

• I can simplify and evaluate expressions.

Simplify each expression.

1. $3[(15-3)^2 \div 4]$ 108

Evaluate each expression.

4. $3a^2 + (b-c)$ for $a = 2$, $b = 4$, and $c = 3$ 13

6. $-a + 2b + c$ for $a = 2$, $b = -3$, and $c = 4$ -4

7. $x(-y + z)$ for $x = 3$, $y = -3$, and $z = -1$ 6

5. $|-x - 2y|$ for $x = -2$ and $y = 3$. 4

3. $-3(2x - 4) + 10x$ 4x + 12

2. $|6 - 18|$ 12

• I can write and solve equations.

8. Solve $\frac{4x}{8} + 18 = 38$ X = 40

9. Solve $-(x - 7) = 4x + 3(x - 3)$ X = 2

10. Solve $7x + x - x - 6 = 5x$ X = 3

11. Solve $2(x + 5) = 5x + 19$ X = -3

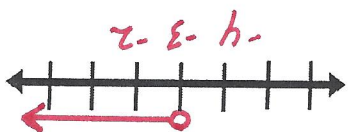
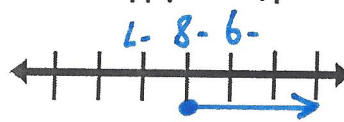
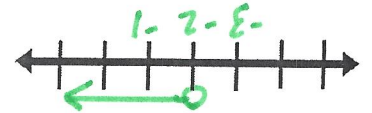
• I can solve inequalities in one and two variables.

12. Solve and graph the solution on a number line:

a) $5x + 1 > -3x - 15$ X > -2

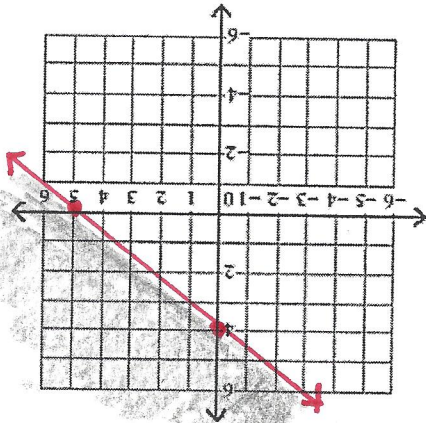
b) $3 \leq -3(x - 9)$ X ≤ -8

c) $11d - 9 > 15d + 3$



• I can solve inequalities in one and two variables.

13. Graph the solution set for the inequality $4x + 5y \geq 20$.



14. If $f(x) = -2x + 2$, then find $f\left(\frac{1}{2}\right)$.

15. If $g(x) = -x^2 + 5x$, then find $g(-12)$

- I can determine the domain and range of a relation or a function.

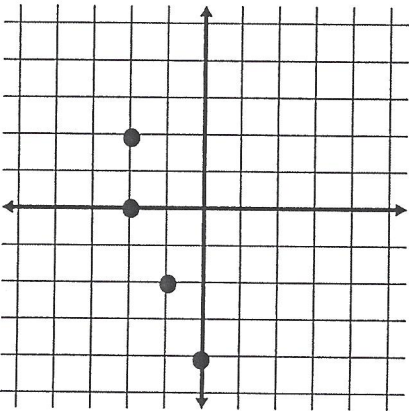
16. Given the following relation, what is the domain and range?

$D: \{-2, 0, 6\}$
 $R: \{-2, 0, 4, 5\}$

17. Make a mapping diagram that represents the relation and determine whether the relation is a function.

$\{-3, -6\}, \{-1, -6\}, \{5, -6\}, \{8, -6\}$

18. What is the domain and range of the relation shown? Is the relation a function?



$D: \{0, 1, 2\}$
 $R: \{-2, 0, 2, 4\}$

19. Find the domain and range of the relation. Is the relation a function? Explain.

Height of Person (inches)	29
Shoe Size	2
Height of Person (inches)	36
Shoe Size	3
Height of Person (inches)	54
Shoe Size	3

$D: \{29, 36, 54\}$
 $R: \{2, 3\}$

20. Given the function, $T(s) = 1/2s + 30$, where T is the time in minutes it takes to decorate the gym for a dance and s is the number of students on the decorating committee, answer the following:

a) What is a reasonable domain for this function?

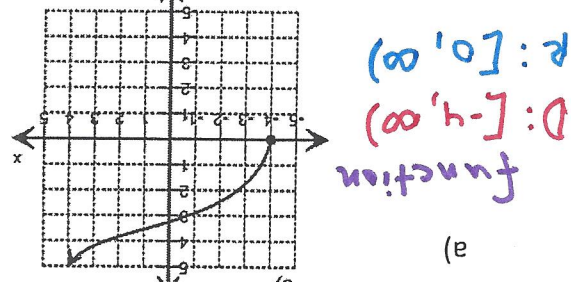
Whole numbers (no negatives, fractions, etc.)

b) Find $T(12)$

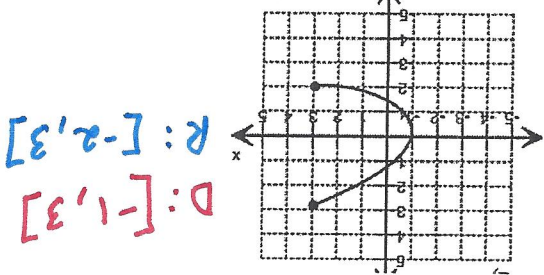
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• I can determine whether a relation is a function and identify the domain and range.

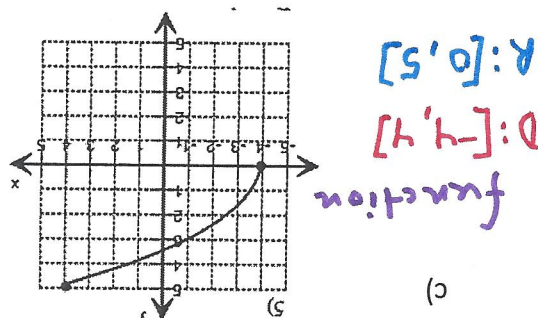
21. Determine if the relation is a function. State the domain and range of each graph.



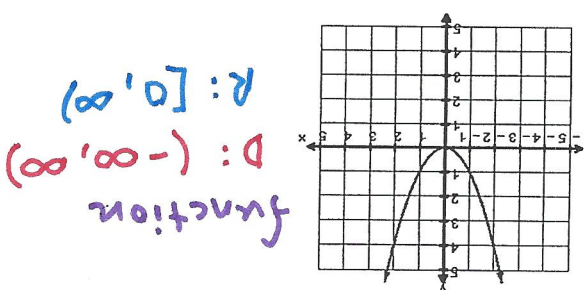
b)



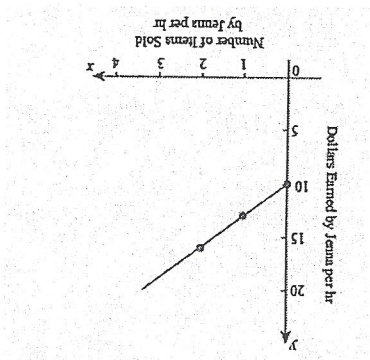
c)



d)



22. Jenna works at a retail shop. She makes \$10 per hour, plus \$3 for each item she sells.
 a) Explain why the graph represents this function.
 b) Write an equation for this graph.



• I can determine whether a number is rational or irrational.

23. Decide whether the following are rational or irrational.

a) 2π
 IR

b) $3\sqrt{4}$
 R

c) $\sqrt{5}$
 IR

d) $\frac{3}{2} \cdot 3\sqrt{25}$
 R

e) $\frac{3}{2}$
 R

f) $(\sqrt{7})^2$
 R

Name _____

Kay

Part 2 - This is part of your exam grade.

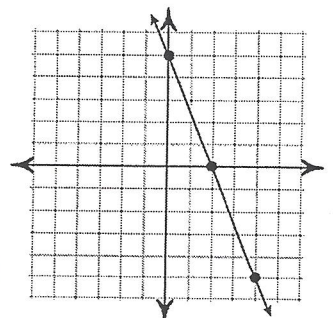
Linear Function Essentials

- I can determine whether an ordered pair is a solution to the function.

1. Which of the following is a solution to the function $f(x) = -\frac{1}{2}x - 6$

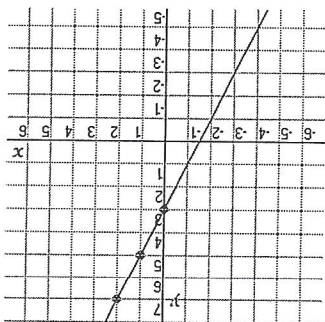
- a) $(-2, -5)$ b) $(0, 6)$ c) $(6, -9)$ d) $(10, -1)$

2. For each graph, list 3 solutions. What is the slope of each line?



$m = -\frac{5}{2}$

solutions $(-4, 5), (-2, 0), (0, -5)$



$m = \frac{1}{2}$

solutions

$(0, -3), (1, -5), (2, -7)$

3. a) The rate of change is constant in the table. Find the rate of change. Explain what the rate of change means for the situation.

$\frac{1}{42}$! 42 miles per hour

b) Write a linear equation that models the table if t = time and d = distance.

$y = 42x$ or $d = 42t$

c) What is the y-intercept for this data? Explain what the y-intercept means for this situation.

Time (in hours)	Distance (in miles)
4	168
6	252
8	336
10	420

$y\text{-int.} = 0$

Find the slope and y-intercept of each line.

4. $y = -3x + 7$
 $m = -3$
 $y\text{-int.} = 7$

5. $y = -16 + 6x$
 $m = 6$
 $y\text{-int.} = -16$

- I can write a linear equation.

6. Write an equation for a line with slope $-\frac{3}{4}$ and y-intercept 5.

$y = -\frac{3}{4}x + 5$

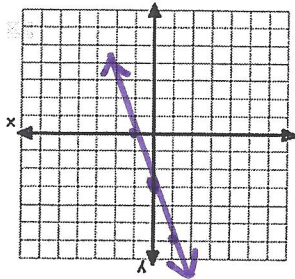
7. Write an equation for a line with slope 4 and y-intercept -7.

$y = 4x - 7$

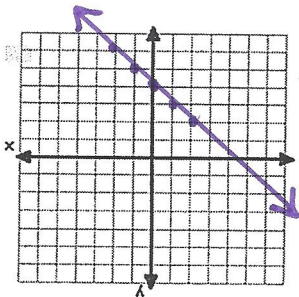
- I can graph a linear equation.
- I can determine characteristics of linear functions.

Use the slope and y-intercept to graph each equation.

8. $y = -3x + 3$

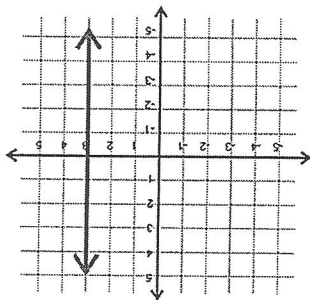


9. $y = -x - 4$



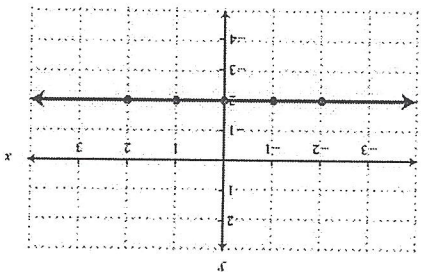
Write an equation for each line below and state whether the slope is 0 or undefined.

10. slope = undefined



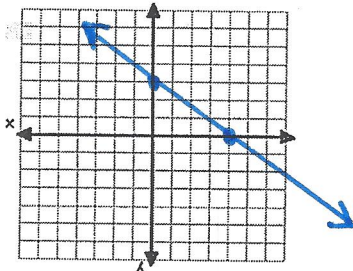
$x = 3$

11. slope = 0



$y = -2$

12. Find the x- and y- intercept for $-3x - 4y = 12$. Graph the equation.



13. A line passes through (2, -4) and (-2, 6). Write an equation for the line.

$y + 4 = -\frac{5}{2}(x - 2)$
 $y - 6 = -\frac{5}{2}(x + 2)$
 $y = -\frac{5}{2}x + 1$

14. Write an equation for the line that is parallel to $y = -5x + 3$ and passes through (-4, 2).

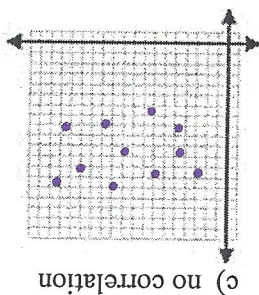
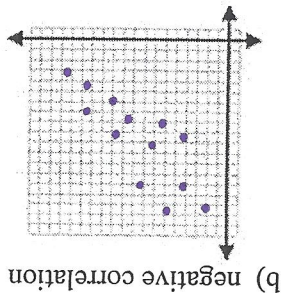
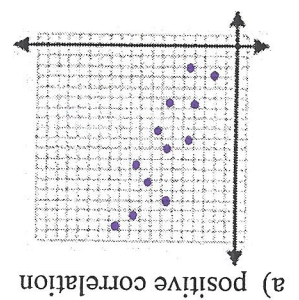
$y - 2 = -5(x + 4)$
 $y = -5x - 18$

Part 3 – This is part of your exam grade.

Linear Function Applications

- Correlation Unit - I can use deductive reasoning to determine the correlation between real-life data.
- I can determine whether a scatterplot shows a positive, negative, or no correlation for the given data.

1. Draw a sketch of a scatter plot with the correlation described.



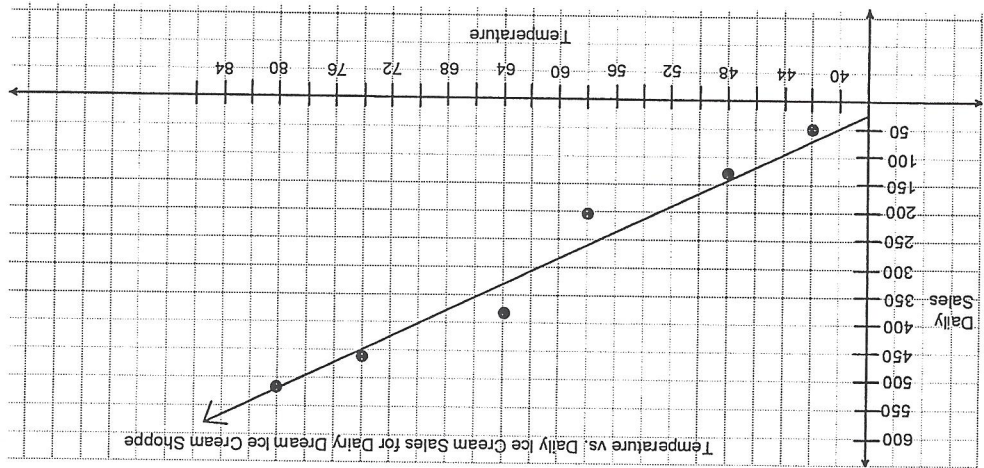
2. What type of correlation would you expect for each situation?

- The distance that a person rides their bike and the amount of calories burned. **positive**
- The amount of free time a person has and the amount of time they spend working. **negative**
- A person's height (inches) and the number of pets they own. **no correlation**

3. Describe what a correlation coefficient tells about a set of data. (Include +/- as well as value)

- I can use the given line of best fit to make prediction for new data.

Use the line of best fit to answer questions 4 and 5.



4. Based on the line of best fit, predict the daily sales if the temperature was 54 degrees. **about \$225**

5. Based on the line of best fit, predict the temperature if the daily sales was \$100. **about 44°**

- I can use the given data and scatterplot to make predictions.
- I can generate a correlation coefficient (r) using the calculator.
- I can create a *Linear Regression Equation* from a table of data.

Use the table of values to answer questions 9 - 13.

Minutes using cell phone	Battery charge percentage
0	100
15	96
30	92
45	88
60	83
75	76
90	70

6. Enter this data into your calculator. What is the equation for the best fit line?

$$y = -0.33x + 101.3$$

7. Use this data to determine the type of correlation.

strong negative correlation

8. What is the correlation coefficient for this data? (r)

$$r = -0.99$$

9. Using your best fit line for this data, predict the battery charge percentage after 95 minutes?

about 70%

10. Using your best fit line for this data, predict the number of minutes it would take for your phone to run out of charge?

about 307 minutes

Part 4 - This is part of your exam grade!

1. The sum of three consecutive integers is -156. Write and solve an equation to find the integers.

-53, -52, -51

2. The lengths of the sides of a triangle are consecutive even integers. What is the length of the longest side if the perimeter is 36 inches? (HINT: Draw a picture.)

The longest side is 14 inches

- 3) The length of a rectangle is 7 inches longer than the width. The perimeter of the rectangle is 70 inches. Find the length and the width. (HINT: Draw a picture.)

width = 14 inches
length = 21 inches

4. Suppose I have 100 feet of fencing to build a rectangular dog pen. To fit in the area I have in my backyard, I want to make the length 6 feet longer than the width. How long should the sides be if I want to make sure that I use all the fencing I have? (HINT: Draw a picture.)

width = 22 inches
length = 28 inches