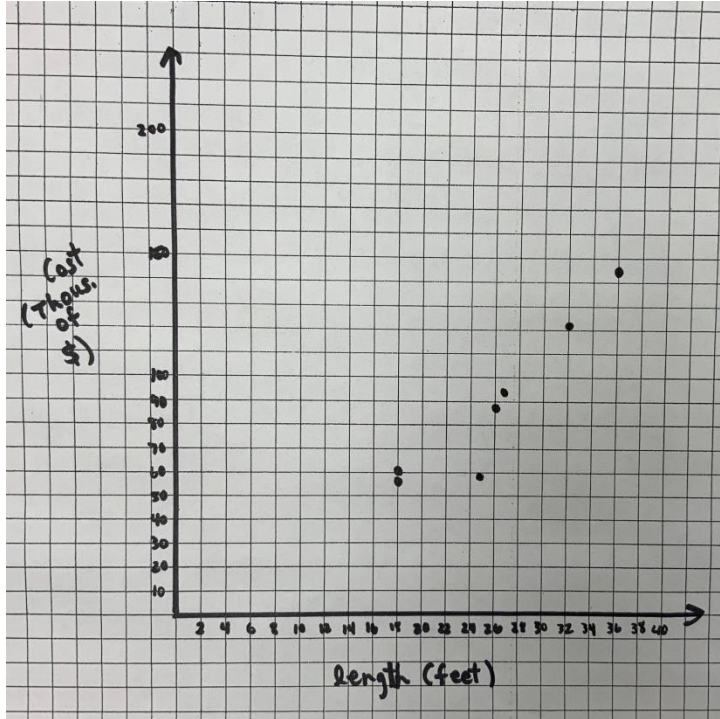**Algebra 1: 4.5 worksheet**   **Name**_____
Lines of Best Fit

In-class example problem:

The table shows the lengths x and cost y of several sailboats.

Length (feet) x	Cost (thousands of dollars) y
27	94
18	56
25	58
32	123
18	60
26	87
36	145

a. Draw a scatter plot of the data (this has been done for you in order to save time in class).

b. Draw your line of best fit and **find two points on your line**.

_____ and _____

c. Use these points to find the equation of your line in slope intercept form (like you've been doing all chapter).

d. Use the graphing calculator (if you have one) to find an equation of the line of best fit.   Then plot the data and graph the equation in the same viewing window.

Equation: _____

e. Find and interpret the correlation coefficient. (If you do not have a graphing calculator, just explain in a complete sentence how well you feel your line fits the data and why you think so.
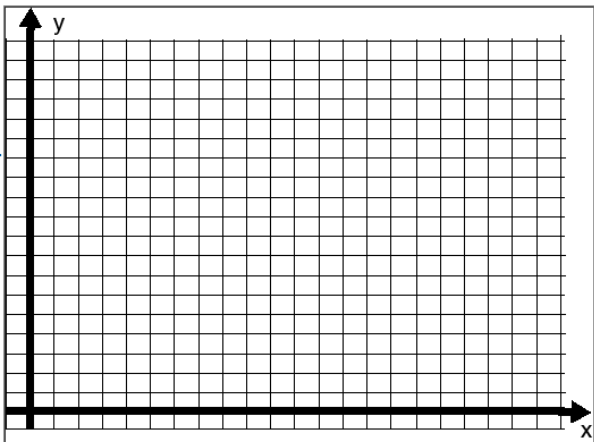
Correlation coefficient: _____

Interpret:

f. **Interpret the slope:**

   Interpret the y-intercept:

g. Use the equation to predict the cost of a sailboat that is 22 feet long.

_____

1. **The table shows the number of visitors (y) to a particular beach for average daily temperatures (x).**

a. Make a scatterplot of the data. Draw your line of best fit and find two points on your line.

Average Daily Temperature (degrees F)	Number of Beach Visitors
80	100
82	150
83	145
85	190
86	215
88	263
89	300
90	350

Ordered pairs: _____ and _____

b. Use these two ordered pairs to find the equation of your line in slope-intercept form.

c. Use the graphing calculator (if you have one) to find an equation of the line of best fit. Then plot the data and graph the equation in the same viewing window.

   Equation: _____

d. Find and interpret the correlation coefficient. (If you do not have a graphing calculator, just explain in a complete sentence how well you feel your line fits the data and why you think so.

   Correlation coefficient: _____

   Interpret:

e. **Interpret the slope:**
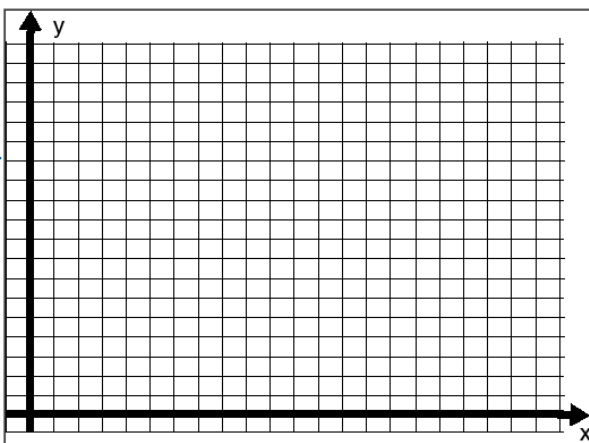
   Interpret the y-intercept:

f. Use the equation to predict the number of beach visitors when it is 76 degrees.

g. Use the equation to predict the temp if there are 90 beach visitors.

2. **The table shows the number y of gloves sold for each amount x (in inches) of snowfall.**
a. Make a scatterplot of the data. Draw your line of best fit and find two points on your line.

Snow fall (inches) x	Gloves Sold, y
1	5
2	8
3	7
4	10
5	11
6	12
7	14

           Ordered pairs: _____ and _____

b. Use these two ordered pairs to find the equation of your line in slope-intercept form.

c. Use the graphing calculator (if you have one) to find an equation of the line of best fit. Then plot the data and graph the equation in the same viewing window.

Equation: _____

d. Find and interpret the correlation coefficient. (If you do not have a graphing calculator, just explain in a complete sentence how well you feel your line fits the data and why you think so.

Correlation coefficient: _____

Interpret:

e. **Interpret the slope:**

Interpret the y-intercept:

f. **Use your equation** to predict the number of gloves sold for 12 inches of snow.

g. **Use your equation** to predict the number of inches of snow if 4 pairs of gloves were sold.

h. Is there a correlation? Explain in a complete sentence.

i. Is the relationship causal? (see definition on page 205 and look at example 5)