Pre-Algebra 8: Scattered Plots and Data

April 6 – 9

Time Allotment: 40 minutes per day

Student Name: _____

Teacher Name: Mrs. Hudson

Melanie.Hudson@GreatHeartsNorthernOaks.org

Packet Overview

Date	Objective(s)	Page Number
Monday, April 6	Lesson 5 Continued: Be able to calculate the mean, find the distance between each data point, and find the averages of the distances (Mean of Absolute Deviation).	2-3
Tuesday, April 7	Lesson 6: Be able to solve calculate the mean, find the distance between each data point, and find the averages of the distances (Mean of Absolute Deviation).	4-6
Wednesday, April 8	Lesson 6 Continued: Be able to solve calculate the mean, find the distance between each data point, and find the averages of the distances (Mean of Absolute Deviation).	7-8
Thursday, April 9	Begin the review for sections 1-6. ***TEST FRIDAY, APRIL 17th***	9-13
Friday, April 10	Holiday…No School!	

Additional Notes:

- **Materials:** Printed packet or notebook paper; pencils. **CALCULATORS may be used on lessons 5 and 6.**
  - **Note:** If you are using notebook paper, be sure to write the pages and numbers of the material.
  - **Example:** P. 4; #6) _____
- **Answer Key:** Pages 14-16

Academic Honesty

I certify that I completed this assignment independently in accordance with the GHNO Academy Honor Code.

Student signature:

_____

I certify that my student completed this assignment independently in accordance with the GHNO Academy Honor Code.

Parent signature:

_____

Pre-Algebra Unit: Scatter Plots and Data

Unit Overview: Scatter Plots and Data

We are now ALMOST FINISHED the chapter that covers scatter plots. Scatter plots compare two sets of numeric data using a dot or box plots by comparing shape, center, and spread. The data is used from a random sample to make inferences about a population or to make predictions.

Monday, April 6

Pre-Algebra Unit: Scatter Plots and Data

Lesson 5 continued: Mean Absolute Deviation - Part 1

Objective: Be able to solve calculate the mean, find the distance between each data point, and find the averages of the distances (Mean of Absolute Deviation).

- Welcome back! Let's get started with a review of these steps.
- YOU MAY USE A CALCULATOR!

MEAN ABSOLUTE DEVIATION: PART I

Find the mean absolute deviation for each set of values, rounding to the nearest tenth when necessary. Match each correct answer to a letter and complete the riddle below.

1

35, 42, 41, 32, 30

a) Find the MEAN.

$(35 + 42 + 41 + 32 + 30) \div 5 = 36$

b) Subtract the mean and the originals with an absolute value.

$36 - 35 = 1$ *or* $|36 - 35| = 1$
$42 - 36 = 6$ *or* $|36 - 42| = 6$
$41 - 36 = 5$ *or* $|36 - 41| = 5$
$36 - 32 = 4$ *or* $|36 - 32| = 4$
$36 - 30 = 6$ *or* $|36 - 30| = 6$

c) Calculate the Mean Absolute Deviation.

$(1 + 6 + 5 + 4 + 6) \div 5 = 4.4$

2

171, 170, 174, 173, 172

a) Find the MEAN.

b) Subtract the original and the mean with an absolute value.

c) Calculate the Mean Absolute Deviation.

- Don't forget to do all THREE STEPS!

3 11, 16, 70, 66, 14, 15	**4** 27, 53, 42, 32, 22
5 8, 22, 1, 13, 56	**6** 108, 105, 107, 103, 100, 107
7 75, 85, 95, 105	**8** 68, 70, 64, 62
9 90, 90, 96, 90, 98, 100	**10** 200, 325, 50, 75

C: 15.2	**E:** 100	**F:** 5.5	**B:** 9.8
O: 21.2	**S:** 2.3	**H:** 1.2	**U:** 4.4
M: 4	**N:** 3	**A:** 10	**W:** 24

WHY DID THE STUDENT DISLIKE THE AVERAGE TEACHER?

___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___
4	10	5	7	1	6	10	6	2	10	3	7	6	9	10	7	8

That is all for today but be sure to check your answers in the back of the packet and make corrections in red!

Tuesday, April 7

Pre-Algebra Unit: Scatter Plots and Data

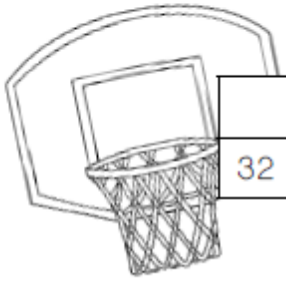
Lesson 6: Mean Absolute Deviation - Part 2

Objective: Be able to solve calculate the mean, find the distance between each data point, and find the averages of the distances (Mean of Absolute Deviation).

- Now that you know how to find the Mean Absolute Deviation, let's learn what is means.
- First, carefully study the filled in notes.

MEAN ABSOLUTE DEVIATION: PART II

The two tables show the number of points scored by two different teams in their last 7 basketball games. Use the table to answer questions 1-3.



WILDCATS
32 39 31 35 35 40 33

BULLDOGS
70 67 68 70 64 73 64

1. Find the mean and the mean absolute deviation of the points scored by the Wildcats. Round to the nearest tenth when necessary.

Mean: 35

Mean Absolute Deviation: 2.6

2. Find the mean and the mean absolute deviation of the points scored by the Bulldogs. Round to the nearest tenth when necessary.

Mean: 68

Mean Absolute Deviation: 2.6

3. Use each question below to compare the data above.

a. How do the mean values compare for each team?

The Bulldogs mean is higher than the Wildcats.

b. How do the mean absolute deviations compare for each team?

The mean absolute deviations are the same.

c. Discuss why it is possible to have similar mean absolute deviations for very different sets of data. The averages were different, but the variability of the two sets of numbers was the same. Since the numbers were spread out the same amount, the mean absolute deviations were the same despite different means.

Use what you know about mean and mean absolute deviation to answer the following discussion questions.

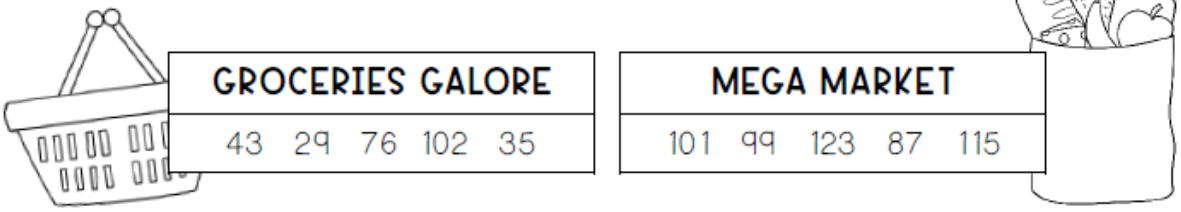
4. Assume you are a basketball coach. Which of the following would you hope to be true about your team's points scored throughout the season?

a. A high average and a large mean absolute deviation
b. A high average and a small mean absolute deviation
c. A low average and a large mean absolute deviation
d. A low average and a small mean absolute deviation

Explain your choice: Sample answer: I would want my team to have a high average and to also be consistent, which would mean a small mean absolute deviation.

- Now it is your turn!

The tables show the number of customers two supermarkets had over the past 5 days.



GROCERIES GALORE				
43	29	76	102	35

MEGA MARKET				
101	99	123	87	115

5. Find the mean and the mean absolute deviation of the number of customers at Groceries Galore.

Mean: _____

Mean Absolute Deviation: _____

6. Find the mean and the mean absolute deviation of the number of customers at Mega Market.

Mean: _____

Mean Absolute Deviation: _____

7. If you could choose between owning one of the supermarkets above, which would you choose? Explain your choice.

8. Use the tables below to answer parts a-c.

TABLE 1

VALUES	19, 32, 16, 25
MEAN	
M.A.D.	

TABLE 2

VALUES	
MEAN	
M.A.D.	

a. Complete the missing rows in Table 1.

b. In Table 2, create your own list of 4 values that have a larger mean and a smaller mean absolute deviation than the values in Table 1.

c. Discuss your approach and/or strategies you used to complete part b in the space below.

9. What does a high mean absolute deviation tell you about a set of data? What about a low mean absolute deviation?

GREAT JOB!!! Check and correct your work!

Wednesday, April 8

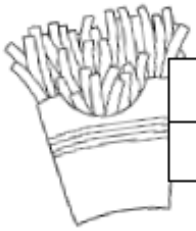
Pre-Algebra Unit: Scatter Plots and Data

Lesson 6 Continued: Mean Absolute Deviation - Part 2

Objective: Be able to solve calculate the mean, find the distance between each data point, and find the averages of the distances (Mean of Absolute Deviation).

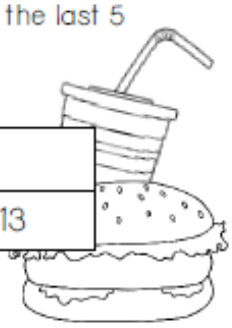
- Try to use what you learned yesterday on this assignment. You can do it!

The tables below show the total amount (rounded to the nearest dollar) spent by the last 5 customers at two fast food restaurants.



FRYDAYS				
$9	$14	$27	$32	$18

HAMBURGHINI				
$7	$11	$19	$5	$13



Use the tables to answer 1-5.

1. Predict which restaurant will have a higher mean. Explain your choice.	2. Predict which restaurant will have a higher mean absolute deviation. Explain your choice.
3. Find the mean and mean absolute deviation of the amounts spent at Frydays. Mean: _____ Mean Absolute Deviation: _____	4. Find the mean and mean absolute deviation of the amounts spent at Hamburghini. Mean: _____ Mean Absolute Deviation: _____
5. How did your predictions compare to your actual findings of mean and mean absolute deviation? Explain.	

Use what you know about mean absolute deviation to answer the question below.

6. Adam and Bert are collecting data. Adam collects a list of the number of students in 10 different classes at your school. Bert collects a list of the total number of students in 10 different schools throughout various parts of your state.

a. Who's list do you think would have the highest mean? Explain.

b. Who's list do you think would have the highest mean absolute deviation? Explain.

Check those answers!!!

Thursday, April 9

Pre-Algebra Unit: Scatter Plots and Data

Lesson: Review Scatter Plot and Data Sections 1-6

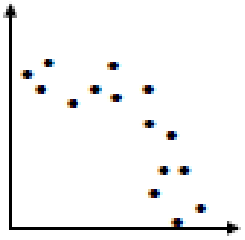
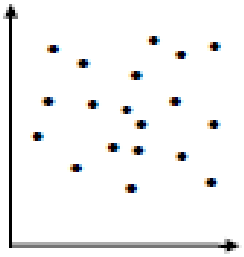
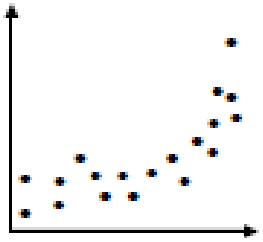
Objective: Be able to use scatter plots to compare two sets of numeric data using a dot or box plots by comparing shape, center, and spread.

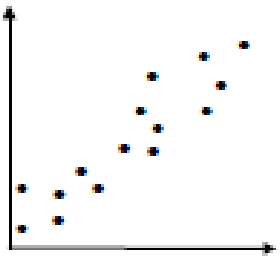
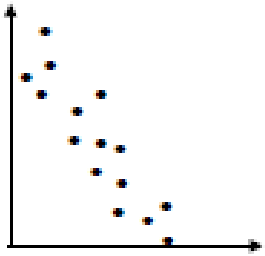
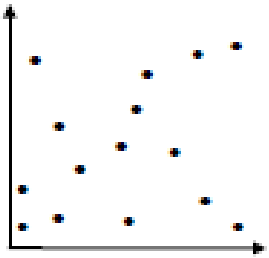
- We have completed the sections from this chapter. So, we will begin to review the topics for the test next Friday.
- Using the answer page below, or a sheet of paper, decide if the given information on the next few pages is positive, negative, or none.

TYPES OF ASSOCIATION CARD SORT

Instructions: Record the letter of each card under the appropriate column.

Positive	Negative	None

A The number of ice cubes in a drink and the temperature of the drink.	**B** The amount of time spent reading and the number of pages read.
C 	**D** The number of trees in a person's yard and the number of windows on the person's house.
E The size of a beverage and the total calories in the beverage.	**F** 
G The amount of fertilizer used in a garden and the number of weeds in the garden.	**H** The number of colors used in a painting and the cost of the painting.
I 	**J** The number of people at a basketball game and the noise level in the gymnasium.

K The temperature outside and the number of layers of clothing worn by individuals.	**L** 
M Your shoe size and the number of people in your family.	**N** The age of a tree and the height of the tree.
O 	**P** The amount of music on your phone and the amount of free storage space on your phone.
Q The incline of a ski slope and the speed of the skiers.	**R** 
S The number of cats in a barn and the number of mice in the barn.	**T** The number of people at a movie and the amount of popcorn sales.

- Now, check your answers!

- Next, match the equations below with the graphs on the next few pages.

A	$Y = 5X + 30$	B	$Y = \frac{1}{2}X + 3$
C	$Y = -X + 500$	D	$Y = -\frac{10}{3}X + 80$
E	$Y = -50X + 500$	F	$Y = -3X + 8$
G	$Y = \frac{25}{2}X + 75$	H	$Y = -10X + 100$
I	$Y = -X$	J	$Y = -\frac{25}{3}X + 200$
K	$Y = 25X + 150$	L	$Y = 50X$
M	$Y = \frac{1}{2}X + 30$	N	$Y = -\frac{1}{3}X + 8$
O	$Y = -25X + 250$	P	$Y = 25X$
Q	$Y = -10X + 500$	R	$Y = -X + 10$
S	$Y = -\frac{50}{3}X + 400$	T	$Y = X$
U	$Y = 2X + 3$	V	$Y = 10X$

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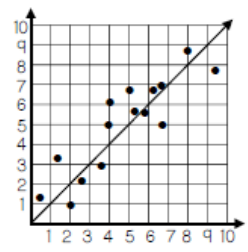
1.


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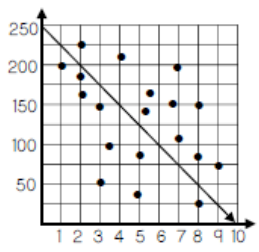

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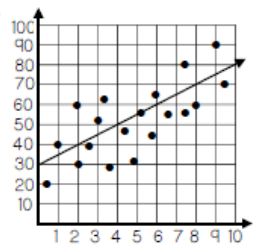

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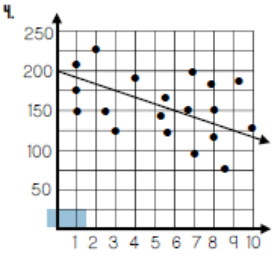

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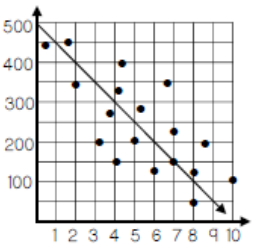

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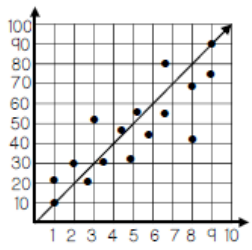

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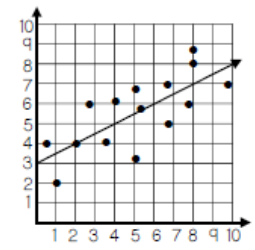

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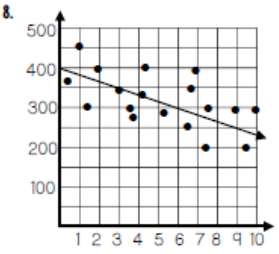

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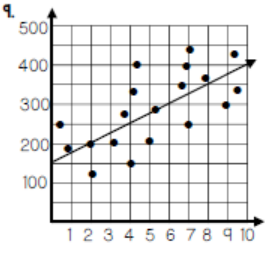

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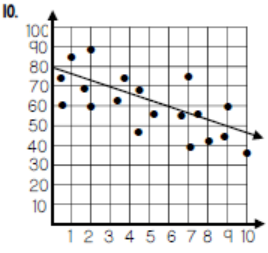

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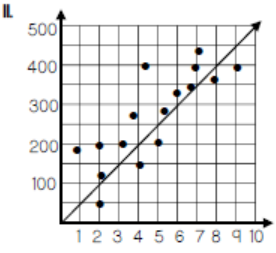

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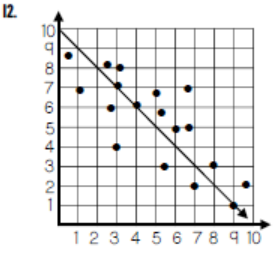

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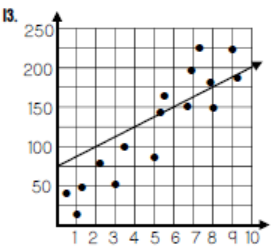

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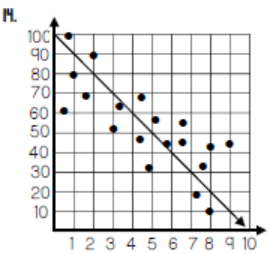

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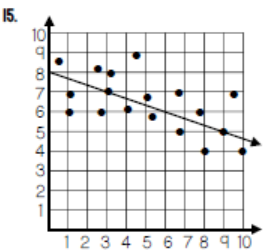

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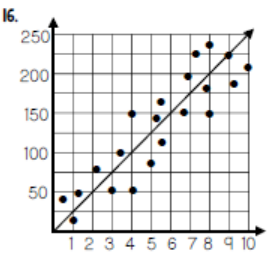

- Check your answers! Have a great weekend. See you Tuesday!

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ANSWERS

MEAN ABSOLUTE DEVIATION: PART I

Find the mean absolute deviation for each set of values, rounding to the nearest tenth when necessary. Match each correct answer to a letter and complete the riddle below.

1 35, 42, 41, 32, 30 — 4.4	**2** 171, 170, 174, 173, 172 — 1.2
3 11, 16, 70, 66, 14, 15 — 24	**4** 27, 53, 42, 32, 22 — 9.8
5 8, 22, 1, 13, 56 — 15.2	**6** 108, 105, 107, 103, 100, 107 — 2.3
7 75, 85, 95, 105 — 10	**8** 68, 70, 64, 62 — 3
9 90, 90, 96, 90, 98, 100 — 4	**10** 200, 325, 50, 75 — 100

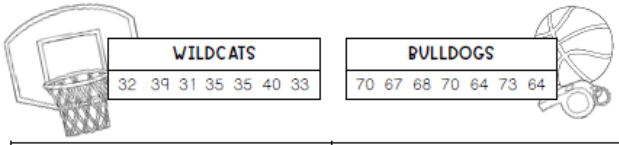
C: 15.2	E: 100	F: 5.5	B: 9.8
O: 21.2	S: 2.3	H: 1.2	U: 4.4
M: 4	N: 3	A: 10	W: 24

WHY DID THE STUDENT DISLIKE THE AVERAGE TEACHER?

B	E	C	A	U	S	E		S	H	E		W	A	S		M	E	A	N
4	10	5	7	1	6	10		6	2	10		3	7	6		9	10	7	8

MEAN ABSOLUTE DEVIATION: PART II

The two tables show the number of points scored by two different teams in their last 7 basketball games. Use the table to answer questions 1-3.



WILDCATS	BULLDOGS
32 39 31 35 35 40 33	70 67 68 70 64 73 64

1. Find the mean and the mean absolute deviation of the points scored by the Wildcats. Round to the nearest tenth when necessary.
   Mean: 35
   Mean Absolute Deviation: 2.6

2. Find the mean and the mean absolute deviation of the points scored by the Bulldogs. Round to the nearest tenth when necessary.
   Mean: 68
   Mean Absolute Deviation: 2.6

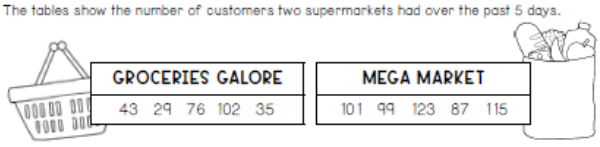
3. Use each question below to compare the data above.
   a. How do the mean values compare for each team?
   The Bulldogs mean is higher than the Wildcats.
   b. How do the mean absolute deviations compare for each team?
   The mean absolute deviations are the same.
   c. Discuss why it is possible to have similar mean absolute deviations for very different sets of data. The averages were different, but the variability of the two sets of numbers was the same. Since the numbers were spread out the same amount, the mean absolute deviations were the same despite different means.

Use what you know about mean and mean absolute deviation to answer the following discussion questions.

4. Assume you are a basketball coach. Which of the following would you hope to be true about your team's points scored throughout the season?
   a. A high average and a large mean absolute deviation
   b. A high average and a small mean absolute deviation
   c. A low average and a large mean absolute deviation
   d. A low average and a small mean absolute deviation

Explain your choice: Sample answer: I would want my team to have a high average and to also be consistent, which would mean a small mean absolute deviation.

The tables show the number of customers two supermarkets had over the past 5 days.



GROCERIES GALORE	MEGA MARKET
43 29 76 102 35	101 99 123 87 115

5. Find the mean and the mean absolute deviation of the number of customers at Groceries Galore.
   Mean: 57
   Mean Absolute Deviation: 25.6

6. Find the mean and the mean absolute deviation of the number of customers at Mega Market.
   Mean: 105
   Mean Absolute Deviation: 11.2

7. If you could choose between owning one of the supermarkets above, which would you choose? Explain your choice.
   Sample answer: I would choose to own Mega Market. They had a higher average over the last 5 days and the number of customers seems to be more consistent. Groceries Galore's data is more spread out and possibly less steady.

8. Use the tables below to answer parts a-c.

TABLE 1

VALUES	19, 32, 16, 25
MEAN	23
M.A.D.	5.5

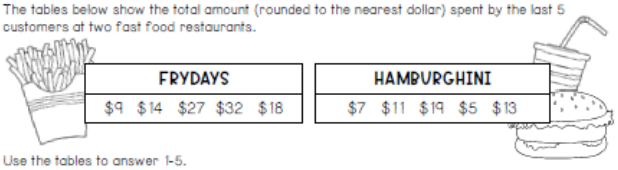
TABLE 2

VALUES	
MEAN	
M.A.D.	

a. Complete the missing rows in Table 1.
   Table answers will vary. It may be helpful to have students check each other's values.
b. In Table 2, create your own list of 4 values that have a larger mean and a smaller mean absolute deviation than the values in Table 1.
c. Discuss your approach and/or strategies you used to complete part b in the space below.
   Sample answer: I tried to pick values that were larger than the values in table 1 but were also less spread out than the values in table 1.

9. What does a high mean absolute deviation tell you about a set of data? What about a low mean absolute deviation?
   A large mean absolute deviation tells you that the data is spread out while a small mean absolute deviation tells you that the data is close together.

The tables below show the total amount (rounded to the nearest dollar) spent by the last 5 customers at two fast food restaurants.



FRYDAYS	HAMBURGHINI
$9 $14 $27 $32 $18	$7 $11 $19 $5 $13

Use the tables to answer 1-5.

1. Predict which restaurant will have a higher mean. Explain your choice.
   Sample answer: I think Frydays will have a higher mean because the total amounts seem larger overall.

2. Predict which restaurant will have a higher mean absolute deviation. Explain your choice.
   Sample answer: I think Frydays will have a higher mean absolute deviation because the dollar amounts seem more spread out and they cover a larger range.

3. Find the mean and mean absolute deviation of the amounts spent at Frydays.
   Mean: 20
   Mean Absolute Deviation: 7.6

4. Find the mean and mean absolute deviation of the amounts spent at Hamburghini.
   Mean: 11
   Mean Absolute Deviation: 4

5. How did your predictions compare to your actual findings of mean and mean absolute deviation? Explain.

Use what you know about mean absolute deviation to answer the question below.

6. Adam and Bert are collecting data. Adam collects a list of the number of students in 10 different classes at your school. Bert collects a list of the total number of students in 10 different schools throughout various parts of your state.
   *Answers will vary. Answers below are sample possible answers.
   a. Who's list do you think would have the highest mean? Explain.
   I think Bert's list will have a higher mean because the number of students in an entire school will be much larger than the number of students in a class.
   b. Who's list do you think would have the highest mean absolute deviation? Explain.
   I think Bert's list will have a higher mean absolute deviation because I think the number of students in a school will vary much greater across the state than the number of students in a class would.

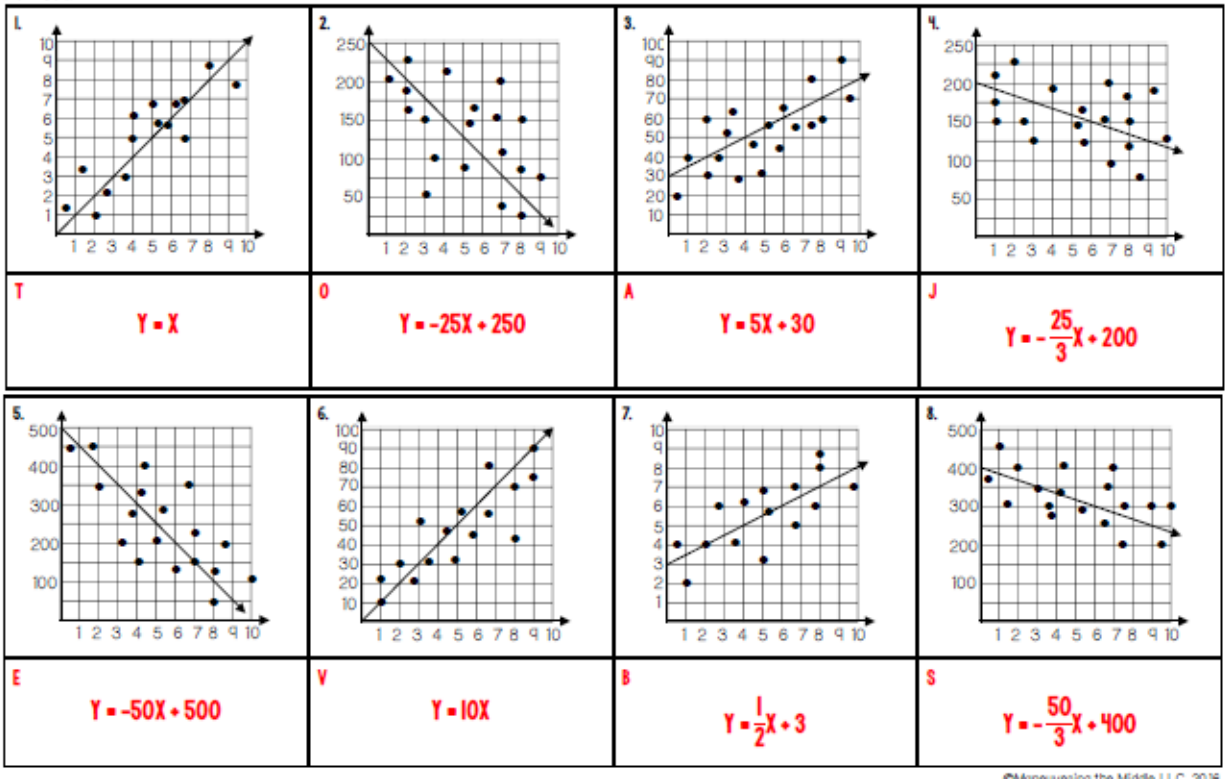
TYPES OF ASSOCIATION CARD SORT

Instructions: Record the letter of each card under the appropriate column.

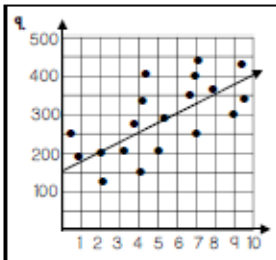
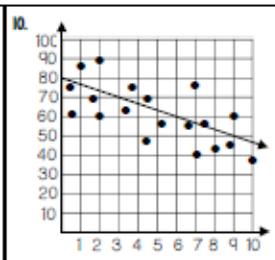
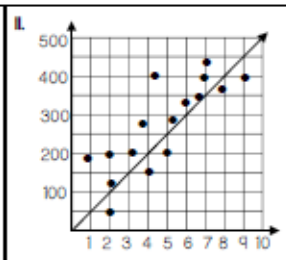
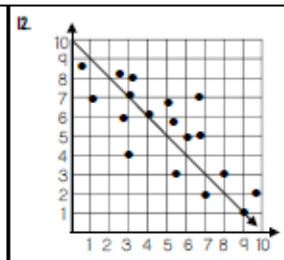
Positive	Negative	None
B E I J L N Q T	A C G K O P S	D F H M R

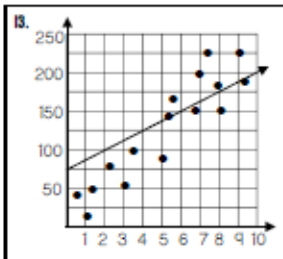
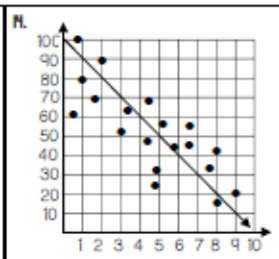
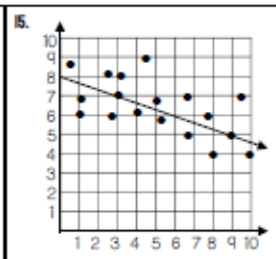
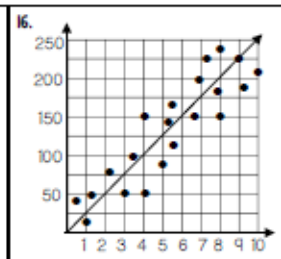
TREND LINES CUT AND PASTE

Cut the cards apart. Then, match each trend line with its correct equation and glue the cards in the appropriate spot. Not all cards will be used.



GreatHearts®

9. 	10. 	11. 	12. 
K $Y = 25X + 150$	D $Y = -\frac{10}{3}X + 80$	L $Y = 50X$	R $Y = -X + 10$

13. 	14. 	15. 	16. 
G $Y = \frac{25}{2}X + 75$	H $Y = -10X + 100$	N $Y = -\frac{1}{3}X + 8$	P $Y = 25X$