

Name _____
8A; Algebra 1

Date _____
Period _____

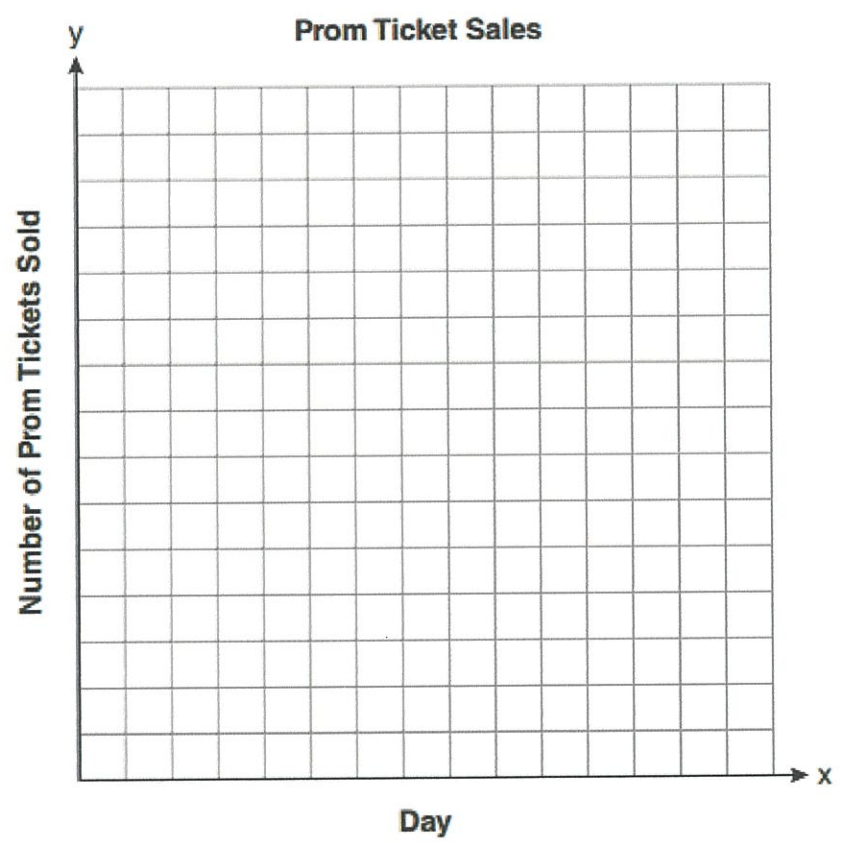
Line of Best Fit Day II

1) The table below shows the number of prom tickets sold over a ten-day period.

Prom Ticket Sales

Day (x)	1	2	5	7	10
Number of Prom Tickets Sold (y)	30	35	55	60	70

Plot these data points on the coordinate grid below. Use a consistent and appropriate scale. Draw a reasonable line of best fit and write its equation.

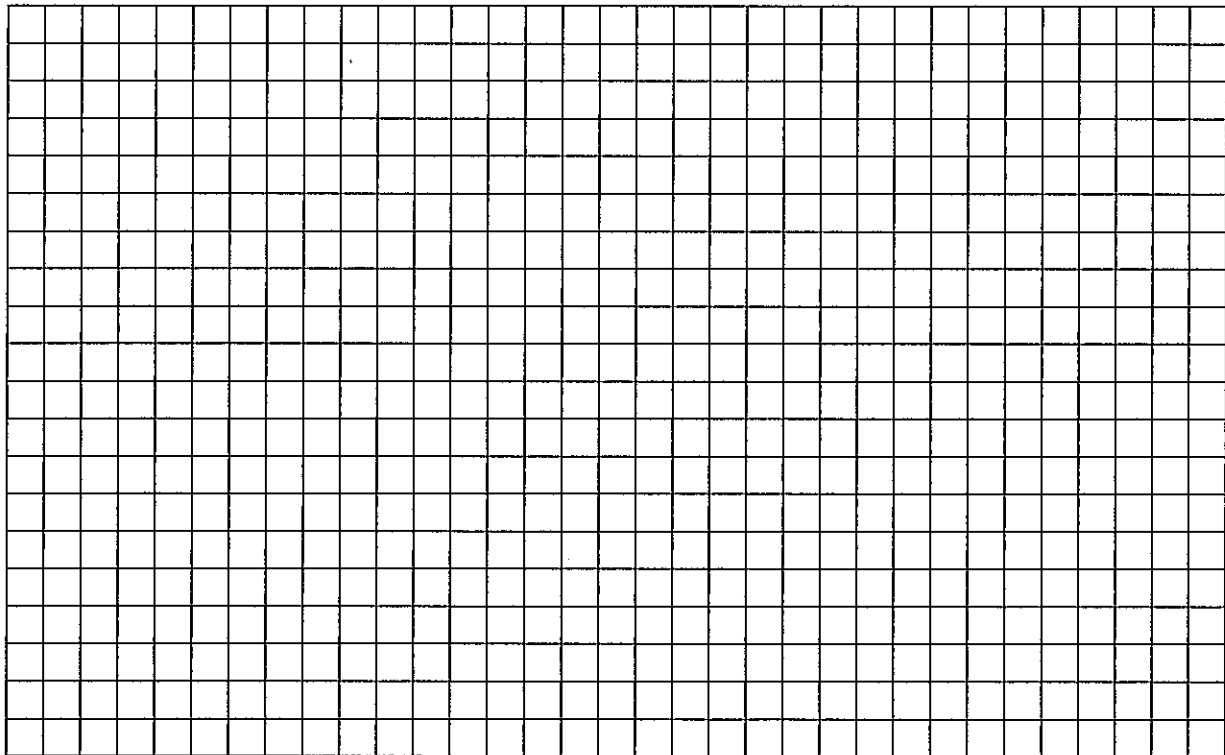


2) A large industrial plant studies the relationship between the number of hours devoted to safety training and the number of work hours lost due to workplace accidents. The data is shown in the table below

Time Spent on Safety Training (hours)	Work Time Lost Due to Accidents (hours)
10	80
19	65
30	68
45	55
50	35
65	10
80	12

a) Use this data to create a scatter diagram, and to draw a line of best fit. Determine the equation of the line of best fit too.

b) What type of correlation does the data represent?



BIVARIATE DATA ANALYSIS COMMON CORE ALGEBRA I

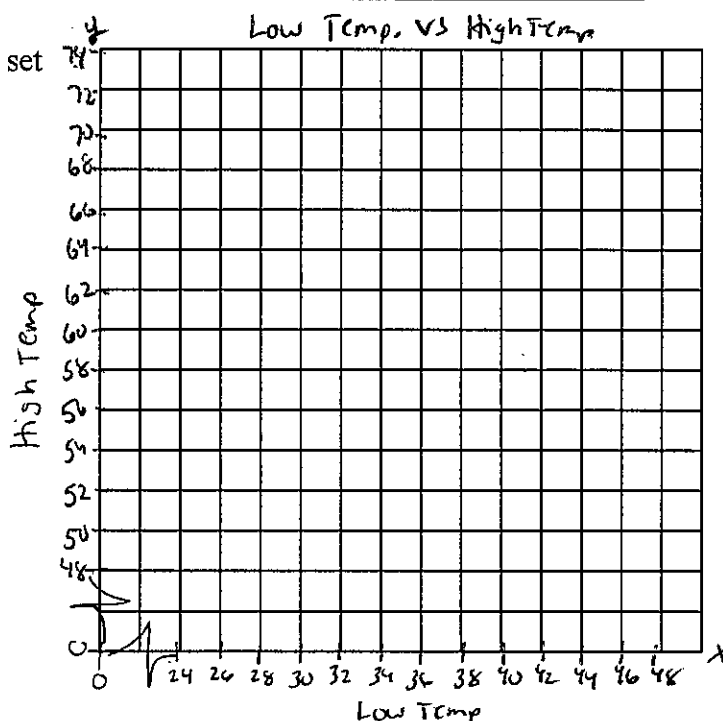
Oftentimes, statistical studies are done where data is collected on **two variables** instead of one in order to establish whether there is a **relationship** between the **two variables**. This is called a **bivariate data analysis**.

Exercise #3 A survey was taken of 10 low and high temperatures, in Fahrenheit, in the month of April to try to establish a relationship between a day's low temperature and high temperatures.

Low Temperature, x	26	28	30	32	34	35	37	38	41	45
High Temperature, y	49	50	57	54	60	58	64	66	63	72

(a) Construct a scatter plot of this bivariate data set on the grid below.

(b) Draw a line of best fit through this data set. Also determine its equation.

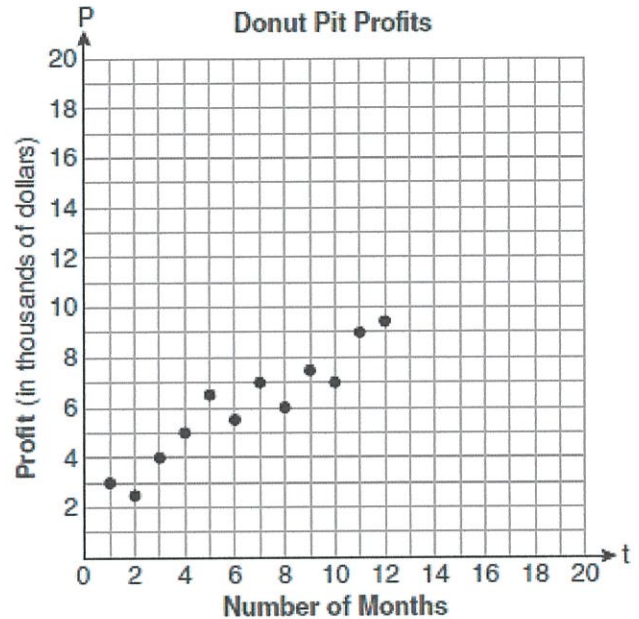


(c) Use your line of best fit to estimate the high temperature for a day in April given that the low temperature was 42 degrees. Illustrate your answer on your graph.

(d) Would you characterize the relationship between the low and high temperature as a **positive correlation** or a **negative correlation**? Explain.

- 4) Megan and Bryce opened a new store called the Donut Pit. Their goal is to reach a profit of \$20,000 in their 18th month of business. The table and scatter plot below represent the profit, P , in thousands of dollars that they made during the first 12 months.

t (months)	P (profit, in thousands of dollars)
1	3.0
2	2.5
3	4.0
4	5.0
5	6.5
6	5.5
7	7.0
8	6.0
9	7.5
10	7.0
11	9.0
12	9.5



- (a) Write the equation of the line of the best fit and draw the line of best fit.
- (b) Using the line of best fit, predict whether Megan and Bryce will reach their goal in the 18th month of their business. Justify your answer.

- 5) The number of hours spent on math homework each week and the final exam grades for twelve students in Mr. Dylan's algebra class are plotted below.

- (a) Write the equation of the line of the best fit.
- (b) Draw the line of best fit.
- (c) Using the line of best fit, predict whether a student will earn 100% after studying 10 hours. Justify your answer.

