Unit 2 Test

Linear Relationships, Graphing & Fitting Models to Data

Name: ______________________ Date: ______________ Score: _____ / 10

INSTRUCTIONS

For multiple-choice questions, circle the letter of the correct answer. For short-answer and problem-solving questions, show your complete work in the space provided. No calculator unless your teacher says otherwise.

1 **Find the slope of the line through (2, −3) and (6, 5).** Multiple Choice

A 2
B 1/2
C 4
D 8

2 **Write the equation of the line with slope −2 through (1, 4).** Multiple Choice

A $y = -2x + 6$
B $y = -2x + 2$
C $y = -2x - 6$
D $y = 2x + 6$

3 **Short Answer — Write the equation, in slope-intercept form, of the line through (0, −3) and (4, 5).** Short Answer

4 **Which line is perpendicular to $y = (1/3)x + 2$?** Multiple Choice

A $y = -3x + 1$
B $y = 3x + 1$
C $y = (1/3)x - 1$
D $y = -(1/3)x + 1$

5 **A line has x-intercept 4 and y-intercept −6. What is its slope?** Multiple Choice

A 3/2
B 2/3
C −3/2
D −2/3

6 **Short Answer — A car rental costs \$35 plus \$0.20 per mile. Write a linear model C(m) for the total cost after m miles, then find the cost for 150 miles.** Short Answer

7 **Which correlation coefficient indicates the best linear fit?** Multiple Choice

- **A** $r = 0.2$
- **B** $r = -0.9$
- **C** $r = 0.5$
- **D** $r = 0$

8 **Using the line of best fit $\hat{y} = 1.5x + 10$, predict y when $x = 8$.** Multiple Choice

- **A** 22
- **B** 20
- **C** 18.5
- **D** 25

9 **Problem Solving — A company's profit is $2,000 after 3 months and $5,000 after 7 months, and profit grows linearly with time. Write a linear model for profit P(t), and predict the profit after 12 months.** Problem Solving

10 **Problem Solving — Given the data points (1, 5), (2, 8), (3, 10), (4, 15), use the first and last points to estimate a line of best fit, and use it to predict y when x = 6.** Problem Solving