

Scientific Graphing

Scientific graphs usually show the relationship of a dependent variable (one that is measured) to an independent variable.

The **independent variable** (I.V.) is placed on the horizontal or x-axis.

The **dependent variable** (D.V.) is placed on the vertical or y-axis

Values on the x- and y-axes are evenly spaced with no breaks.

Terms for you to know:

Trend line – A line that summarizes the data. This is sometimes called a best-fit line. Data points do not have to be on this line

- Linear trend lines are straight lines.
- Non-linear trend lines are not straight.

Data Relationships – Directly Related– IV increase, DV increases; and vice versa
Inversely Related– IV increase, DV decreases; and vice versa

Special Data Relationships

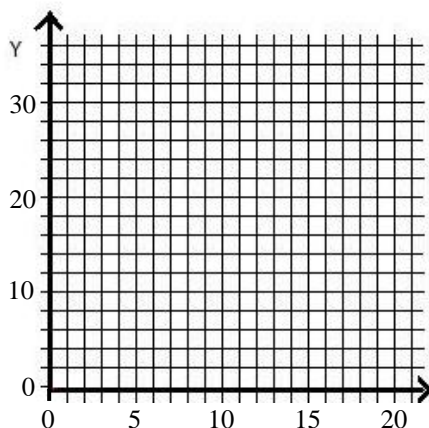
Directly Proportional – IV increases, DV increase at the **same rate** or IV decreases, DV decreases at the **same rate**.

Inversely Proportional – IV increases, DV decreases at the **same rate** or IV decreases, DV increases at the **same rate**.

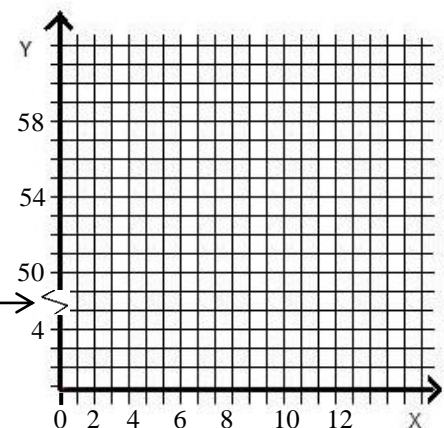
Interpolation --predicting values that are within the range of available data (between existing data points)

Extrapolation – predicting values that are outside of the range of data; a trend line is often extended to make extrapolation easier.

Good Numbering:

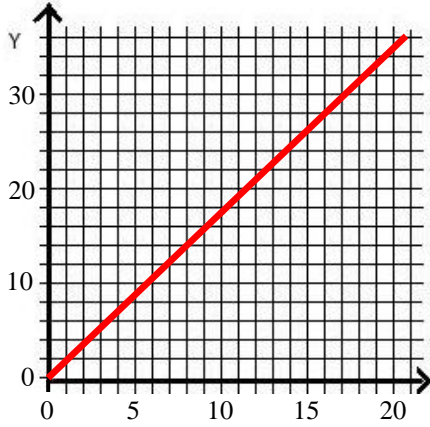


Bad Numbering:

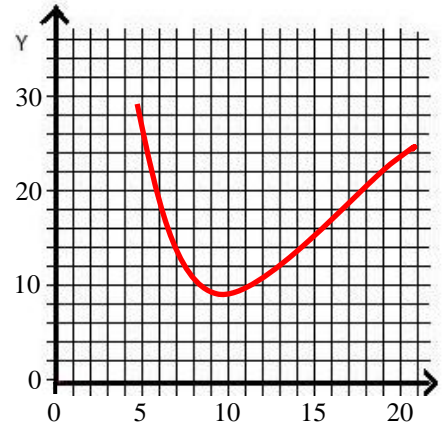


NEVER use a scale break in a science graph.

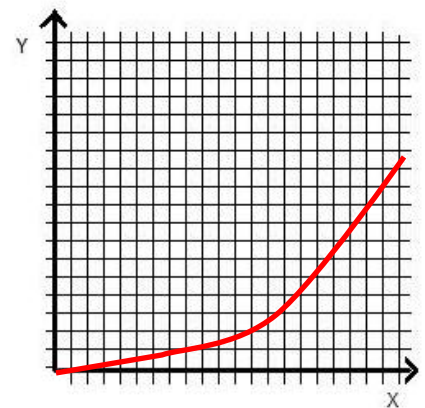
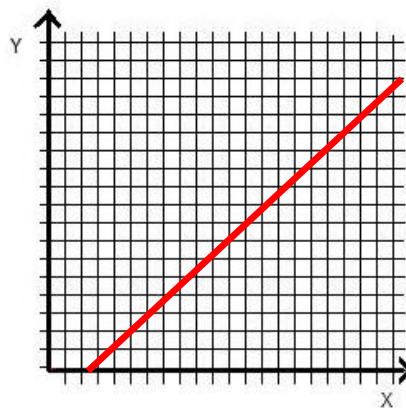
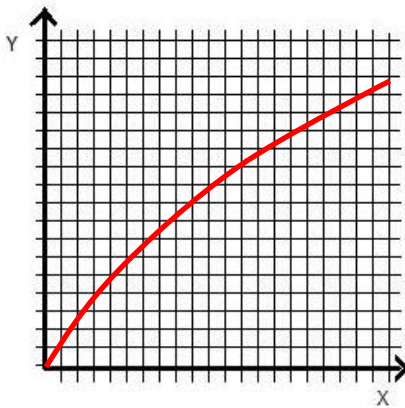
Linear – Straight line



Non Linear – Curved line



Direct Relationships – Positive Trend (Examples)



Inverse Relationships – Negative Trend (Examples)

