QUICK REFERENCE SHEET

Measures of Spread Quick Reference

A stronger spread reference sheet for variance, standard deviation, range, and z-scores, with interpretation guidance.

QUICK OVERVIEW

Category: statistics data

Includes 1 related guide page.

Links back to 4 calculator tools.

FORMULA HIGHLIGHTS

Variance

sigma^2 = sum((x - mean)^2) / N

Standard deviation

sigma = sqrt(variance)

WHAT SPREAD TELLS YOU

Spread measures how widely the data are dispersed around a centre. It complements, rather than replaces, measures such as the mean or median.

CORE RELATIONSHIPS

- Range = maximum - minimum
- Variance averages squared deviations in the chosen model
- Standard deviation is the square root of variance
- Z-score standardises a value relative to the mean and standard deviation

INTERPRETATION REMINDERS

- Range is quick but sensitive to extremes.
- Standard deviation is often easier to interpret than variance because it returns to the original units.
- A z-score shows how unusual a value is relative to the distribution model.

WORKED EXAMPLES

Use range for a fast first look, then standard deviation when you need a fuller picture of spread.

A high positive z-score suggests a value well above the mean, while a negative z-score indicates a value below it.