Name: _____ Period: _____

Math 8 – Chapter 6 Homework 1 – Scatter Plots

1. The table below shows the price and overall quality rating for 15 different brands of bike helmets.

Helmet	Price (dollars)	Quality Rating
A	35	65
B	20	61
C	30	60
D	40	55
E	50	54
F	23	47
G	30	47
H	18	43
I	40	42
J	28	41
K	20	40
L	25	32
M	30	63
N	30	63
O	40	53

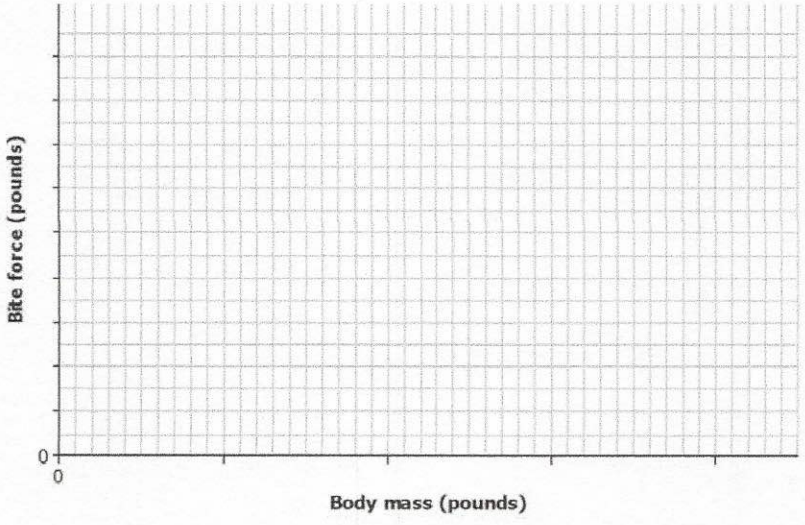
a. Construct a scatter plot of price (x) and quality rating (y). Use the grid below.

b. Do you think that there is a statistical relationship between price and quality rating? If so, describe the nature of the relationship.

2. Scientists are interested in finding out how different species adapt to finding food sources. One group studied crocodilian species to find out how their bite force was related to body mass and diet. The table below displays the information they collected on body mass (in pounds) and bite force (in pounds).

Species	Body Mass (pounds)	Bite Force (pounds)
Dwarf crocodile	35	450
Crocodile F	40	260
Alligator A	30	250
Caiman A	28	230
Caiman B	37	240
Caiman C	45	255
Croc A	110	550
Nile crocodile	275	650
Croc B	130	500
Croc C	135	600
Croc D	135	750
Caiman D	125	550
Indian Gharial croc	225	400
Crocodile G	220	1,000
American croc	270	900
Croc D	285	750
Croc E	425	1,650
American Alligator	300	1,150
Alligator B	325	1,200
Alligator C	365	1,450

a. Construct a scatter plot of body mass (x) and bite force (y). Use the grid below, and be sure to add an appropriate scale to the axes.



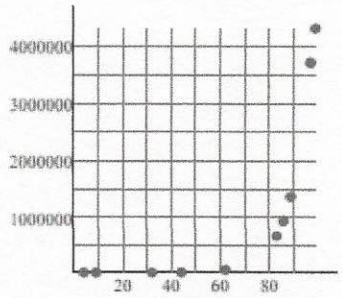
b. Do you think that there is a statistical relationship between body mass and bite force? If so, describe the nature of the relationship.

Name: _____ Period: _____

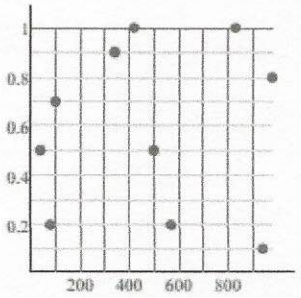
Math 8 – Chapter 6 Homework 2 – Scatter Plot Associations

State whether the scatter plot appears to have a linear relationship, a non-linear relationship, or no relationship. If the relationship is linear, is it positive or negative?

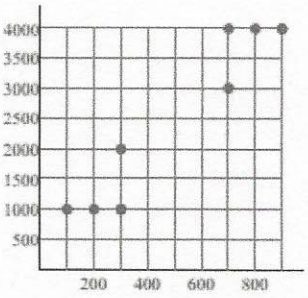
1)



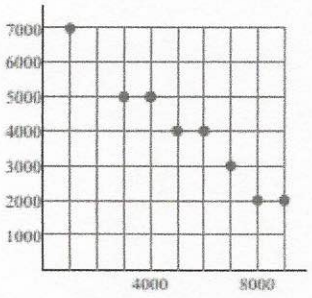
2)



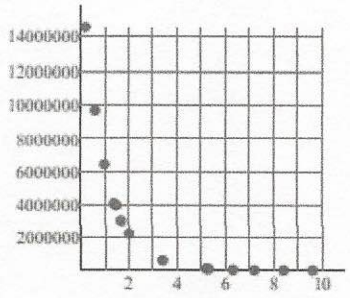
3)



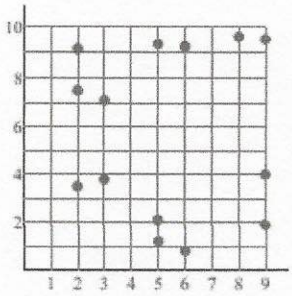
4)



5)



6)

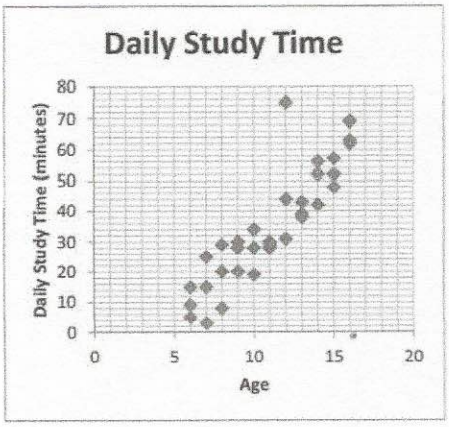


Name: _____ Period: _____

Math 8 – Chapter 6

Homework 3 – Clusters and Outliers

1-3: Use the graph to the right to answer the questions below.

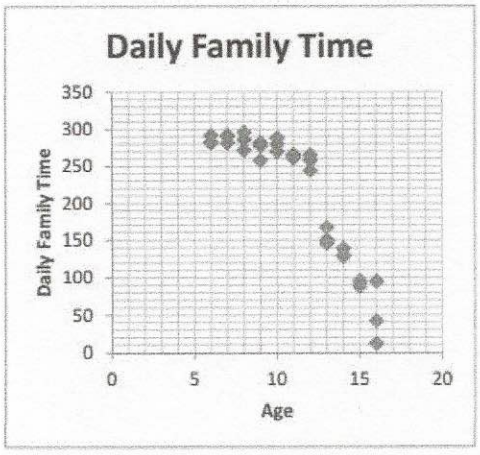


1. Describe the relationship between age and daily study time (linear, non-linear, no relationship, negative, positive).

2. Are there any noticeable outliers in the data? If so, describe the age and the approximate study time of this outlier.

3. Are there any noticeable clusters in the data? If so, describe why this cluster might be occurring.

4-6: Use the graph to the right to answer the questions below.

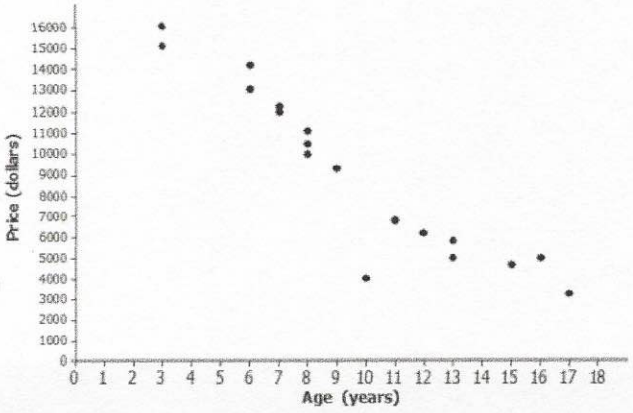


4. Describe the relationship between age and daily family time (linear, non-linear, no relationship, negative, positive).

5. Are there any noticeable outliers in the data? If so, describe the age and the approximate family time of this outlier.

6. Are there any noticeable clusters in the data? If so, describe why this cluster might be occurring.

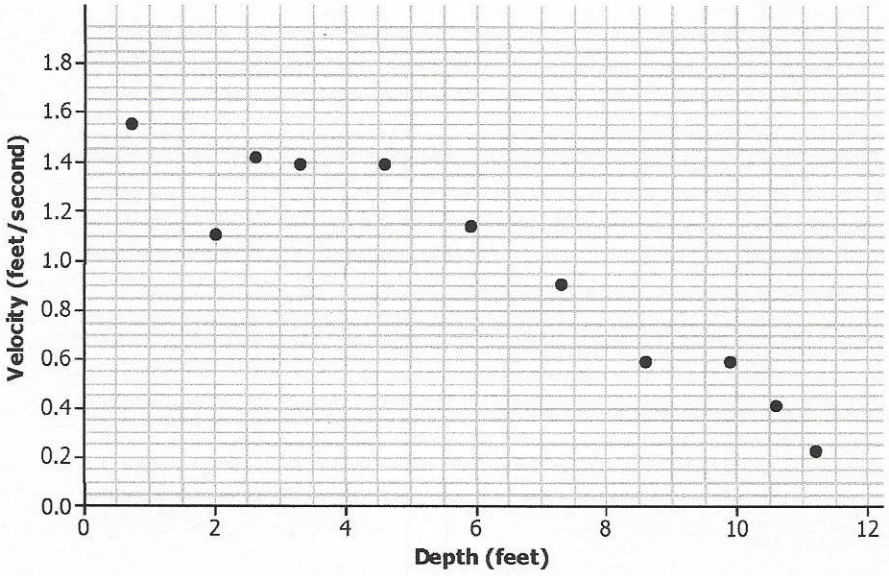
7. The scatter plot to the right shows the relationship between the price of a car compared to the cars' age. Are there any noticeable clusters or outliers in the scatter plot? If so, explain why.



Name: _____ Period: _____

Math 8 – Chapter 6 Homework 4 – Line of Best Fit

1. A scatter plot of the Columbia River data is shown below.



Estimate and draw a line of best fit for the data.

Based on the scatter plot, describe the relationship between velocity and depth.

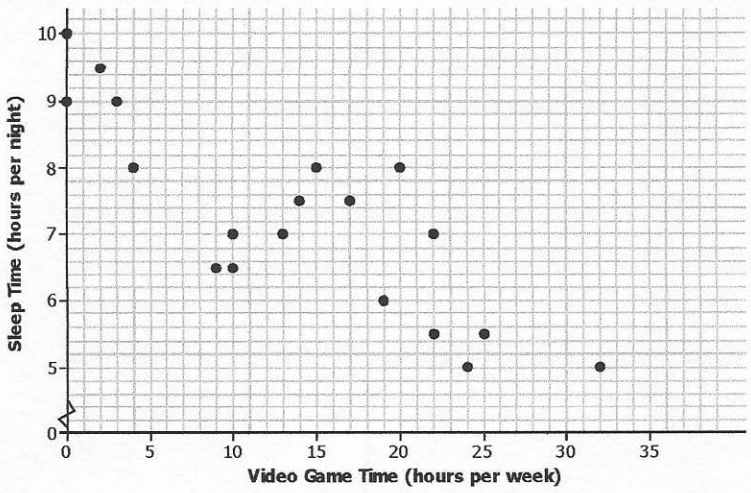
Use your line of best fit to predict the velocity of the river at a certain spot if the depth is 2 feet.

Use your line of best fit to predict the depth of the river at a certain spot if the velocity is 0.8 ft/sec.

RQ 5

2. The scatter plot below shows the results of a survey of eighth-grade students who were asked to report the number of hours per week they spend playing video games and the typical number of hours they sleep each night.

Mean Hours Sleep per Night vs. Mean Hours Playing Video Games per Week



What kind of relationship do you observe in the data?

What was the fewest number of hours per week that students who were surveyed spent playing video games? The most?

What was the fewest number of hours per night that students who were surveyed typically slept? The most?

Draw a line that seems to fit the trend in the data and find its equation. Use the line to predict the number of hours of sleep for a student who spends about 15 hours per week playing video games.

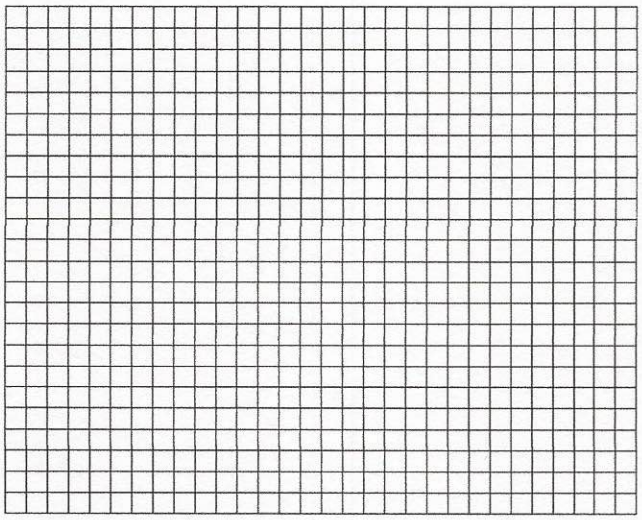
Name: _____ Period: _____

Math 8 – Chapter 6 Homework 5 – More Line of Best Fit

1. A local store did a study comparing the cost of a bag of lettuce with the number of bags sold in one day. Each week, for 5 weeks, the price was changed and the average number of bags of lettuce sold her day was recorded. The data is shown in the chart below.

Cost per bag of lettuce	$1.50	$1.25	$0.90	$1.75	$0.50
# of Bags Sold	48	52	70	42	88

a. Draw a scatter plot of the data.



b. Does the data have positive, negative, or no correlation?

c. Plot the point (1.18, 60) on your graph. Connect this point to the point (1.50, 48) to draw in your line of best fit.

d. Use the two points from (c) to calculate the equation of the line of best fit.

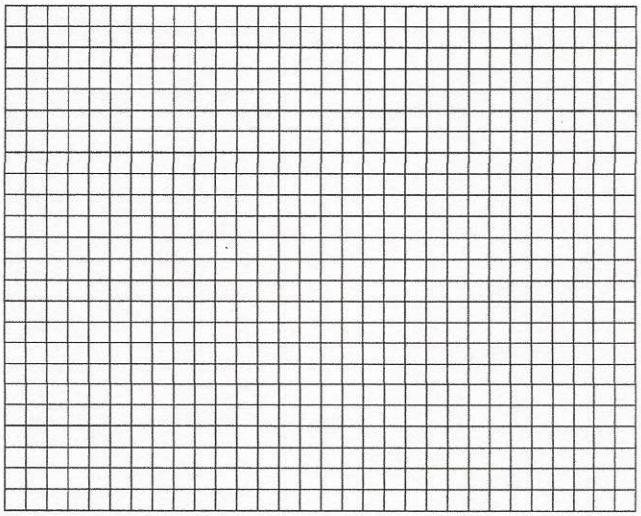
e. Interpret the rate of change and the initial value of your equation.

f. Use the equation of your line to approximate the number of bags sold when the cost of lettuce per bag is $1.00.

2. When Gina bought a new car, she decided to keep a record of how much gas she uses. Each time she puts gas in the car, she records the number of gallons of gas purchased and the number of miles driven since the last fill-up. Her record for the first 2 months is as follows:

Gallons of Gas	10	12	9	6	11	10	8	12	10	7
Miles Driven	324	375	290	190	345	336	250	375	330	225

a. Draw a scatter plot of the data.



b. Does the data have positive, negative, or no correlation?

c. Locate the point (9.5, 304) and plot it on your graph. Use (0, 0) as a second point. Connect the two points to draw in your line of best fit.

d. Using the two points from (c) calculate the equation of the line of best fit.

e. Use your equation for the line of best fit to approximate the number of miles Gina could drive on 3 gallons of gasoline.

Name: _____ Date _____

Topic : Scatter Plots and Line of Best Fit - Worksheet 1

Do the following:

1. Variable ***x*** is the number of students trained on new projects, and variable ***y*** is the number of calls to the other institute. You suspect that more training reduces the number of calls. Does this follow positive correlation or negative correlation?

2. The table lists the population of a town from the year 1970 to 2003. Sketch a scatter plot of the data.

Year	1970	1980	1990	2000	2001	2002	2003
Population (in thousands)	50	35	45	30	60	65	70

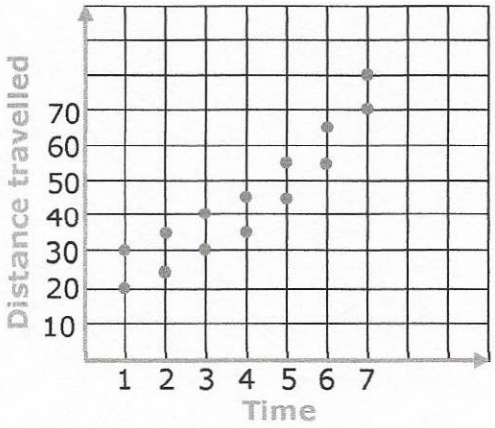
3. Draw the line of best fit.

4. What type of correlation does this graph show?

5. Calculate the slope of the line through points (25, 2001) and (60, 2003).

6. Write the equation of the line.

7. Predict the population based in year 2003.



Use graph shown for question 8-10

8. What type of correlation does this graph show?

9. Predict the distance travelled at time = 4

10. Predict the distance travelled at time = 2

Name: _____ Date _____

Topic : Scatter Plots and Line of Best Fit - Worksheet 2

Do the following:

1. Variable ***x*** is the number of students trained on new projects, and variable ***y*** is the number of calls to the other institute. You suspect that more training increases the number of calls. Does this follow positive correlation or negative correlation?

2. The table lists the population of a town from the year 1970 to 2003. Sketch a scatter plot of the data.

Year	1970	1980	1990	2000	2001	2002	2003
Population (in thousands)	65	55	45	35	25	15	5

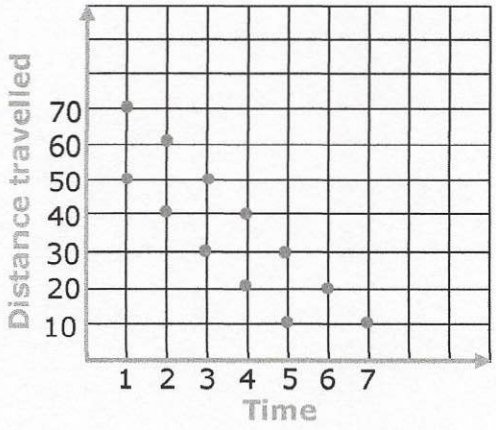
3. Draw the line of best fit.

4. What type of correlation does this graph show?

5. Calculate the slope of the line through points (45, 1990) and (65, 2002).

6. Write the equation of the line.

7. Predict the population based in year 2003.



Use graph shown for question 8-10

8. What type of correlation does this graph show?

9. Predict the distance travelled at time = 2

10. Predict the distance travelled at time = 3

Name: _____ Date _____

Topic : Scatter Plots and Line of Best Fit - Worksheet 3

Do the following:

1. Variable ***x*** is the number of students trained on new projects, and variable ***y*** is the number of calls to the other institute. You suspect that some training increases the number of calls and some training decreases the number of calls. Does this follow positive correlation or negative correlation?

2. The table lists the population of a town from the year 1970 to 2003. Sketch a scatter plot of the data.

Year	1970	1980	1990	2000	2001	2002	2003
Population (in thousands)	10	20	30	40	50	60	70

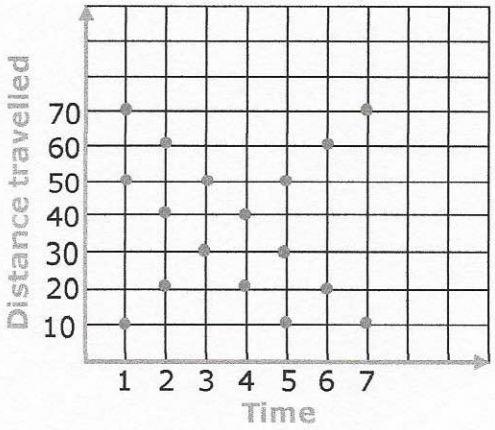
3. Draw the line of best fit.

4. What type of correlation does this graph show?

5. Calculate the slope of the line through points (10, 1970) and (20, 1980).

6. Write the equation of the line.

7. Predict the population based in year 2000.



Use graph shown for question 8-10

8. What type of correlation does this graph show?

9. Predict the distance travelled at time = 7

10. Predict the distance travelled at time = 6

Name: _____ Date _____

Topic : Scatter Plots and Line of Best Fit - Worksheet 4

Do the following:

1. Variable ***x*** is the number of students trained on new projects, and variable ***y*** is the number of calls to the other institute. You suspect that more training reduces the number of calls. Does this follow positive correlation or negative correlation?

2. The table lists the population of a town from the year 1970 to 2003. Sketch a scatter plot of the data.

Year	1970	1980	1990	2000	2001	2002	2003
Population (in thousands)	10	30	20	60	55	65	70

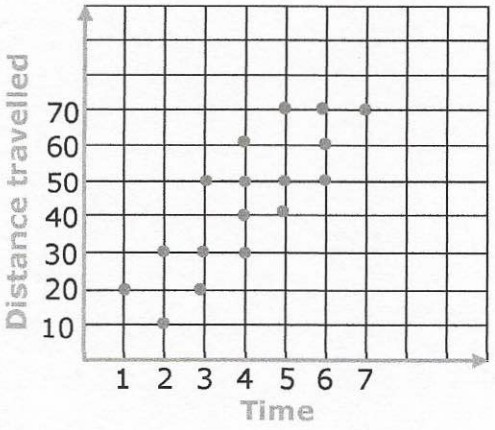
3. Draw the line of best fit.

4. What type of correlation does this graph show?

5. Calculate the slope of the line through points (30, 1980) and (75, 2002).

6. Write the equation of the line.

7. Predict the population based in year 1980.



Use graph shown for question 8-10

8. What type of correlation does this graph show?

9. Predict the distance travelled at time = 6

10. Predict the distance travelled at time = 2

HWK

Name _____ Date _____

Scatter Plots and Line of Best Fit – ____

Do the following:

1. Variable r is the number of students trained on judo, and variable is the number of games for the students. You suspect that more training increases the number of games. Does this follow positive correlation or negative correlation?

2. The table lists the population of a city from the year 1990 to 2006. Sketch a scatter plot of the data.

Year	1990	2000	2001	2002	2003	2004	2005
Population (in thousands)	10	20	35	45	55	60	65

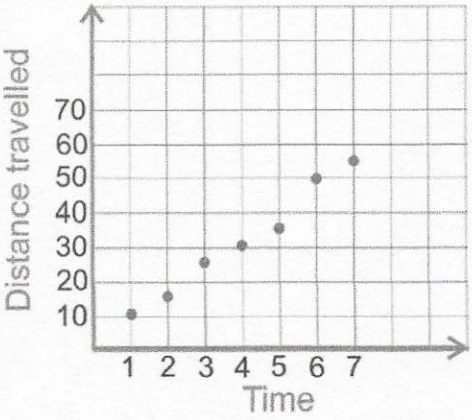
3. Draw the line of best fit.

4. What type of correlation does this graph show?

5. Calculate the slope of the line through points (20, 2000) and (30, 2005).

6. Write the equation of the line.

7. Predict the population based in year 2003.



Use graph shown for question 8-10

8. What type of correlation does this graph show?

9. Predict the distance travelled at time = 5

10. Predict the distance travelled at time = 6

P9 13