

Name: Key

Date: _____

Period: _____

Algebra 1
Chapter 3
Stations Review

Directions: Answer the problems in the stations using the template. Be sure you are working in the correct box. If you finish a station early, work quietly on the Extension Problem at the end of the packet.

Station 1

Scenario:

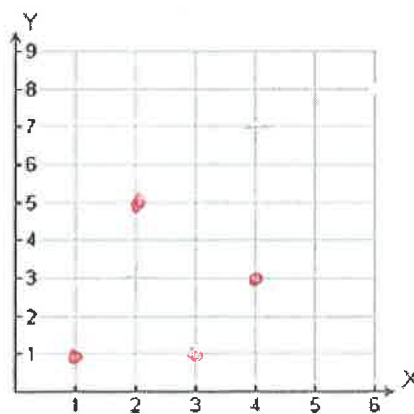
The temperature in my house slowly starts to rise after I turn on the heat. It then becomes constant after several minutes because it reached 72°F .

Station 2

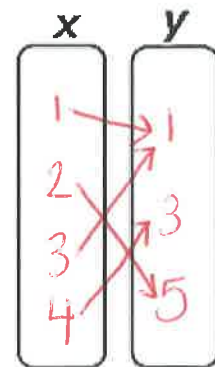
a.)

x	y
2	5
1	1
3	1
4	3

b.) Graph



c.) Mapping Diagram



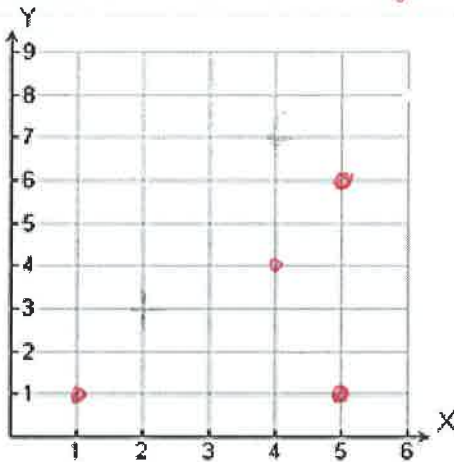
Station 3

Domain: $\{1, 4, 5\}$

Range: $\{1, 4, 6\}$

Function?: YES or **NO**

Explain: x-repeats w/ 2 diff y-values



Station 4

A.) Domain: $\{0 \leq x \leq 4\}$

Range: $\{0 \leq y \leq 4\}$

Function?: **YES** or NO

Explain: Passes vertical line test

B.) Domain: $\{-4 \leq x \leq 0\}$

Range: $\{0 \leq y \leq 4\}$

Function?: YES or **NO**

Explain: FAILS vertical line test

Station 5

A.) Domain: $\{-3, -2, -1, 0\}$

Range: $\{12, 13, 14, 15\}$

Function?: YES or **NO**

Explain: NO b/c the x-value -2 has 2 different y-values

B.) Domain: $\{2, 4\}$

Range: $\{3, 5, 7\}$

Function?: YES or **NO**

Explain: x-value repeats w/ 2 different y-values

Station 6

A.) Domain: $\{-7 \leq x < 5\}$

Range: $\{-3 \leq y < 1\}$

Function?: **YES** or NO

Explain: Passes vertical line test

B.) Domain: $\{-6 \leq x \leq 6\}$

Range: $\{0 \leq y \leq 6\}$

Function?: **YES** or NO

Explain: Passes vertical line test

Station 7

A.) Domain: $\{-3 < x < 4\}$

Range: $\{0 \leq y < 5\}$

Function?: YES or NO

Explain: Passes vertical line test

B.) Domain: $\{R\}$

Range: $\{R\}$

Function?: YES or NO

Explain: Passes vertical line test

Station 8

Equations:

A.) $y = 3x$

B.) $y = 2x - 1$

Station 9

Equations:

A.) $y = x + 3$

B.) $y = -3x$

Station 10

A.)

Dependent variable: total charge (fee)

Independent variable: # of hours

The function: $f(x) = 65x$

B.)

Dependent variable: total charge

Independent variable: # of months

The function: $f(x) = 10 + 4.99x$

Station 11

A.)

Dependent variable: total charge

Independent variable: # of months

The function: $f(x) = 100 + 10x$

B.)

Dependent variable: total charge

Independent variable: # of hours

The function: $f(x) = 90x$

Station 12

Solve for y (Show Work):

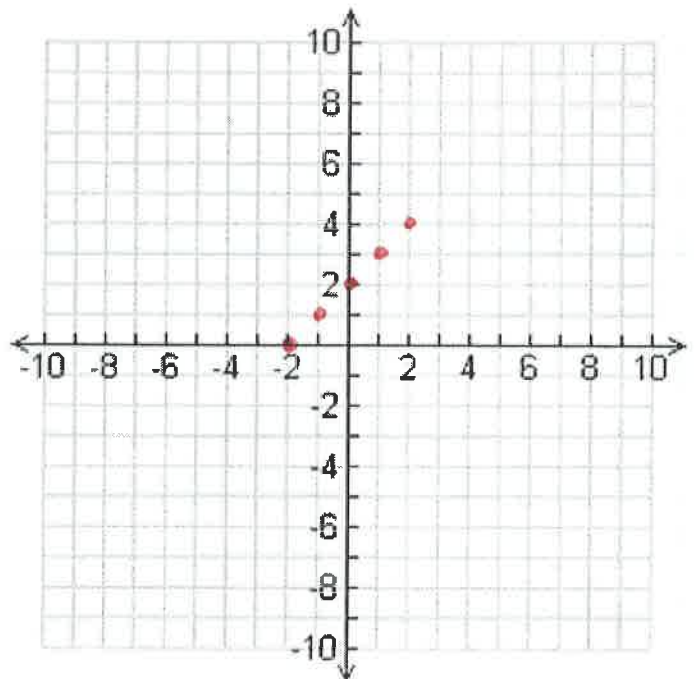
A.)
$$\begin{array}{r} 2y - x = 16 \\ +x \quad +x \\ \hline 2y = x + 16 \\ \frac{2y}{2} = \frac{x+16}{2} \\ \boxed{y = \frac{1}{2}x + 8} \end{array}$$

B.)
$$\begin{array}{r} 6x - 3y = -18 \\ -6x \quad -6x \\ \hline -3y = -6x - 18 \\ \frac{-3y}{-3} = \frac{-6x - 18}{-3} \\ \boxed{y = 2x + 6} \end{array}$$

Station 13

$$\begin{array}{r} 2y - 2x = 4 \\ +2x \quad +2x \\ \hline 2y = 2x + 4 \\ y = x + 2 \end{array}$$

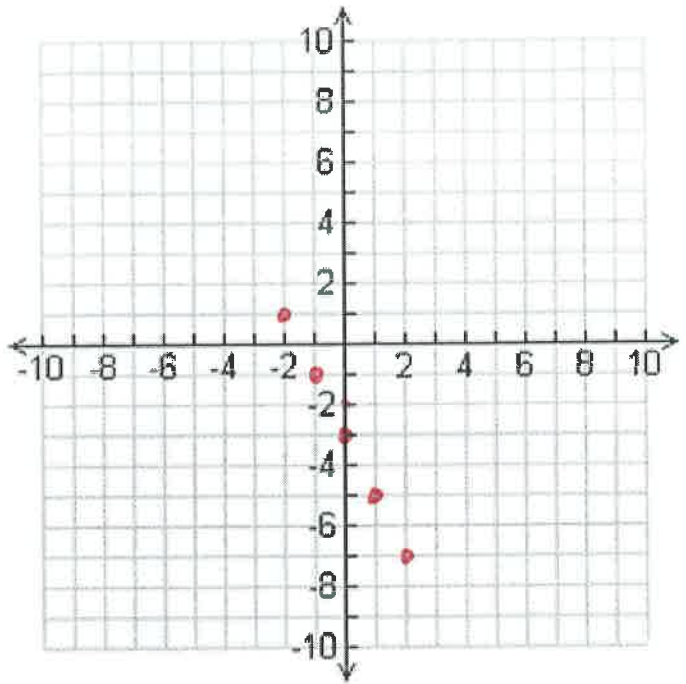
x		y
-2	$-2 + 2$	0
-1	$-1 + 2$	1
0	$0 + 2$	2
1	$1 + 2$	3
2	$2 + 2$	4



Station 14

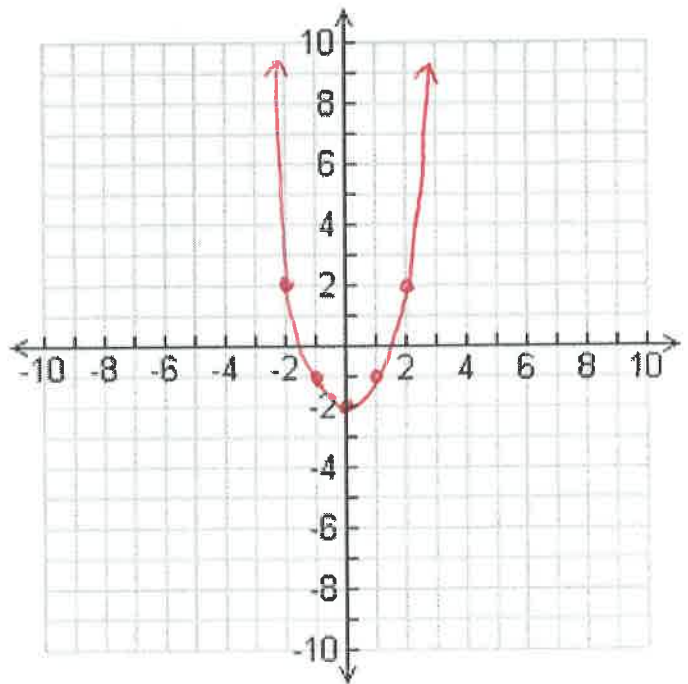
$$\begin{array}{r}
 -3y - 6x = 9 \\
 +6x + 6y \\
 \hline
 -3y = 6x + 9 \\
 y = -2x - 3
 \end{array}$$

x	y	y
-2	$-2(-2) - 3$ $4 - 3$	1
-1	$-2(-1) - 3$ $2 - 3$	-1
0	$-2(0) - 3$ $0 - 3$	-3
1	$-2(1) - 3$ $-2 - 3$	-5
2	$-2(2) - 3$ $-4 - 3$	-7



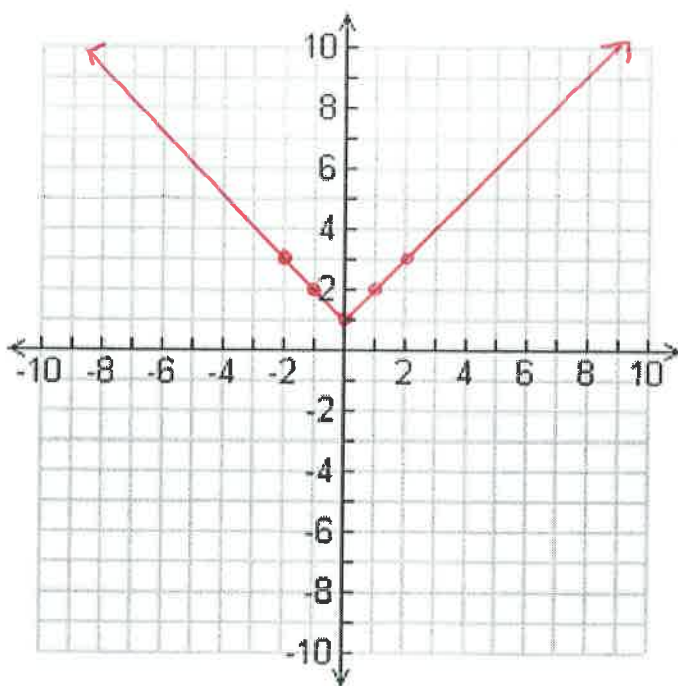
Station 15

x	y
-2	2
-1	-1
0	-2
1	-1
2	2



Station 16

x	$ x + 1$	y
-2	$ -2 + 1$ $2 + 1$	3
-1	$ -1 + 1$ $1 + 1$	2
0	$ 0 + 1$ $0 + 1$	1
1	$ 1 + 1$ $1 + 1$	2
2	$ 2 + 1$ $2 + 1$	3



Station 17

Evaluate (Show all work):

$$f(x) = 4x + 4$$

$$f(2) = 4(2) + 4$$

$$f(2) = 8 + 4$$

$$f(2) = 12$$

$$f(x) = 4x + 4$$

$$f(-1) = 4(-1) + 4$$

$$f(-1) = -4 + 4$$

$$f(-1) = 0$$

$$f(2) = \underline{\quad 12 \quad}$$

$$f(-1) = \underline{\quad 0 \quad}$$

Station 18

Evaluate (Show all work):

$$f(x) = -2x - 3$$

$$f(0) = -2(0) - 3$$

$$f(0) = 0 - 3$$

$$f(0) = -3$$

$$f(x) = -2x - 3$$

$$f(2) = -2(2) - 3$$

$$f(2) = -4 - 3$$

$$f(2) = -7$$

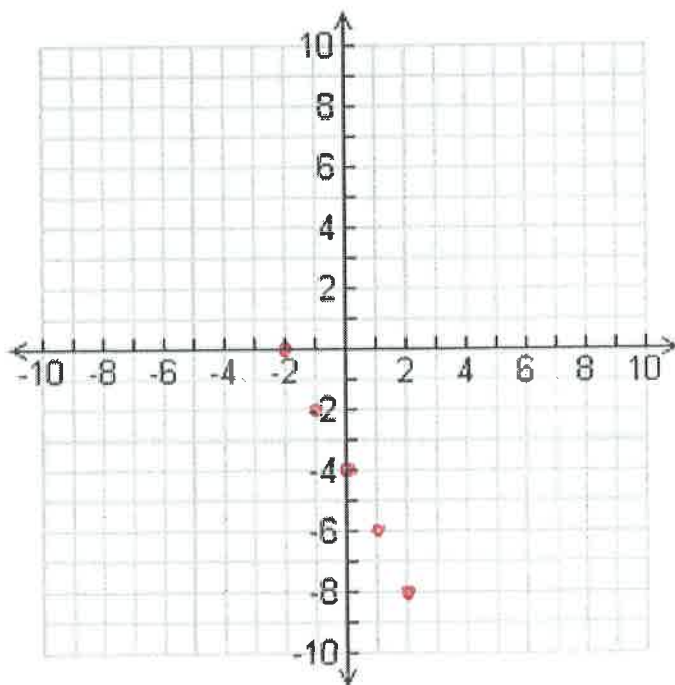
$f(0)$: -3

$f(2)$: -7

Station 19

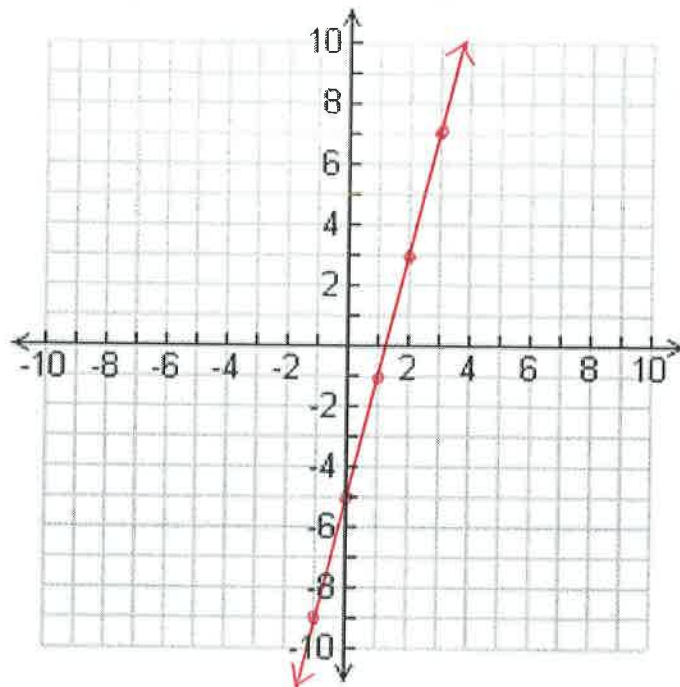
$$\begin{array}{r} -2y - 4x = 8 \\ +4x \quad +4x \\ \hline -2y = 4x + 8 \\ \quad \quad -2 \quad -2 \end{array}$$

x	$y = -2x - 4$	y
-2	$-2(-2) - 4$ $4 - 4$	0
-1	$-2(-1) - 4$ $2 - 4$	-2
0	$-2(0) - 4$ $0 - 4$	-4
1	$-2(1) - 4$ $-2 - 4$	-6
2	$-2(2) - 4$ $-4 - 4$	-8



Station 20

x	y
-1	-9
0	-5
1	-1
2	3
3	7



Extension: Challenge Problem

When the output of one function is used as the input of another, you have a **composition of functions**. The notation $f(g(x))$ means you input x into function g , and then use that output as the input for function f .

For the challenge problem, use functions $f(x) = x^2 - 4$ and $g(x) = -2x$.

- Use this table to find $f(g(x))$ for each x -value.

x	$g(x) = -2x$	$g(x)$	$f(x) = x^2 - 4$	$f(g(x))$
-2	$g(-2) = -2(-2) = 4$	4	$f(4) = 4^2 - 4 = 16 - 4 = 12$	12
-1	$g(-1) = -2(-1) = 2$	2	$f(2) = (2)^2 - 4 = 4 - 4 = 0$	0
0	$g(0) = -2(0) = 0$	0	$f(0) = (0)^2 - 4 = 0 - 4 = -4$	-4
1	$g(1) = -2(1) = -2$	-2	$f(-2) = (-2)^2 - 4 = 4 - 4 = 0$	0
2	$g(2) = -2(2) = -4$	-4	$f(-4) = (-4)^2 - 4 = 16 - 4 = 12$	12