

Answer each question, making sure to show your work in the space provided. Take the time to check your work. Write neatly. Circle your final answer.

1. Write an equation **in point-slope form** for the line that passes through the point (6, -3), and has a slope of $-\frac{1}{2}$.

$$y - y_1 = m(x - x_1)$$

$$y - -3 = -\frac{1}{2}(x - 6)$$

$$y + 3 = -\frac{1}{2}(x - 6)$$

2. Write an equation **in slope-intercept form** for the line that passes through the point (8, -5), and has a slope of $-\frac{3}{4}$.

$$y = mx + b$$

$$-5 = -\frac{3}{4}(8) + b$$

$$-5 = -6 + b$$

$$+6 \quad +6$$

$$1 = b$$

$$y = -\frac{3}{4}x + 1$$

3. Write the equation **in standard form** for the line that passes through (4, 6) and (-6, 1).

$$Ax + By = C$$

$$m = \frac{-5}{-10} = \frac{1}{2}$$

$$y - 6 = \frac{1}{2}(x - 4)$$

$$\left[y - 6 = \frac{1}{2}x - 2 \right] \cdot 2$$

$$2y - 12 = x - 4$$

$$-x \quad +12 \quad -x \quad +12$$

$$-1(-x + 2y = 8) \Rightarrow x - 2y = -8$$

4. Write the equation of the line that passes through (-4, 5) and is **perpendicular** to the graph of the line $y = \frac{3}{4}x - 16$. Please write your answer **in slope-intercept form**.

$$m = \frac{3}{4}$$

$$\perp m = -\frac{4}{3}$$

$$y - 5 = -\frac{4}{3}(x + 4)$$

$$y - \frac{15}{3} = -\frac{4}{3}x - \frac{16}{3}$$

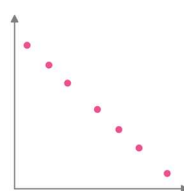
$$+ \frac{15}{3} \quad + \frac{15}{3}$$

$$y = -\frac{4}{3}x - \frac{1}{3}$$

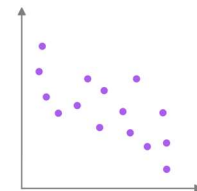
5. Ethan needs to match the correlation coefficient to the associated scatter plot. Help him by marking each graph with the letter of the R-value that could go with it.

A) $r = -0.7$
B) $r = 0.4$
C) $r = -1.0$

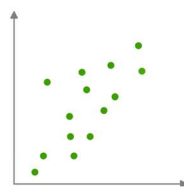
D) $r = -0.4$
E) $r = 0.7$
F) $r = 1.0$



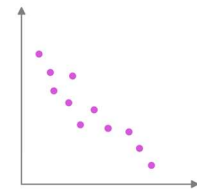
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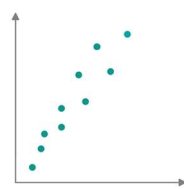
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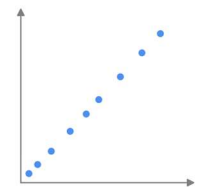
B



A



E



F

6. Jeremiah oversees a charity that raises money to provide Thanksgiving dinners for families in need. The table below gives the amount of money (in dollars) made by Jeremiah's charity, for each year he's been in charge. Graph the data on a scatter plot, use a calculator to find the line of best fit, graph the line then answer each question. Round all values to the nearest

Charity Year	1	2	3	4	5	6
Dollars Raised	6,500	7,805	10,835	11,230	15,870	16,387

$$m = 2115$$

$$b = 4035.3$$

$$r = 0.98$$

- a) Linear Regression Equation (slope-intercept form):

$$y = 2115x + 4035.3$$

- b) Correlation Coefficient (r):

$$r = 0.98$$

- c) Type of Correlation (positive or negative):

positive

- d) Is the correlation strong? Explain:

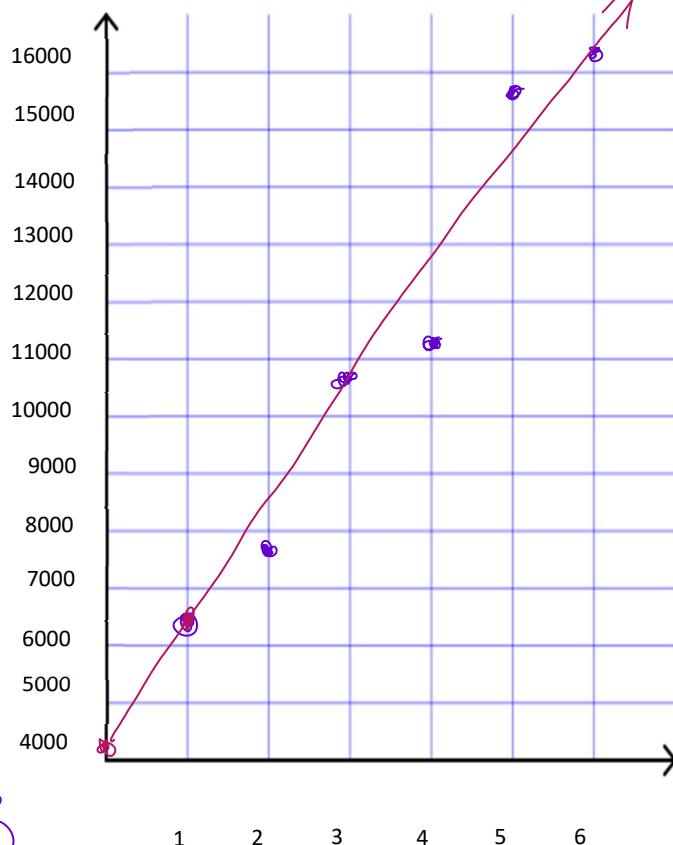
very strong/close to 1.0

- e) Using the linear regression equation predict how much money Jeremiah's charity may raise in year 10.

$$y = 2115x + 4035.3$$

$$y = 2115(10) + 4035.3$$

$$y = 21150 + 4035.3$$



\$25,185.30