrams**

- Shows running total of \_\_\_\_\_
- Plotted at \_\_\_\_\_ of class interval
- Used to find:
  - Median: \_\_\_\_\_
  - Quartiles: \_\_\_\_\_
  - Percentiles: \_\_\_\_\_



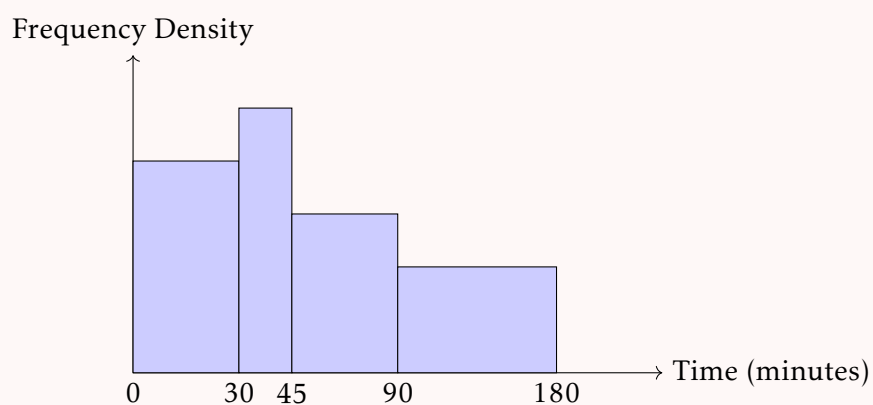
**Histograms**

- Area represents \_\_\_\_\_
- Height represents \_\_\_\_\_
- For unequal class widths:
  - Frequency density = \_\_\_\_\_
  - Area = \_\_\_\_\_

**Example**

The following data shows the time (in minutes) spent on social media by 50 students:

Time (minutes)	Frequency
0-30	8
30-45	12
45-90	15
90-120	10
120-180	5



(a) Calculate the frequency densities for each class

(b) Draw a histogram to represent this data

**Choosing appropriate representations**

Complete the following table:

Type of data	Discrete	Continuous	Categorical
Suitable representations			
When to use			