Name _____ Per. _____ Date _____

Assessment #3 Review – Linear Equations

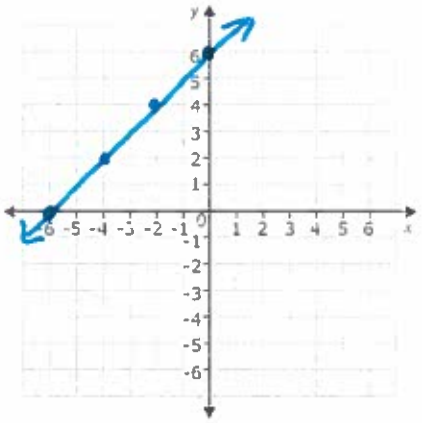
Directions: *For #1-2,* ***create a table*** *by (1) solving the given equation for y and (2) generating 4 coordinates using the x-values given. Then,* ***graph*** *the coordinates.*

1. $y - x = 6$

$+x \quad +x$

$y = 6 + x$

x	$6 + x$	y	(x, y)
-6	$6 + (-6)$	0	(-6, 0)
-4	$6 + (-4)$	2	(-4, 2)
-2	$6 + (-2)$	4	(-2, 4)
0	$6 + (0)$	6	(0, 6)

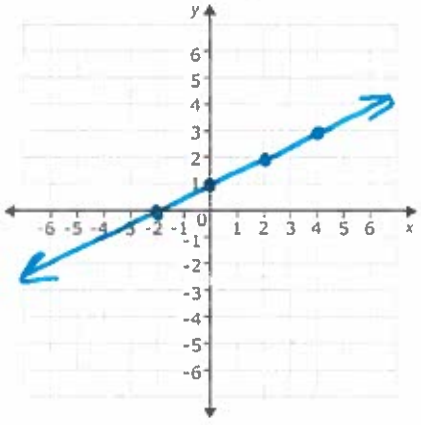


2. $-1 + y = \frac{1}{2}x$

$+1 \quad +1$

$y = \frac{1}{2}x + 1$

x	$\frac{1}{2}x + 1$	y	(x, y)
-2	$\frac{1}{2}(-2) + 1$	0	(-2, 0)
0	$\frac{1}{2}(0) + 1$	1	(0, 1)
2	$\frac{1}{2}(2) + 1$	2	(2, 2)
4	$\frac{1}{2}(4) + 1$	3	(4, 3)



DIRECTIONS: *For each of the following equations, calculate the* ***x- and y-intercepts*** *using* ***algebra.*** *Show all steps! (Be sure to label which intercept is which.)*

3. $3x - 2y = -6$

$3(0) - 2y = -6$

$-2y = -6$

$y = 3$

(0, 3)

y-int.

$3x - 2(0) = -6$

$3x = -6$

$x = -2$

(-2, 0)

x-int.

4. $y = -15 + 3x$

$y = -15 + 3(0)$

$y = -15$

(0, -15)

y-int

$0 = -15 + 3x$

$15 = 3x$

$x = 5$

(5, 0)

x-int

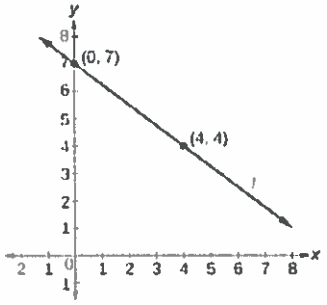
DIRECTIONS: *For the following tables, graphs, or coordinates, calculate the* ***slope****.*

5.

x	y
4	3
8	3
12	3

$\frac{3-3}{8-4} = \frac{0}{4} =$ 0 slope

6.



$\frac{7-4}{0-4} = \frac{3}{-4}$

$\frac{-3}{4}$

7. (6, –7) and (4, –8)

$\frac{-8-(-7)}{4-6} = \frac{-1}{-2} = \frac{1}{2}$

Word Problem Party!

8. It is expected that 563 quadrillion thermal units of Btu (British thermal units) of energy will be consumed worldwide in 2015. In 2003, worldwide consumption was 421 quadrillion Btu. What is the expected rate of change in consumption from 2003 to 2015?

$\frac{563-421}{2015-2003} = \frac{142}{12} = 11.8$ quadrillion Btu/yr.

9. **TEMPERATURE** The equation y = -15 + 3x represents the outside temperature, y, in degrees Fahrenheit, in a small Alaskan town where x represents the number of hours after midnight. What is the **y-intercept** of this equation? **Interpret** it in context.

$y = -15 + 3(0)$

$y = -15$

$(0, -15)$

If it is 0 hours after midnight, aka midnight, then it is -15° F.

10. **PENGUINS** An emperor penguin travels a distance of 70 miles each year back to the place of its birth. If that same penguin moves at a speed of 2.4 miles per hour, the function $y = 70 - 2.4x$ represents its distance y from its birthplace x hours after it has started its journey home. What is the **x-intercept** of this equation? **Interpret** it in context.

$0 = 70 - 2.4x$

$-70 = -2.4x$

$x = 29.2$

(29.2, 0)

If the penguin has travelled 29.2 miles, then it has reached its home.

11. In 2004, there were approximately 275 students in the Delaware High School band. In 2010, that number increased to 305. Find the annual rate of change in the number of students in the band.

$\frac{275-305}{2004-2010} = \frac{-30}{-6} =$ 5 students/yr.