Name: Date: KEY Hour:

Algebra 1
WS Unit 2 Test Review

1. Find the domain and range of each relation.

a. {(1, 5), (-1, 3), (2, 7), (8, 10), (-2, 3)}

D: $\{-2, -1, 1, 2, 8\}$

R: $\{3, 3, 5, 7, 10\}$

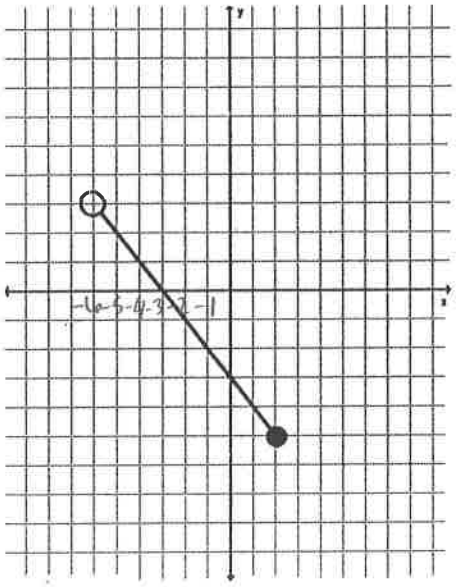
c.

x	-3	-1	0	1	3
y	2	6	10	14	18

D: $\{-3, -1, 0, 1, 3\}$

R: $\{2, 6, 10, 14, 18\}$

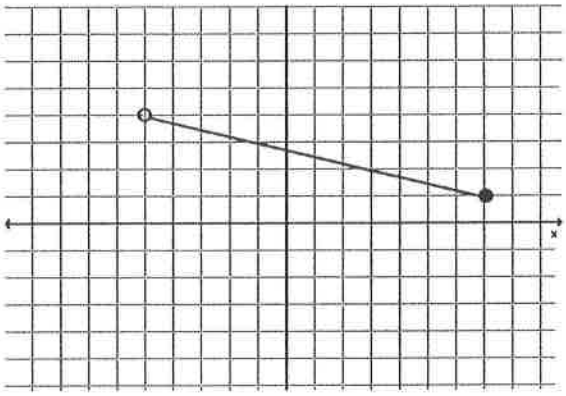
b.



D: $\{-6 < x \leq 2\}$

R: $\{-5 \leq y < 3\}$

d.



D: $\{-5 < x \leq 7\}$

R: $\{1 \leq y < 4\}$

2. Using the examples in #1, determine if each represents a linear function. Explain your reasoning.

$\frac{\Delta y}{\Delta x}$

a. Nonlinear, b/c not constant rate of change $\frac{0}{1}$ $\frac{2}{2}$ $\frac{2}{1}$ $\frac{3}{2}$

b. Nonlinear $\frac{4}{2}$ $\frac{4}{1}$ $\frac{4}{1}$ $\frac{4}{2}$

c. Linear b/c it is a straight line

d. Linear b/c it is a straight line

3. If $f(x) = 3x - 5$ and $g(x) = 3 - 5x$, evaluate each of the following.

a. $g(-3)$ ($x=-3$)

$g(-3) = 3-5(-3)$

$= 3+15$

$g(-3) = 18$

$(-3, 18)$

b. $f(4)$ ($x=4$)

$f(4) = 3(4)-5$

$= 12-5$

$f(4) = 7$

$(4, 7)$

c. $g(2) - f(-1)$ ($x=2$, $x=-1$)

$3-5(2)$	$3(-1)-5$
$3-10$	$-3-5$
-7	-8

$g(2) - f(-1) = 1$

4. Alan pays Comcast \$5 per movie rental plus an \$80 fee. ($5x$ + 80)

a. Write a function, in function notation, to represent Alan's total bill.

$f(x) = 5x + 80$

b. How much is Alan's bill if he rents 6 movies? ($x=6$)

$f(6) = 5(6) + 80$

$= 30 + 80$

$= \$110$

c. If Alan's bill was \$130, how many movies did he rent?

$130 = 5x + 80$

$-80 \quad -80$

$\frac{50}{5} = \frac{5x}{5}$

$x =$ 10 movies

4. Find the x- and y-intercepts of the following equations (write as on ordered pair).

a. $-x + 2y = 12$

x-int: $y=0$

$-x + 2(0) = 12$

$\frac{-1x}{-1} = \frac{12}{-1}$

$x = -12$

$(-12, 0)$

y-int: $x=0$

$-0 + 2y = 12$

$\frac{2y}{2} = \frac{12}{2}$

$y = 6$

$(0, 6)$

b. $6y + 3x = -18$

x-int: $y=0$

$6(0) + 3x = -18$

$\frac{3x}{3} = \frac{-18}{3}$

$x = -6$

$(-6, 0)$

y-int: $x=0$

$6y + 3(0) = -18$

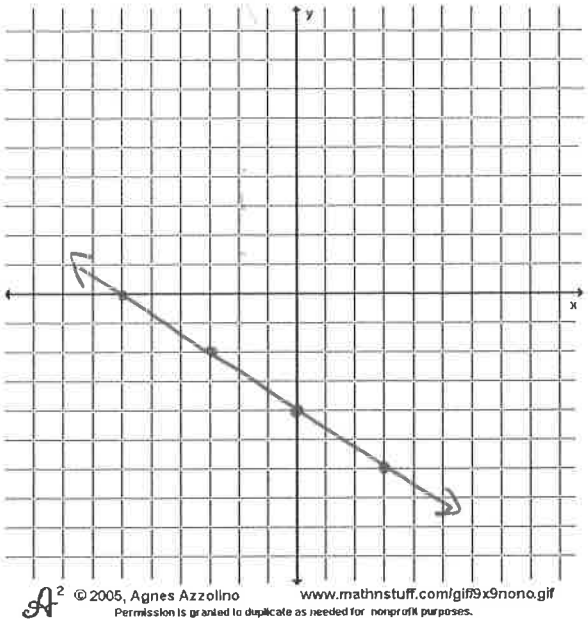
$\frac{6y}{6} = \frac{-18}{6}$

$y = -3$

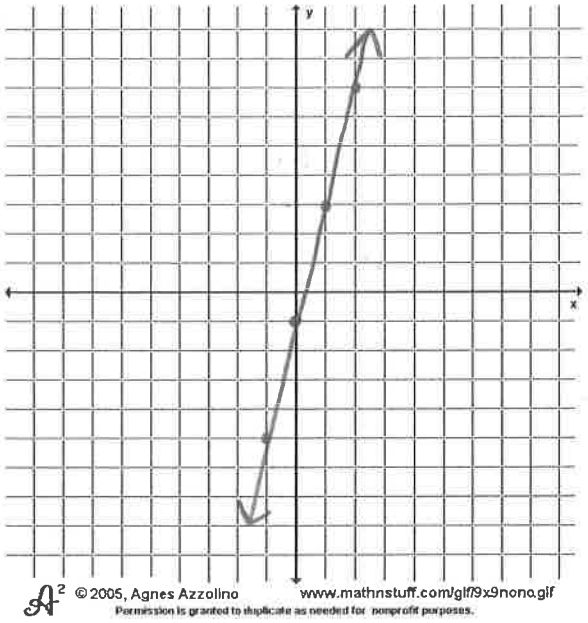
$(0, -3)$

5. Graph each function.

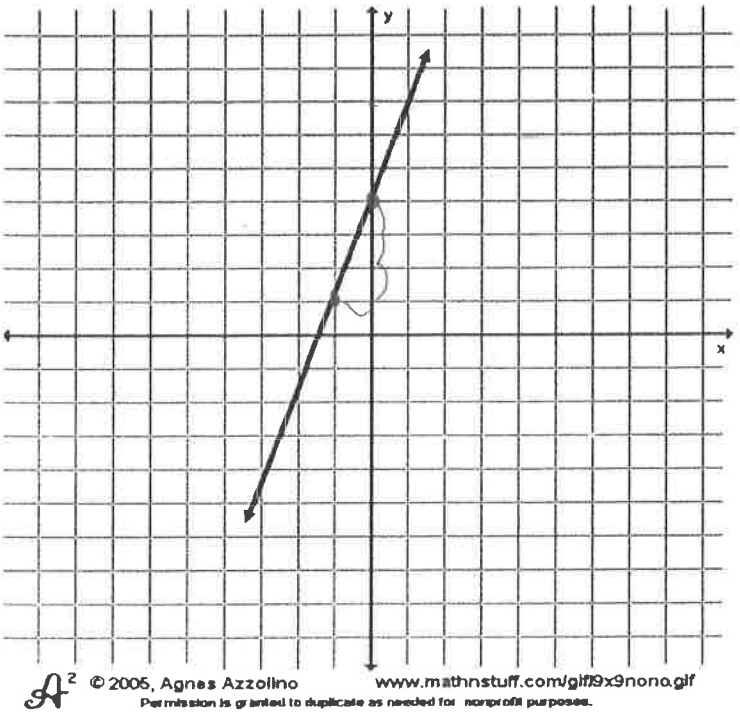
a. $f(x) = -\frac{2}{3}x - 4$



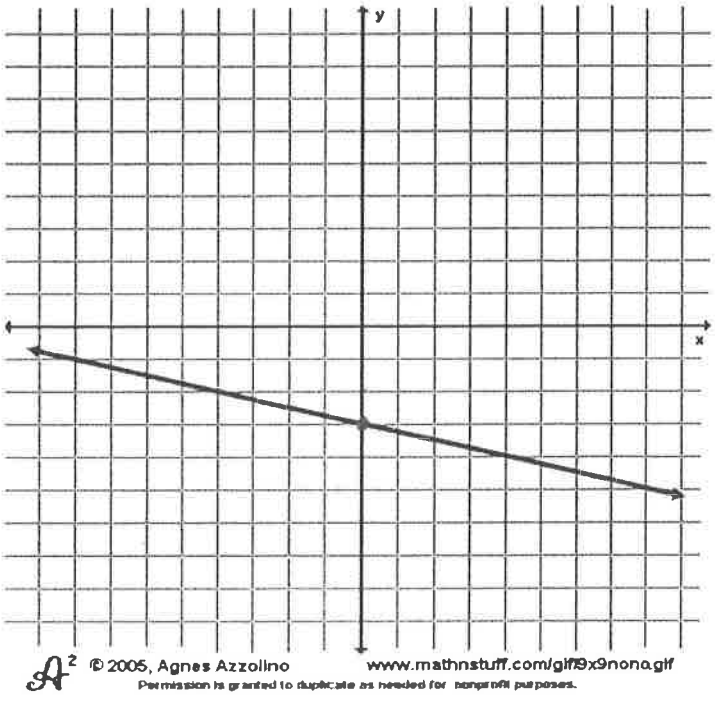
b. $f(x) = 4x - 1$



6. Write the equation of the line, in slope intercept form, for each graph.



$y = 3x + 4$

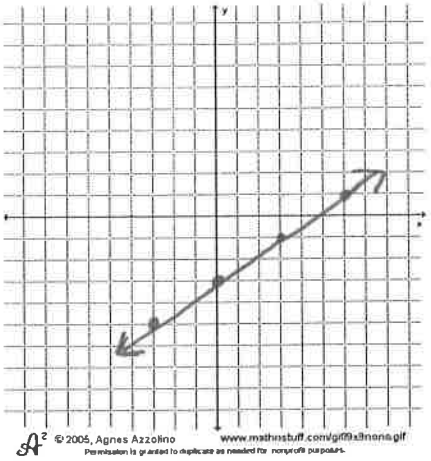


$y = -\frac{1}{4}x - 3$

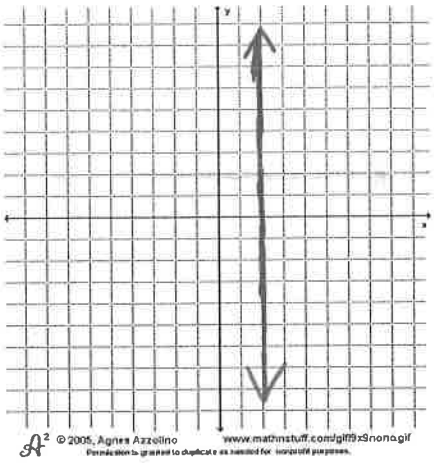
7. Graph each equation.

$2x - 3y = 9$

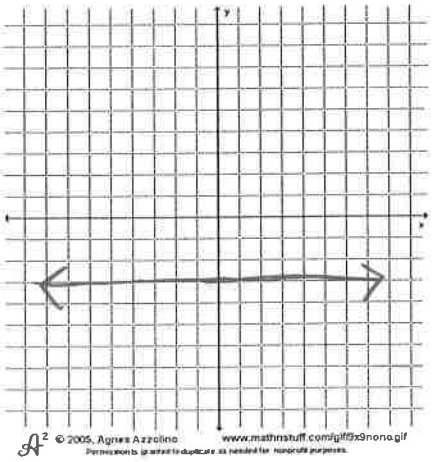
$2x-3y=9$
$-2x \quad -2x$
$-3y = -2x+9$
$\frac{-3y}{-3} = \frac{-2x}{-3} + \frac{9}{-3}$
$y = \frac{2}{3}x - 3$



$x = 2$ VUX

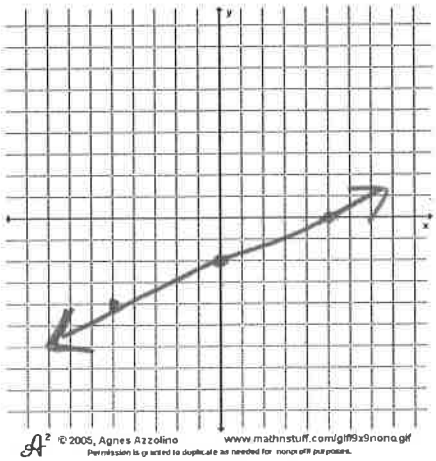


$y = -3$ HOY



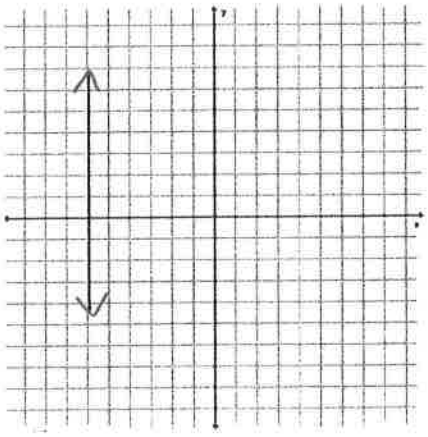
$-5y + 2x = 10$

$-5y+2x=10$
$-2x \quad -2x$
$\frac{-5y}{-5} = \frac{-2x+10}{-5}$
$y = \frac{2}{5}x - 2$



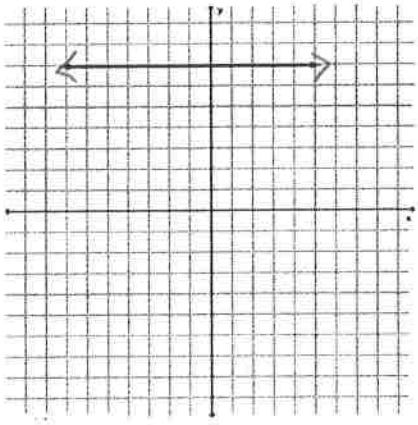
8. Write the equation of each line.

VUX



$x = -6$

HOY



$y = 7$

9. Describe the transformation for each linear function when compared to the parent function $f(x) = x$.

a. $k(x) = 3x - 1$

stretched by a factor of 3
translated 1 unit down

b. $g(x) = -\frac{5}{6}x + 4$

reflected in the y-axis, compressed by a factor of $\frac{5}{6}$,
translated 4 units up

c. $h(x) = -2x + 3$

reflected in the y-axis, stretched by a factor of 2,
translated 3 units up

d. $y = \frac{10}{7}x + 20$

stretched by a factor of $\frac{10}{7}$,
translated 20 units up

10. Write a linear function for each transformation described below.

a. Reflected in the y-axis, stretched by a factor of 3, and translated 7 units up

$y = -3x + 7$

b. Translated 9 units down, compressed by your choice

$y = \frac{3}{5}x - 9$

c. Stretched by a factor of $\frac{5}{4}$, translated 6 units down, reflected in the y-axis

$y = -\frac{5}{4}x - 6$

d. Compressed by a factor of $\frac{8}{11}$, translated 5 units up

$y = \frac{8}{11}x + 5$

e. Reflected in the y-axis, translated 3 units down

$y = -x - 3$