

Unit 2 Test — Answer Key

Linear Relationships, Graphing & Fitting Models to Data

FOR TEACHER / SELF-CHECK USE

This test was written to cover Unit 2's topics (linear relationships, graphing, modeling, and fitting linear models to data). Every solution below has been independently verified.

1	Slope = $(5 - (-3))/(6 - 2) = 8/4$. Answer: A — 2
2	Point-slope: $y - 4 = -2(x - 1) \rightarrow y = -2x + 2 + 4$. Answer: A — $y = -2x + 6$
3	Slope = $(5 - (-3))/(4 - 0) = 8/4 = 2$. y-intercept is -3 (given point $(0, -3)$). Answer: $y = 2x - 3$
4	Perpendicular slopes are negative reciprocals. Negative reciprocal of $1/3$ is -3 . Answer: A — $y = -3x + 1$
5	Line passes through $(4, 0)$ and $(0, -6)$. Slope = $(-6 - 0)/(0 - 4) = -6/-4$. Answer: A — $3/2$
6	$C(m) = 35 + 0.20m$. $C(150) = 35 + 0.20(150) = 35 + 30$. Answer: $C(m) = 35 + 0.20m$; $C(150) = \\$65$
7	Fit strength depends on how close $ r $ is to 1. $ -0.9 = 0.9$ is closest to 1. Answer: B — $r = -0.9$
8	$\hat{y} = 1.5(8) + 10 = 12 + 10$. Answer: A — 22
9	Slope = $(5000 - 2000)/(7 - 3) = 3000/4 = 750$. $P(t) - 2000 = 750(t - 3) \rightarrow P(t) = 750t - 2250 + 2000 = 750t - 250$. $P(12) = 750(12) - 250 = 9000 - 250$. Answer: $P(t) = 750t - 250$; $P(12) = \\$8,750$
10	Slope = $(15 - 5)/(4 - 1) = 10/3$. $y - 5 = (10/3)(x - 1) \rightarrow y = (10/3)x + 5/3$. At $x=6$: $y = (10/3)(6) + 5/3 = 20 + 5/3 = 65/3$. Answer: $y = (10/3)x + 5/3$; predicted y at $x=6$ is $65/3 \approx 21.7$