StatsDrill / Formula Pack

Introductory statistics | 32 worked concepts

01 DESCRIBING DATA

Sample mean

$$\bar{x} = \frac{\sum x_i}{n}$$

WHEN TO USE:

Numeric center; sensitive to outliers.

TRY IT:

$x = (2, 4, 6, 8)$

WORK:

$\bar{x} = (2 + 4 + 6 + 8)/4 = 5$

ANSWER:

5

Median

$$\tilde{x} = \text{middle ordered value}$$

WHEN TO USE:

Resistant center for skewed data.

TRY IT:

$x = (1, 2, 4, 20)$

WORK:

$\tilde{x} = (2 + 4)/2 = 3$

ANSWER:

3

Sample variance

$$s^2 = \frac{\sum (x_i - \bar{x})^2}{n - 1}$$

WHEN TO USE:

Divide by one fewer than the sample size.

TRY IT:

$x = (2, 4, 6)$

WORK:

$\bar{x} = 4; \quad s^2 = (4 + 0 + 4)/2 = 4$

ANSWER:

4

Sample SD

$$s = \sqrt{\frac{\sum (x_i - \bar{x})^2}{n - 1}}$$

WHEN TO USE:

Square root of sample variance.

TRY IT:

$x = (2, 4, 6)$

WORK:

$s = \sqrt{(4 + 0 + 4)/2} = 2$

ANSWER:

2

SAMPLE

Watermarked sample - full pack: 8 pages / 32 concepts