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VIDEO GUIDE · UNIT 0 · TOPIC 0.3

Correlation Coefficients

Watch the lesson

Name _____ Class _____ Date _____

NOTES: FILL IN THE BLANKS WHILE YOU WATCH

Scatter plots

1. A _____ shows the relationship between two quantitative variables, with each participant plotted as one dot.
2. In a _____, as one variable increases, the other tends to increase; dots slope upward.
3. In a _____, as one variable increases, the other tends to decrease; dots slope downward from left to right.

Reading r

4. The _____ (r) ranges from -1 to +1: its sign shows direction; its distance from zero shows strength, set by how tightly points hug a line.
5. A _____ (+1) or _____ (-1) means every point lands exactly on a straight line, whether the line is steep or shallow.
6. Points with no clear upward or downward trend show little or no correlation: a correlation coefficient near _____.
7. No matter how strong a _____ is, it never proves that one variable caused the other.

CHECK YOUR UNDERSTANDING

1. In Study A, points cluster tightly around a gently rising line. In Study B, points are widely scattered around a steeply rising line. Which is true?

(A) Study B has the stronger correlation because its line is steeper

(B) Study A has the stronger correlation because its points are closer to a line

(C) Both are equally strong because both are positive

(D) Study B is a negative correlation

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2. As outdoor temperature rises, hot-chocolate sales fall, and every data point lies exactly on a shallow downward-sloping line. What is the correlation coefficient?

(A) -0.25, because the line is shallow

(B) 0, because the line is nearly flat

(C) +1, because the relationship is perfect

(D) -1

3. Students who sit near the front of the classroom tend to earn higher grades (r = +0.45). A principal decides to seat every student in the front rows to raise grades. What is the main problem with this plan?

(A) The correlation shows only that seating and grades are related, not that seating causes higher grades

(B) A correlation of +0.45 is too weak to show any relationship

(C) A positive correlation means front-row students should earn lower grades

(D) Correlations can only be computed for perfect relationships

NOTES

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