$$IQR = Q_3 - Q_1$$

$Q_1$ is the 25th percentile

$Q_3$ is the 75th percentile

$$s_x^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n-1}$$

$$s_{xy} = \frac{\sum_{i=1}^n \{(x_i - \bar{x})(y_i - \bar{y})\}}{n-1}$$

$$r_{xy} = \frac{s_{xy}}{s_x s_y}$$

$$C_k^N = \frac{N!}{k!(N-k)!}$$

$$P_k^N = \frac{N!}{(N-k)!}$$

$$N! = 1 \times 2 \times 3 \times \ldots \times (N-1) \times N$$

$$0! = 1$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$P(A|B) = \frac{P(A \cap B)}{P(B)}$$

$$P(A \cap B) = P(A|B)P(B)$$

$$A \cap B = B \cap A$$

$$A \cup B = B \cup A$$

There are two below requirements for something (where $e_i$ is something):

$$0 \leq P(e_i) \leq 1 \tag{1}$$

$$P(e_1) + P(e_2) + \ldots + P(e_n) = 1 \tag{2}$$