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Coefficients, Proportion and Regression Formulas

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List of 14 Coefficients, Proportion and Regression Formulas

Coefficients, Proportion and Regression

Coefficients

1) Coefficient of Mean Deviation

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

[Open Calculator !\[\]\(de95854c7ee024cfadc48187bbb781b2_img.jpg\)](#)

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

2) Coefficient of Mean Deviation Percentage

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

[Open Calculator !\[\]\(6a9b39b98eb945faa14c645ec99e4eaa_img.jpg\)](#)

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



3) Coefficient of Quartile Deviation

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

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)](#)

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

4) Coefficient of Range

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

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0_img.jpg\)](#)

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

5) Coefficient of Variation given Variance

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

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f_img.jpg\)](#)

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

6) Coefficient of Variation Percentage

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

[Open Calculator !\[\]\(b64b40baaee5acddc1eab8538ba84754_img.jpg\)](#)

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



7) Coefficient of Variation Ratio

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

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

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

Proportion

8) Pooled Sample Proportion

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

[Open Calculator !\[\]\(aa53ad6fea213b8b2226d3077e30533a_img.jpg\)](#)

$$\text{ex } 0.75 = \frac{(10 \cdot 0.6) + (30 \cdot 0.8)}{10 + 30}$$

9) Population Proportion

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

[Open Calculator !\[\]\(626ce8ac21792b9405bfddfea8e0c96a_img.jpg\)](#)

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



10) Sample Proportion

$$fx \quad P_{\text{Sample}} = \frac{N_{\text{Success}}}{N}$$

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a_img.jpg\)](#)

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

Regression

11) Regression Coefficient

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

[Open Calculator !\[\]\(8bba887393ca45b761e5cb49e755e762_img.jpg\)](#)

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

12) Regression Coefficient given Correlation

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

[Open Calculator !\[\]\(0fb13ad0bfa3d86868cdd3883e5665b3_img.jpg\)](#)

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

13) Regression Constant

$$fx \quad b_0 = \bar{y} - (b_1 \cdot \bar{x})$$

[Open Calculator !\[\]\(e50091943b385fe16d3277389202856f_img.jpg\)](#)

$$ex \quad 50 = 200 - (5 \cdot 30)$$



14) Simple Linear Regression Line

fx $Y = b_0 + (b_1 \cdot X)$

Open Calculator 

ex $100 = 50 + (5 \cdot 10)$



Variables Used

- 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
- **Q₁** 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
- σ^2 Variance of Data











Constants, Functions, Measurements used

- **Function:** `sqrt`, `sqrt(Number)`
Square root function



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