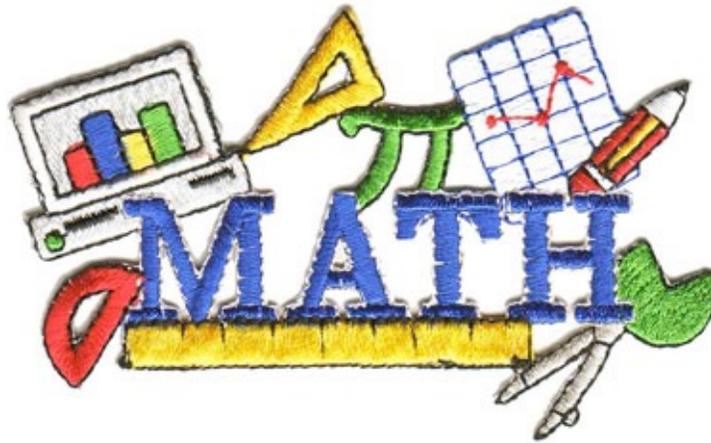


8th Grade Math

Benchmark 2

Parent Handbook



This handbook will help your child review material learned this quarter, and will help them prepare for their second Benchmark Test. Please allow your child to work independently through the material, and then you can check their work using the answer key in the back of the handbook. If you have any questions or concerns about this material, please contact your child's teacher.

Thank you for your support.

Eighth Grade Benchmark #2

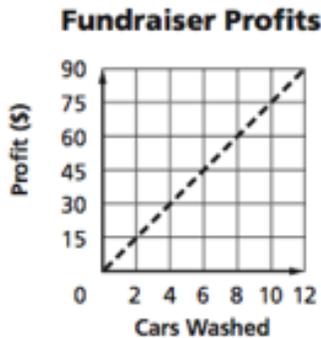
Math Essential Standards

Learning Objective #1:

 "I can graph and interpret proportional relationships between two quantities. I can compare two proportional relationships represented in different ways."

Practice:

1. Find the rate of change in the following linear function and interpret its meaning.



- a. \$15.00 profit for each car washed
- b. \$7.50 profit for each car washed
- c. \$30.00 profit for every 3rd car washed
- d. \$45.00 profit for every 4th car washed

2. Find the rate of change in the following linear function and interpret its meaning.

Width (ft)	Height (in.)
x	y
2	10
4	14
6	18
8	22

- a. 5 in height to 1 in width
- b. 3 in height to 1 in width
- c. 4 in height to 1 in width
- d. 2 in height to 1 in width

3. The cost of paper varies directly with the number of reams bought. Suppose 2 reams costs \$5.10. Write a linear equation that could be used to find the cost of x reams of paper. Find the cost of 15 reams of paper.

Equation: _____

15 Reams of Paper Costs: _____

Learning Objective #2:

 **"I can compare two functions represented in different ways."**

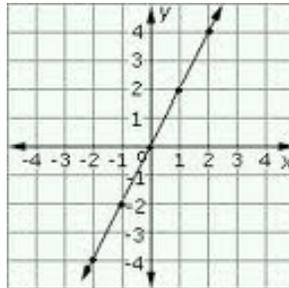
Practice:

Compare the functions below and answer the following questions.

FUNCTION 1

X	Y
0	3
2	5
4	7
6	9

FUNCTION 2



4. Which function has the greatest rate of change?

5. Which function has the lowest y-intercept?

6. Which function shows a negative slope?

7. Beth is joining a gym. Her registration fee is \$100 and then \$25 per month. Her friend Jamie joined a different gym and had to pay \$50 for her registration fee and pays \$40 per month. After 1 year, who pays the least amount of money?

Learning Objective # 3:



"I can write and model a linear relationship using graphs, tables, or a written description."

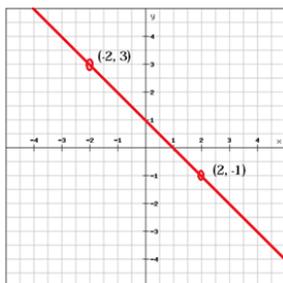
Practice:

8. Which linear equation represents the table below?

X	Y
-2	-6
-1	-5
0	-4
1	-3

- a. $y = x - 1$
- b. $y = x + 4$
- c. $y = -x - 4$
- d. $y = x - 4$

9. Which linear equation represents the graph below?



- a. $y = x + 1$
- b. $y = -x - 1$
- c. $y = -x + 1$
- d. $y = x - 1$

10. Logan has \$950 in his bank account. Every month he spends \$75. He does not add money to the account. Which linear equation represents this situation?

- a. $y = -75x + 950$
- b. $y = 75x - 950$
- c. $y = -75x - 950$
- d. $y = 75x + 950$

11. Write the equation of the line through the following pair of points:

(-6, -11) (2, -5)

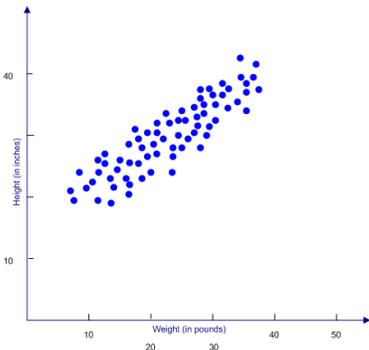
Learning Objective #4:



“I can create and interpret scatter plots and find associations between two quantities.”

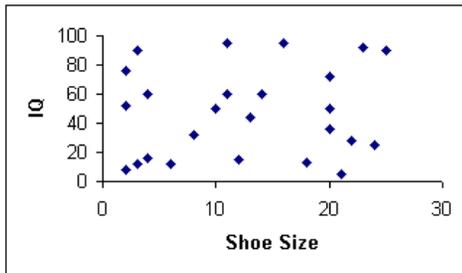
Practice:

12. The scatterplot below shows weight (in pounds) and height (in inches). What is the relationship between the variables?



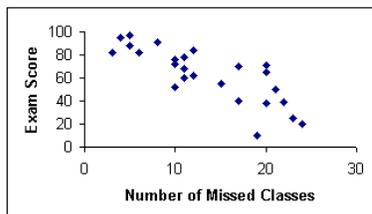
- a. positive correlation
- b. negative correlation
- c. no correlation
- d. reverse correlation

13. The scatterplot below shows a person’s IQ and their shoe size . What is the relationship between the variables?



- a. positive correlation
- b. negative correlation
- c. no correlation
- d. reverse correlation

14. The scatterplot below shows a the number of missed classes and exam scores . What is the relationship between the variables?



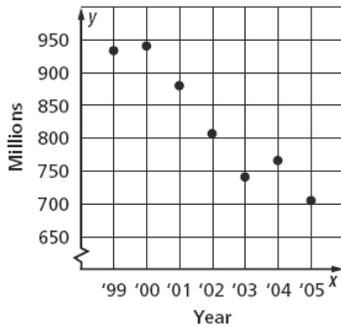
- a. positive correlation
- b. negative correlation
- c. no correlation
- d. reverse correlation

Learning Objective #5:

 **"I can use a linear model to interpret the slope and y-intercept."**

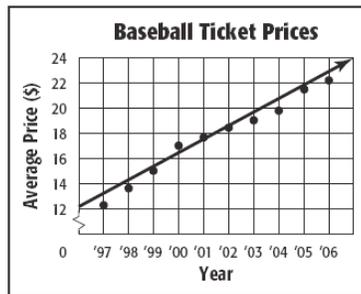
Practice:

15. The scatter plot shows the number of CDs (in millions) that were sold from 1999 to 2005. If the trend continued, about how many CDs were sold in 2006?



- a. 600 million
- b. 750 million
- c. 700 million
- d. 625 million

16. The scatter plot shows the average price of a major-league baseball ticket from 1997 to 2006. If the trend continued, what is the average price of tickets in 2009?



Source: Team Marketing Report, Chicago

- a. \$23.15
- b. \$25.60
- c. \$24.00
- d. \$24.50

17. The scatter plot shows the number of hours worked and wages earned. If the trend continued, what would the wage be if 50 hours are worked?



- a. \$500
- b. \$750
- c. \$625
- d. \$800

Learning Objective #6:

 **"I can construct and interpret a two way table."**

Practice:

A large group of people was surveyed about their favorite movie genre. The participants had to give their age and choose their favorite genre from Action, Comedy, and Horror.

	Action	Comedy	Horror	Total
18-25 years old	238	450	312	1,000
25-49 years old	350	472	178	1,000
50+ years old	320	490	190	1,000
Total				

18. A company that sells a product designed for young adults is looking to advertise before the movies of one of these genres. Which genre should they choose?

- a. Action
- b. Comedy
- c. Horror

19. If you surveyed 12,000 people total, about how many 18-25 year olds would you expect to choose Horror as their favorite genre?

- a. 1,200
- b. 5,400
- c. 2,880
- d. 4,500

20. If you surveyed 24,000 people total, about how many 25-49 year olds would you expect to choose Comedy as their favorite genre?

Benchmark 2 Essential Math Vocabulary

- ◆ **linear function** - a function that has a constant rate of change and can be modeled by a straight line.
- ◆ **proportional relationship** - a relationship between two quantities in which the two quantities vary directly with one and other.
- ◆ **rate of change** - a ratio between a change in one variable relative to a corresponding change in another.
- ◆ **slope-intercept form** - a written form of a linear equation, $y = mx + b$, where m is the slope and b is the y-intercept.
- ◆ **slope** - the measure of steepness of a line; represented by "m" in y-intercept form.
- ◆ **y-intercept** - the coordinate at which the graph of a line intersects the y-axis; represented by the "b" in y-intercept form.
- ◆ **compare** - to examine two or more quantities, or representations such as graphs, tables, charts, etc. and determine similarities and differences.
- ◆ **input/output table** - a table that lists independent (x) values and corresponding dependent (y) values.
- ◆ **graph** - a diagram showing the relation between variable quantities
- ◆ **ordered pair** - two numbers used to show the position on a graph where the "x" (horizontal) value is first, and the "y" (vertical) value is second written in parentheses like this: (4,5).
- ◆ **scatter plot** - a graph of points representing a collection of data.
- ◆ **positive correlation** - when one characteristic (variable) goes up (increases), so does the other.
- ◆ **negative correlation** - when one variable increases, the other decreases.
- ◆ **line of best fit** - a straight line used as a best approximation of a summary of all the points in a scatter-plot.
- ◆ **outliers** - a value that "lies outside" (is much smaller or larger than) most of the other values in a set of data.
- ◆ **estimate** - an answer that is close to the exact answer and is found by rounding, clustering, using front-end digits, compatible numbers, or another method to find an approximate answer.

Math ANSWER KEY

1. b

2. d

3. $y = 2.55x$; \$38.25

4. Function 2

5. Function 2

6. Neither

7. Beth

8. d

9. c

10. a

11. $y = \frac{3}{4}x - \frac{13}{2}$ OR $y = .75x - 6.5$

12. a

13. c

14. b

15. d

16. b

17. c

18. b

19. a

20. 11, 328; any answer between 11,200 - 11,400 is a good approximation