Math 1 **4.6 Scatter Plots (Regression)** Unit 4

**Independent Variables:**

**Dependent Variables:**

**Scatter Plot:** A graph that relates two different sets of data by displaying them as ordered pairs.

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 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Making a Scatter Plot and Describing Its Correlation**

Determine the correlation between the points in the tables listed below.

1. 
2. 
3. 



 Relationship: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Relationship: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Relationship: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Line of Best Fit:** A line on a scatter plot, drawn near the points, that shoes a correlation.

**How to Create a Line of Best Fit in the Calculator:**

*Step 1:* Clear your calculator (2nd 🡪 plus 🡪 7, 1, 2)

 *Step 2:*  Turn STATPLOT on (2nd 🡪 y= 🡪 ON)

*Step 3:* 2nd 🡪 Mode

*Step 4:* STAT 🡪 Enter

*Step 5:* Enter Data into L1 and L2

*Step 6:* STAT 🡪 CALC 🡪 4 🡪 Enter

*Step 7:* Substitute the values of “a” and “b” into the equation

**Example:** Find the equation of the line of best fit given the data below.

1. 
2. 
3. 

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Slope: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Slope: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Slope: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Y-intercept: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Writing an Equation of a Trend Line**: Make a scatter plot of the data at the right. Then, find the line of best fit



1. Equation of the Line of Best Fit: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What does the slope mean in the context of the problem?
3. What does the y-intercept mean in the context of the problem?

**EOC-Related Questions**

1. Taylor compared the y-intercept of the graph of the function f(x) = 5x + 7 to the y-intercept of the graph of the linear function that includes the points from the table below. What is the difference when the y-intercept of f(x) is subtracted from the y-intercept of g(x)?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **x** | -5 | -3 | -1 | 1 |
| **f(x)** | 4 | 5 | 6 | 7 |

1. What is product with the slope of f(x) = -7x + 12 is multiplied with the slope of g(x), given the table below?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **x** | -2 | 0 | 2 | 3 | 4 |
| **g(x)** | 7 | 5 | 3 | 2 | 1 |

1. What is the sum of the slope from h(x) = 12x – 6 and the y-intercept of d(x), given the table below?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **x** | -15 | -6 | 2 | 7 | 12 |
| **g(x)** | 4 | 6 | 12 | 15 | 20 |

1. **(Multiple Choice)** The boiling point of water, T (measured in degrees), at an altitude a (measured in feet) is modeled by the function T(a) = -0.0018a + 212. In terms of altitude and temperature, which statement describes the meaning of the slope?
	1. The boiling point increases by 18 degrees as the altitude increases by 1,000 feet.
	2. The boiling point increases by 1.8 degrees as the altitude increases by 1,000 feet.
	3. The boiling point decreases by 18 degrees as the altitude increases by 1,000 feet.
	4. The boiling point decreases by 1.8 degrees as the altitude increase by 1,000 feet.