Regression analysis

$$y = a + bx$$

$$a = \frac{\sum y}{n} - \frac{b\sum x}{n}$$

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$$

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{(n\sum x^2 - (\sum x)^2)(n\sum y^2 - (\sum y)^2)}}$$

Learning curve

$$Y = ax^b$$

Where Y = cumulative average time per unit to produce x units

a = the time taken for the first unit of output

x = the cumulative number of units produced

b = the index of learning (log LR/log2)

LR = the learning rate as a decimal

Demand curve

P = a – bQ

$$b = \frac{\text{change in price}}{\text{change in quantity}}$$

a = price when Q = 0

MR = a – 2bQ