Direct and Inverse Proportion

Day to day life variations in one quantity (x) will result in variations in another quantity (y)

An increase or decrease in the independent (control) variable can cause a proportional increase or decrease in the dependent variable that can be numerically calculated

Direct Proportion	Inverse Proportion
If the value of x increases , the value of y increases in such a way that the ratio x/y =a constant	If the value of x increases , the value of y decreases in such a way that the product xy = a constant
Increase in x results in a proportionate increase in y	Increase in x results in a proportionate decrease in y
$\frac{x_1}{y_1} = \frac{x_2}{y_2} = \frac{x_3}{y_3} = ... \frac{x_n}{y_n} = k$, where $y_{1,} y_{2,.....} y_n$ are the values of y corresponding to values of $x_{1,} x_{2,.....} x_n$ respectively and k is a positive number	$x_1 y_1 = x_2 y_2 = ...x_n y_n = k$ where $y_{1,} y_{2,.....} y_n$ are the values of y corresponding to values of $x_{1,} x_{2,.....} x_n$ respectively and k is a positive number
Hence x $\propto$ y	Hence x $\propto \frac{1}{y}$
Examples in day to day life • Number of articles purchased and total bill amount • speed and distance • Time and distance • Work and money • Principal and interest; money deposited and money earned Map : miniature representation of a large region • A map shows the relationship between actual length and length represented on scale. • Scale = ratio of distance between two points on map to actual distance between two points in the physical region	Examples in day to day life • Population of a country and area of land per person • speed and time • number of workers and time to accomplish a fixed task