New Visions for Public Schools

Algebra I - Practice Assignment #71

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Would the elimination method or the substitution strategy be more efficient to solve the following equations?

$4x + 4y = 10$

$y = 4x$

2. Write down an equation that does not change the solution set for the following system of equations.

$4x + 4y = 10$

$y = 4x$

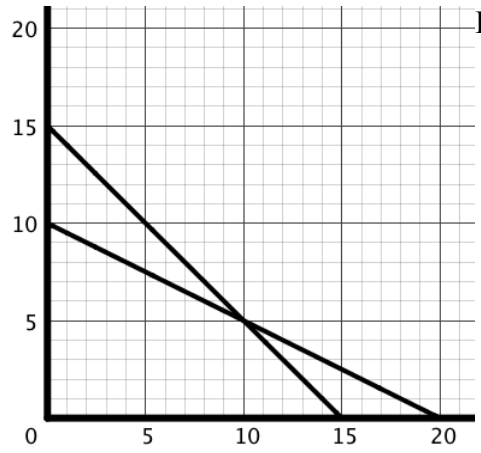
3. Which of the following expressions are equivalent?

a. $3(4x - 5x)$ b. $12x - 15x$ c. $-3(9x)$ d. $15x - 12x$

4. Write a function rule for the following table. Explain your reasoning.

x	4	5	6	7	8
y	9	11	13	15	17

5. Describe how the given equations are represented by the graph.



Equations:

$x + y = 15$

$5x + 10y = 100$

Explanation:

Link to teacher key

New Visions for Public Schools

Algebra I - Practice Assignment #72

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. John gets to play a total of 96 songs at his school dance. He wants twice as many fast songs, y, as slow dance songs, x. Write a pair of equations to represent this situation and use those equations to find the number of fast and slow songs John can play.

2. Do the following systems of equations have the same solutions?

$4x + 4y = 10$ $\quad$ $2x + 2y = 10$ $\quad$ Explain why or why not.

$y = 4x$ $\quad$ $y = 2x$

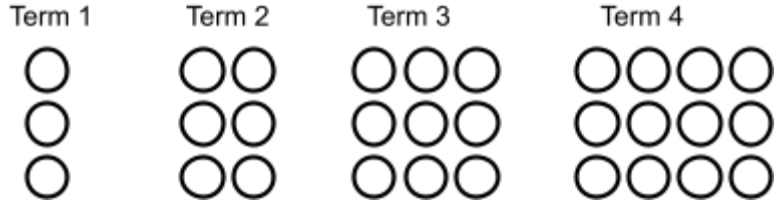
_____

_____

_____

3. Solve the equation $4x + 4y = 10$ for y.

4. Roko draws the following arithmetic sequence.



Write an algebraic rule to model this sequence. _____

5. Roko creates the following table of values to compare two sequences.

Term Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Sequence A	27	30	33	36									
Sequence B	38	40	42	44									

Use the table to find the term number for which Sequence A is first greater than Sequence B. _____

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Algebra I - Practice Assignment #73

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Rewrite the following system of equations as one equation. _____

$y = 5 + x$
$y = 2x$

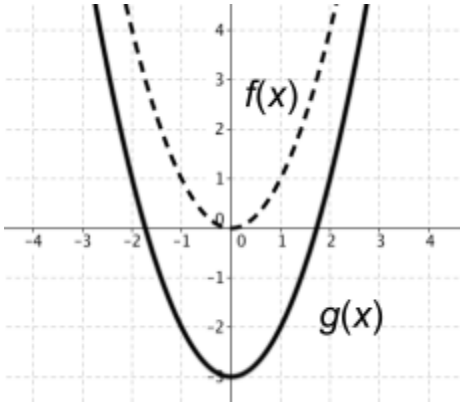
2. Solve the following system of equations.

$y = 5 + x$
$y = 2x$

3. Rewrite each of the expressions using as few terms as possible.

a. $x^4 + 6x^2 + 6x^2 + 9$ b. $x^4 + 6x^2 - 6x^2 + 9$ c. $x^4 - 6x^2 - 6x^2 + 9$

4. The following graph shows the graph of $f(x) = x^2$ and $g(x)$. $g(x)$ is translated down from $f(x)$.



What is the function rule for $g(x)$?

_____

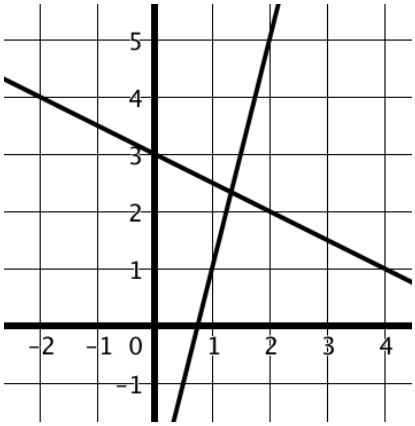
Explain your reasoning:

_____

_____

_____

5.



Find an approximate point of intersection for the two lines given.

Point of intersection

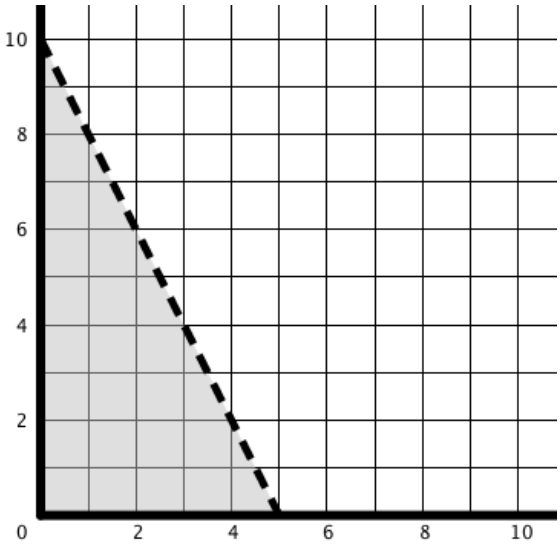
_____

New Visions for Public Schools

Algebra I - Practice Assignment #74

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Circle the inequality which is best represented by the given graph.



$10 - 2x > y$ or $10 - 2x \geq y$

Explain your reasoning:

2. Write down the coordinates of 5 points that could be solutions based on the graph to the right.

3. The following situation is represented by the graph to the left.

> Ertu sells less than $10 worth of popcorn. The kettle corn sells for $2 a pound and the regular popcorn sells for $1 a pound.

What does the shaded region of the graph represent for this situation?

4. Solve the inequality $10 - 2x > x$.

5. Write the equation of a line that passes through the points (4, 3) and (4, 6).

Algebra I - Practice Assignment #75

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Circle the equations or inequalities which best model the given situation.

$y = 3x + 1$
$y = x + 2$

Situation:

For every 2 donuts Jerry sells, he sells three times as many coffees plus one. He also notices that the number of donuts sold is two more than the number of coffees.

Revise the situation so that the other choice (equation or inequality) makes sense:

$2y \geq 3x + 1$
$y \leq x + 2$

2. Substitute $x = 3$, $y = 5$ into the pair of equations to determine if (3, 5) is a solution of the equations.

$2y = 3x + 1$
$y = x + 2$

3. Amie says that a solution to the equation $2y = 3x + 2$ is (3, 5). Is Amie correct? Explain why or why not.

4. Determine if the two linear functions y_1 and y_2 modeled by the tables of values below are parallel when graphed.

x	0	2	4	6
y_1	3	5	7	9
y_2	20	22	24	26

Explain your reasoning:

5. Dipika chooses two numbers such that the product of two numbers is 20 and their sum is 9.
How many pairs of numbers can possibly be Dipika's numbers? _____

Explain your reasoning.

Algebra I - Practice Assignment #76

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Describe the differences in how the functions change.

Function *A*

x	1	2	3	4
f(x)	4	7	10	13

Function *B*

x	1	2	3	4
g(x)	4	12	36	108

Differences:

2. Describe whether graphing or elimination would be a more efficient way of finding an exact solution to these equations. *You do not need to solve the equations!*

$x + y = 15$
$5x + 10y = 100$

3. Describe how the inequalities given are connected to the situation they represent.

Inequalities:	**Situation:**	**Explanation:**
$x + y \leq 96$ $y \geq 2x$	Myrtie gets to play at most 96 songs at her school dance. She wants at least twice as many fast songs, y, as slow dance songs, x.	

4. The linear function $y = x + 3$ is changed to the absolute value function $y = |x + 3|$. How does this change the graph of the function $y = x + 3$?

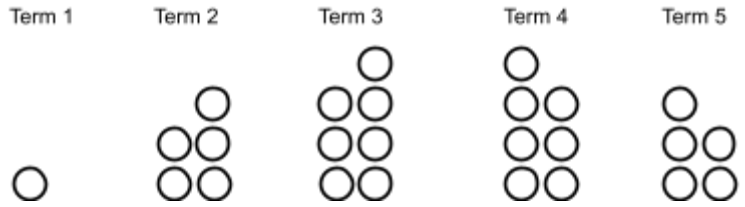
5. Create an equation that has the same solution set as $3y + 2x = 6$.

New Visions for Public Schools

Algebra I - Practice Assignment #77

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Roko graphs the following sequence by letting the term number be x and the value of the sequence be y.



Write an equation for the axis of symmetry of the resulting parabola.

_____

2. Roko creates the following table of values to compare two sequences.

Term Number	1	2	3	4
Sequence *A*	3	6	9	12
Sequence *B*	22	24	26	28

Write a system of equations to represent the two sequences.

_____

_____

Find the term number for which Sequence *A* is first greater than Sequence *B*. _____

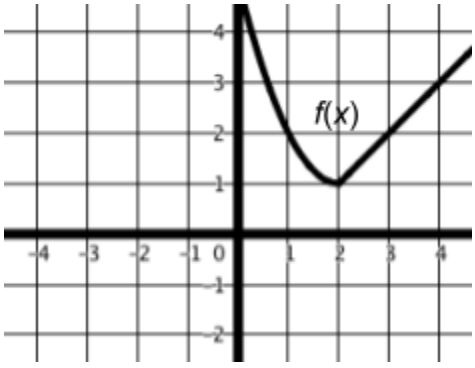
3. Use the table provided to determine the x values which make both inequalities true.

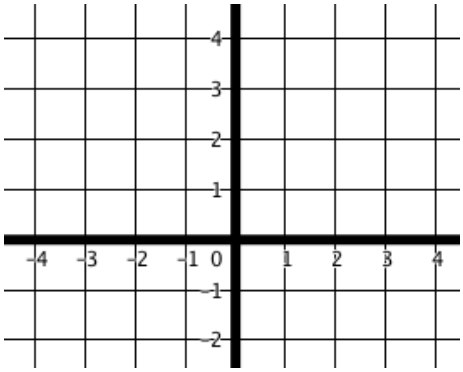
$y \geq 3x$
$y \leq 12 - x$

_____

x	0	1	2	3	4	5
$y = 3x$	0	3	6	9	12	15
$y = 12 - x$	12	11	10	9	8	7

4. The function $g(x)$ is $f(x)$ shifted down 2 and left 3. Sketch the graph for $g(x)$.





Explain your reasoning:

_____

_____

_____

_____

_____

5. Explain why the following systems of equations will have the same solution set.

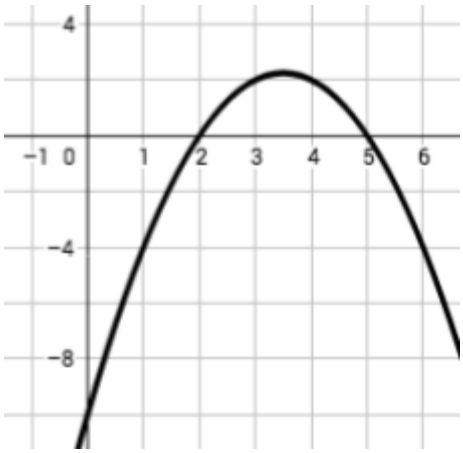
$y = 3x + 6$ $2y = 6x + 12$

$y = 2x + 7$ $2y = 4x + 14$

Algebra I - Practice Assignment #78

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Klaas throws a ball up in the air and then models the flight of the ball with the following graph.

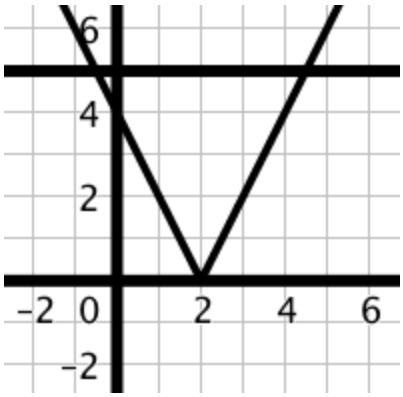


Explain how you might change the graph to more closely model the flight of the ball.

2. Rewrite the following system of equations as a single equation.

$y = 4x - 3$
$y = 3 - \frac{1}{2}x$

3. Determine approximate solutions to the linear - absolute value system graphed.

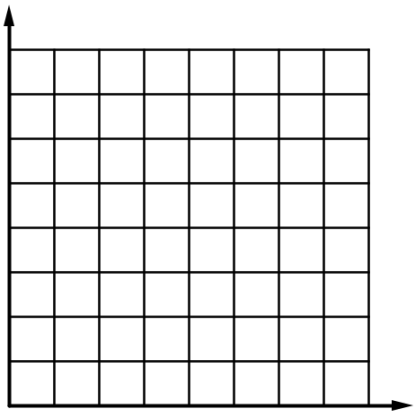


4. Accurately graph the function $y = |x - 2|$.

Make sure to: *label the axis, intercepts, and function*.

5. Solve the following system of equations.

$y = 2x + 3$
$2x + 3y = 17$



Algebra I - Practice Assignment #79

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

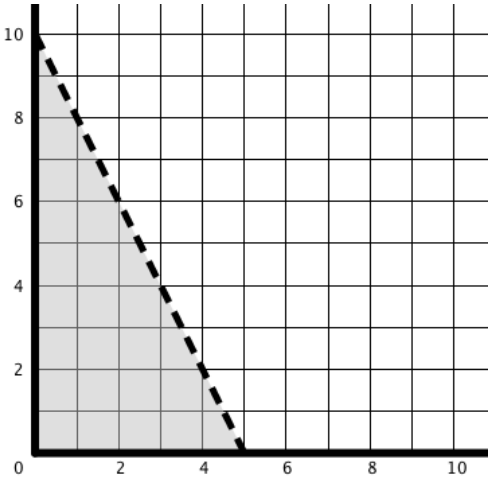
1. Write down the axis of symmetry for the quadratic function $y = (x - 4)(x - 6)$. A table of values for this function is given below.

x	0	2	4	6	8
y	24	8	0	0	8

Axis of symmetry: _____

2. Circle the equation or inequality which is best represented by the graph on the right.

$$10 - 2x > y \text{ or } 10 - 2x = y$$



3. Leberecht sells a total of 8 adult and children tickets. Describe what the solution set below represents.

x	0	1	2	3	4	5	6	7	8
y	8	7	6	5	4	3	2	1	0

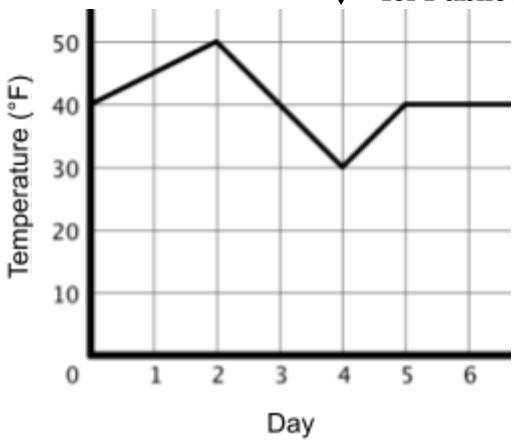
_____

_____

4. Hector records the temperature each day during the winter near his house.

Hector claims that the average temperature during this time is 40 °F.

Is Hector correct? Explain why or why not.



5. Whitney throws a ball up in the air and Vasanti catches it. The table below shows the height of the ball over time. What does an average rate of change of zero represent in this context?

Time	0	1	2	3	4
Height	0	15	20	15	0

Algebra I - Practice Assignment #80

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Write down the domain and range of the function $f(x) = x^2 - 3$.

2. Circle the equations or inequalities which best model the given situation.

$x + y = 96$
$y = 2x$

Situation:

Myrtie gets to play at most 96 songs at her school dance. She wants at least twice as many fast songs, y, as slow dance songs, x.

Revise the situation so that the other choice (equation or inequality) makes sense:

$x + y \leq 96$
$y \geq 2x$

3. How many solutions does the following system have? Explain your reasoning.

$x + y = 10$
$2x + 2y = 20$

4. Describe the similarities and differences **Function A** **Function B**

between **Function A** and **Function B**.

Similarities:

_____

_____

Differences:

_____

_____

x	$y = \|2x\|$
-2	4
-1	2
0	0
1	2
2	4
3	6

x	$y = 2^x$
-2	¼
-1	½
0	1
1	2
2	4
3	8

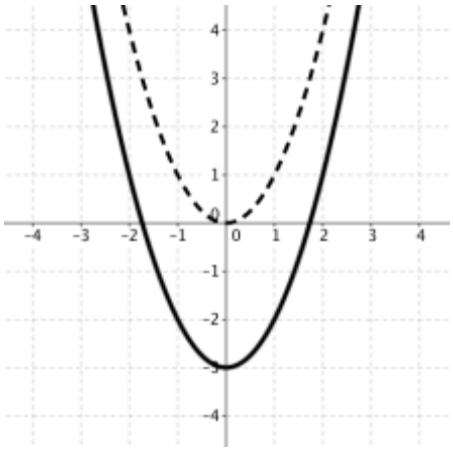
5. Árni claims the solution to the following system of equations is $x = 3$ and $y = 5$. Show that he is incorrect by substituting the values into the system.

$y = 2x + 3$
$2x + 3y = 17$

Algebra I - Practice Assignment #81

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Describe how the graph is similar and different from the parent function $y = x^2$.



Similarities:

_____

_____

Differences:

_____

_____

2. Describe the differences in how the functions change.

Function *A*

x	0	1	2	3
$f(x)$	1	2	4	8

Function *B*

x	0	1	2	3
$g(x)$	1	2	5	10

Differences:

_____

_____

_____

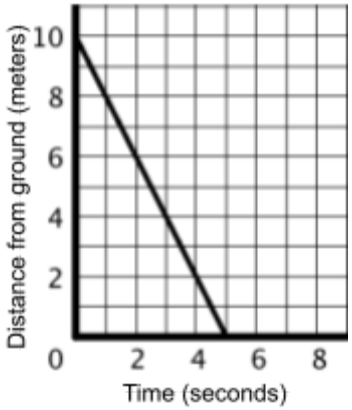
3. Write down a different system of equations that has the same solution set as the following system.

$x + y = 2$ _____

$2x + 3y = 5$ _____

4. A ball is thrown from a cliff and hits the ground below.

Could the graph given represent this situation?
Why or why not?



5. Leberecht sells a total of 8 adult and children tickets. What are restrictions on the possible values for the adult tickets and the children tickets?

Algebra I - Practice Assignment #82

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Explain what would happen to the vertex of the parabola $y = (x - 3)^2 + 4$ under a shift of three units left.

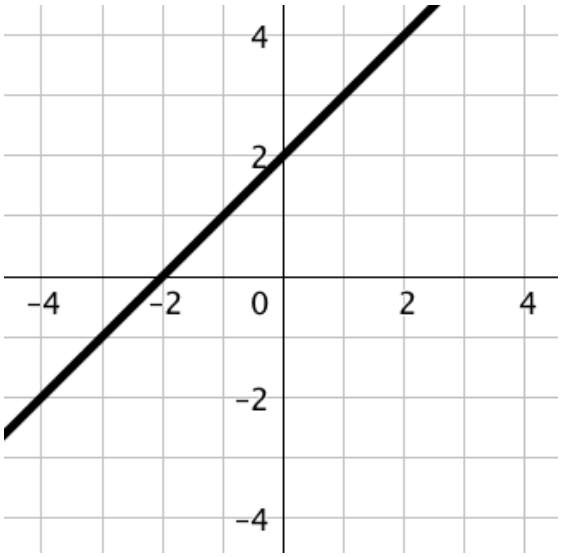
2. Thea knows the zeros of a parabola are at $x = 3$ and $x = 5$. What is the equation of the axis of symmetry for this parabola?

3. Which pair of the following systems of equations has the same solution set?

A	**B**	**C**
$x - 2y = 3$ $x + 2y = 4$	$2x - 4y = 6$ $2x + 4y = 8$	$2x - 2y = 3$ $2x + 2y = 4$

Explain your reasoning:

4. Find the equation of the line represented by the graph.



Explain your reasoning.

5. Describe the differences between a relation and a function.

Algebra I - Practice Assignment #83

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Complete the table of values if the following function is shifted down three units.

Parent function:

x	0	1	2	3
y	0	1	4	9

Transformed function:

x				
y				

2. Tollak throws a ball in the air and it lands on the ground.

Describe what part of the graph represents the maximum height of the ball.

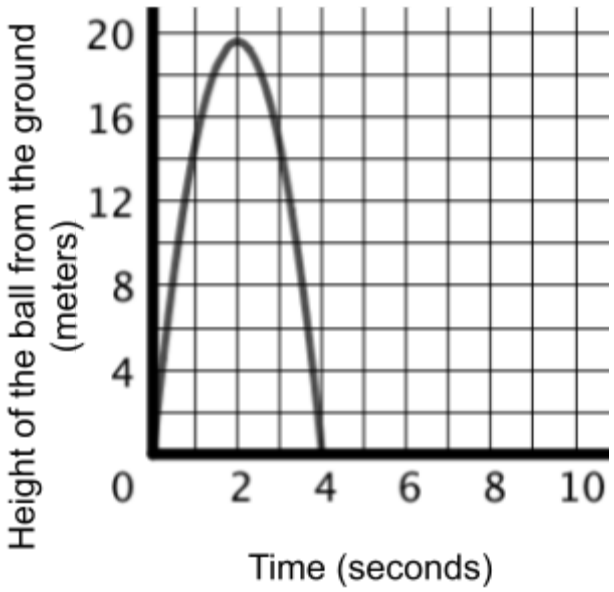
_____

_____

When does the ball hit the ground and how do you know?

_____

_____



3. Solve the following system of equations using substitution or elimination.

$x - 2y = 3$
$x + 2y = 4$

4. $f(x) = 2x$ for x between 0 and 5. Describe how changing the function to $f(x) = 2x + 3$ changes its domain.

_____

_____

5. Rinaldo throws a ball up in the air. Identify a possible domain and range for the function that represents the ball's height in the air over time.

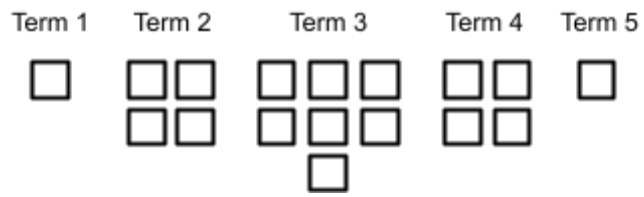
Domain: _____ Range: _____

Algebra I - Practice Assignment #84

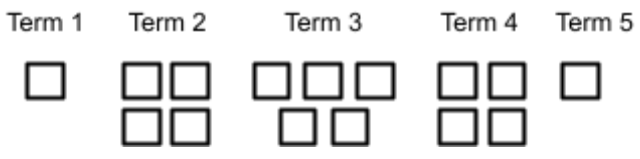
Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Which of the sequences below could be represented by a quadratic function? Explain your reasoning.

Sequence A



Sequence B



2. Find the axis of symmetry for the following quadratic function. _____

x	0	1	2	3
y	0	3	4	3

3. The product of two consecutive positive integers is 182.

Nisha claims the solution to the problem is $x = -13$ or $x = 13$. Is this correct? Why or why not?

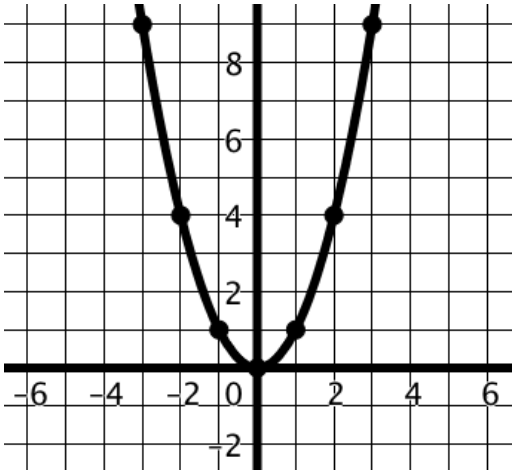
4. Leberecht sells a total of 8 adult and children tickets. Write an equation to represent this situation use your equation to find the number of adult tickets when 2 children tickets are sold. _____

5. Identify intervals on the graph where the function is increasing or decreasing and the turning point of the function.

Increasing: _____

Decreasing: _____

Turning point: _____



Algebra I - Practice Assignment #85

Today in class we learned some new stuff but this practice page isn't about today! Try out these practice activities, and see if you can solve these problems about things you've done in the past to strengthen connections.

1. Describe the difference between the following two quadratic functions.

$y = (x - 3)(x - 5)$
$y = (x + 3)(x + 5)$

2. Write down the domain and range of the function $f(x) = 3 - x^2$.

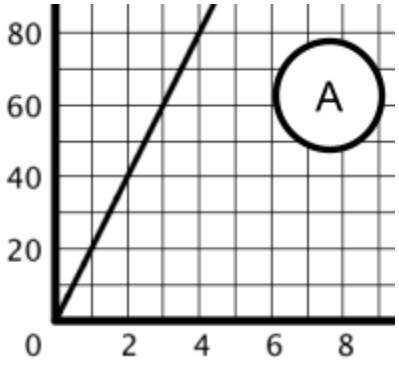
3. Use substitution to show that $x = 3.5$ and $y = 0.25$ is a solution to the following system of equations.

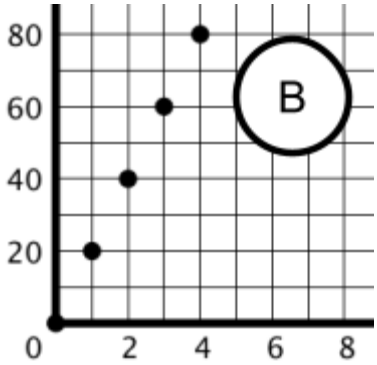
$x - 2y = 3$
$x + 2y = 4$

4. The equation $4x + 2 = 10$ is given. How would changing the 4 to a 2 change the value of x?

Explain your reasoning.

5. A school is having a field trip to the museum and decides to rent buses for everyone.





Which graph could represent to this situation?