

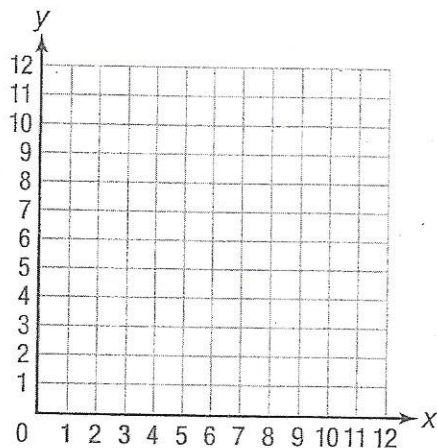
Name _____

Date _____

Scatter plots + Line of best fit Day III

① a) Make a scatter plot from the data in the table.

x	0	1	1	2	3	3	4	4	5	5	6
y	1	3	2	5	7	5	6	8	9	11	12



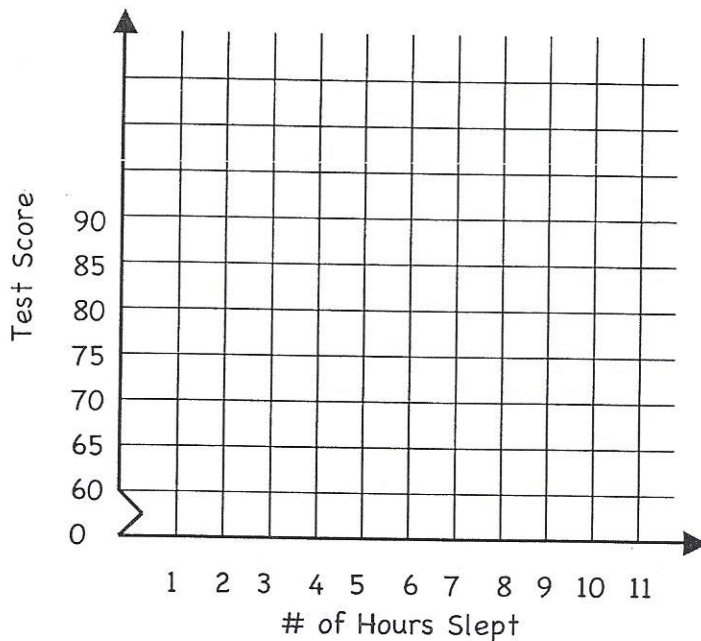
b) Determine the equation for the line of best fit
(Round your slope to the nearest hundredth)

c) Draw your line of best fit

d) Use your equation to find out what y would be when x was 30.

- 2 a) A history teacher asked her students how many hours of sleep they had the night before a test. The data below shows the number of hours the student slept and their score on the exam. Plot the data on a scatter plot.

Hours Slept	8	7	7	8	6	5	7	4	9	7
Test Score	83	86	74	88	76	63	90	60	89	81



- b) Determine the equation for the line of best fit.
(Round your slope to the nearest hundredth)

c) Graph your line.

d) Is there a relationship between the # of hours slept and the test score.

e) What would the student's test score be if they slept for 11 hours?

Lesson 37: Interpreting Linear Models

You can use an equation to describe the trend line on a scatter plot. The equation can be used to find relationships between the two data sets (variables) that are being graphed. The slope of the equation describes the rate of change between the two variables. The y -intercept of the equation describes the value of the dependent variable (y) when the value of the independent variable (x) is 0.

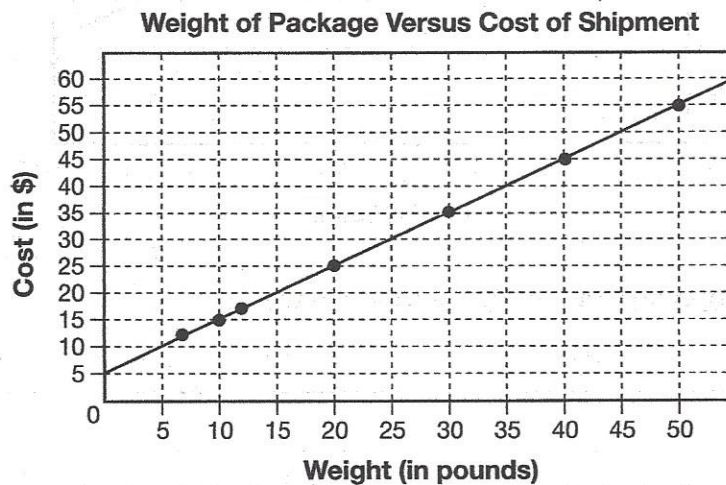
Example

Lucia ships eight packages from a delivery company. The weight of her eight packages and the cost to ship them are listed in the following table.

Weight of Package Versus Cost of Shipment

Weight (in pounds)	10	20	30	23	50	12	7	40
Cost (in \$)	15	25	35	28	55	17	12	45

Lucia creates a scatter plot of her data. She then draws a trend line through the data points. Create and interpret the equation for Lucia's trend line.



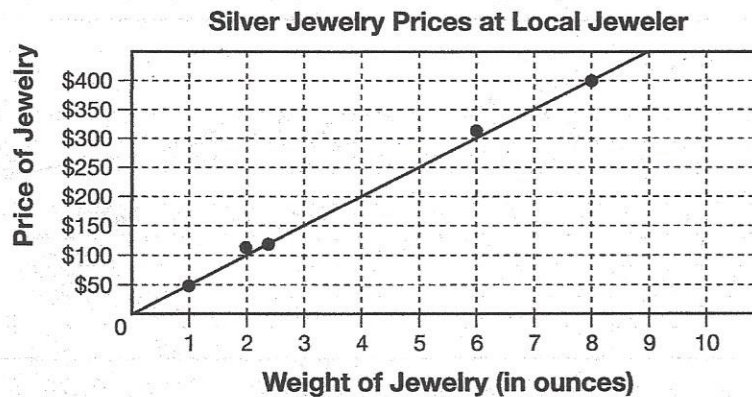
The y -intercept of the trend line is 5. The trend line goes up 1 unit for every 1 unit it moves to the right. Therefore, the slope is 1. Lucia's trend line can be modeled by the equation $y = x + 5$, where y is the cost to ship a package that weighs x pounds.

The slope of 1 means that the rate of change is \$1 for every additional pound. The y -intercept of 5 means that the delivery company charges a minimum of \$5 to ship any package, regardless of weight.

Practice

Directions: For questions 1 and 2, interpret the slope and y-intercept of the trend line for the situation. Then write an equation for the trend line.

- The following scatter plot shows the prices and weights of several pieces of her jewelry, as well as a trend line that shows their relationship.

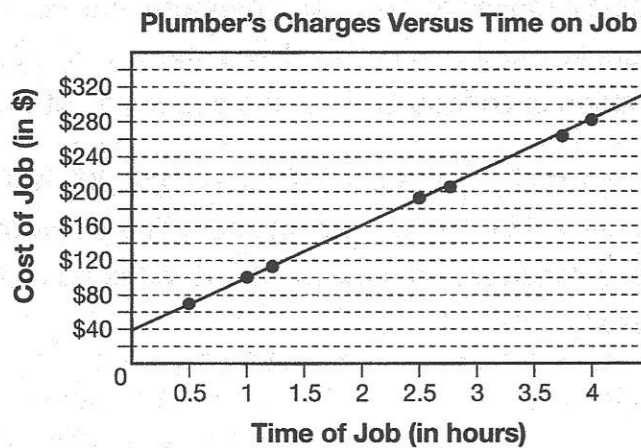


Interpret the slope: _____

Interpret the y-intercept: _____

Equation: _____

- The following scatter plot shows a plumber's charges (not including parts) and the time he spends at each job, as well as a trend line that shows their relationship.



Interpret the slope: _____

Interpret the y-intercept: _____

Equation: _____