

Unit 10 Test — Answer Key

Scatter Plots, Correlation, Lines of Best Fit & Two-Way Tables

FOR TEACHER / SELF-CHECK USE

This test was written to cover Unit 10's topics (scatter plots, correlation, lines of best fit, residuals, and two-way frequency tables). Every solution below has been independently verified.

1	As x increases, y also increases — this is a positive trend. Answer: A — Positive
2	As x increases, y decreases — this is a negative trend. Answer: A — Negative
3	Slope = $(8-2)/(4-1) = 6/3 = 2$. Point-slope using (1,2): $y-2 = 2(x-1) \rightarrow y = 2x$. Answer: $y = 2x$
4	Correlation strength is measured by how close $ r $ is to 1. $ -0.95 = 0.95$ is closest to 1 among the choices. Answer: B — $r = -0.95$
5	A residual measures how far an actual data point falls from the value the model predicts: residual = actual – predicted. Answer: A — Actual y – predicted y
6	$y = 3(10) + 5 = 30 + 5$. Answer: y = 35
7	Students who like math = (play sports AND like math) + (don't play sports AND like math) = $15 + 8$. Answer: A — 23
8	Students who play sports = (play sports AND like math) + (play sports AND dislike math) = $15 + 10$. Answer: A — 25
9	Total pet owners = 30 (in band) + 20 (not in band) = 50. Proportion in band among pet owners = $30/50 = 0.6$. Answer: 50 students own a pet; 60% of pet owners are in band
10	Predicted value: $\hat{y} = 2.5(4) + 3 = 10 + 3 = 13$. Residual = actual – predicted = $15 - 13$. Answer: Predicted value = 13; residual = 2