Important Coefficients, Proportion and Regression Formulas PDF

Formulas
Examples
with Units

List of 14
Important Coefficients, Proportion and Regression Formulas

1) Coefficients Formulas

1.1) Coefficient of Mean Deviation Formula

Evaluate Formula

Formula

$$CM = \frac{MD}{\mu}$$

Example

$$0.4 = \frac{4}{10}$$

1.2) Coefficient of Mean Deviation Percentage Formula

Evaluate Formula

Formula

$$CM_{\%} = \left(\frac{MD}{\mu}\right) \cdot 100$$

Example

$$40 = \left(\frac{4}{10}\right) \cdot 100$$

1.3) Coefficient of Quartile Deviation Formula

Evaluate Formula

Formula

$$CQ = \frac{Q_3 - Q_1}{Q_3 + Q_1}$$

Example

$$0.5 = \frac{60 - 20}{60 + 20}$$

1.4) Coefficient of Range Formula

Evaluate Formula

Formula

$$CR = \frac{L - S}{L + S}$$

Example

$$0.8 = \frac{45 - 5}{45 + 5}$$

1.5) Coefficient of Variation given Variance Formula

Evaluate Formula

Formula

$$CV = \frac{\sqrt{\sigma^2}}{\mu}$$

Example

$$0.7 = \frac{\sqrt{49}}{10}$$

1.6) Coefficient of Variation Percentage Formula

Evaluate Formula

Formula

$$CV_{\%} = \left(\frac{\sigma}{\mu}\right) \cdot 100$$

Example

$$70 = \left(\frac{7}{10}\right) \cdot 100$$

1.7) Coefficient of Variation Ratio Formula

Evaluate Formula

Formula

$$CV = \frac{\sigma}{\mu}$$

Example

$$0.7 = \frac{7}{10}$$

2) Proportion Formulas

2.1) Pooled Sample Proportion Formula

Evaluate Formula

Formula

$$P_{Pooled} = \frac{\left(N_X \cdot P_X\right) + \left(N_Y \cdot P_Y\right)}{N_X + N_Y}$$

Example

$$0.75 = \frac{\left(10 \cdot 0.6\right) + \left(30 \cdot 0.8\right)}{10 + 30}$$

2.2) Population Proportion Formula

Evaluate Formula

Formula

$$P_{Population} = \frac{N_{Success}}{N_{Population}}$$

Example

$$0.4 = \frac{20}{50}$$

2.3) Sample Proportion Formula

Evaluate Formula

Formula

$$P_{Sample} = \frac{N_{Success}}{N}$$

Example

$$0.5 = \frac{20}{40}$$

3) Regression Formulas

3.1) Regression Coefficient Formula

Evaluate Formula

Formula

$$b_1 = \frac{\bar{y} - b_0}{\bar{x}}$$

Example

$$5 = \frac{200 - 50}{30}$$

3.2) Regression Coefficient given Correlation Formula

Evaluate Formula

Formula

$$b_1 = r \cdot \left(\frac{\sigma_Y}{\sigma_X}\right)$$

Example

$$5 = 2 \cdot \left(\frac{150}{60}\right)$$

3.3) Regression Constant Formula

Evaluate Formula

Formula

$$b_0 = \bar{y} - \left(b_1 \cdot \bar{x} \right)$$

Example

$$50 = 200 - \left(5 \cdot 30 \right)$$

3.4) Simple Linear Regression Line Formula

Evaluate Formula

Formula

$$Y = b_0 + \left(b_1 \cdot X \right)$$

Example

$$100 = 50 + \left(5 \cdot 10 \right)$$

Variables used in list of Coefficients, Proportion and Regression Formulas above

- b_0 Regression Constant
- b_1 Regression Coefficient
- **CM** Coefficient of Mean Deviation
- $CM_{\%}$ Coefficient of Mean Deviation Percentage
- **CQ** Coefficient of Quartile Deviation
- **CR** Coefficient of Range
- **CV** Coefficient of Variation
- $CV_{\%}$ Coefficient of Variation Percentage
- **L** Largest Item in Data
- **MD** Mean Deviation of Data
- **N** Sample Size
- $N_{Population}$ Population Size
- $N_{Success}$ Number of Successes
- N_X Size of Sample X
- N_Y Size of Sample Y
- P_{Pooled} Pooled Sample Proportion
- $P_{Population}$ Population Proportion
- P_{Sample} Sample Proportion
- P_X Proportion of Sample X
- P_Y Proportion of Sample Y
- Q_1 First Quartile of Data
- Q_3 Third Quartile of Data
- **r** Correlation between X and Y
- **S** Smallest Item in Data
- **X** Independent Random Variable X
- $\bar{x}$ Mean of X
- **Y** Dependent Random Variable Y
- $\bar{y}$ Mean of Y
- **μ** Mean of Data
- **σ** Standard Deviation of Data
- σ_X Standard Deviation of X
- σ_Y Standard Deviation of Y

Constants, Functions, Measurements used in list of Coefficients, Proportion and Regression Formulas above

- Functions: **sqrt**, sqrt(Number)
  A square root function is a function that takes a non-negative number as an input and returns the square root of the given input number.

- σ^2 Variance of Data

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