Are there any Homework Questions you would like to see on the board?

Last day's work: pp. 46-49 #2 – 4, (5 – 7)ace, 12
[19, 20]

5e

Today's Homework Practice includes:

pp. 76-77 #1 – 5, 7, 8, 10, 12* – 19
*use web fix

p.47 5e)

$f(x) = 6 - 5x$

$y = 6 - 5x$

$x = 6 - 5y$

$5y = -x + 6$

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

same as $f^{-1}(x) = \frac{6-x}{5}$

Review for Chapter 1 - Introduction to Functions

1. Describe the transformations to $f(x)$

$$g(x) = -3f\left(\frac{1}{2}(x-2)\right)+4$$

→ affect the "y"

reflection in x-axis
V.S. by a factor of 3
h.s. by a factor of 2
translate 2 right & 4 up

2. a) Write an equation using the **square root** mother function for the following transformations:

-Vertical compression by a factor of $\frac{1}{3}$

$y = \frac{1}{3}\sqrt{-\frac{1}{2}(x+4)} + 5$

-Horizontal stretch by a factor of 2
-Reflection in the y-axis
-Translated vertically up 5
-Translated horizontally left 4

b) Write an equation for the above transformations if the mother function is the reciprocal function.

$y = \frac{\frac{1}{3}}{-\frac{1}{2}(x+4)} + 5$

3. If (-2, 5) is a point on the function, determine the coordinates of the image of this point on the graph.

$$f(x) = -2f\left(\frac{1}{3}(x-4)\right)+6$$

$(x, y) \rightarrow (3x+4, -2y+6)$

$\rightarrow (3(-2)+4, -2(5)+6)$

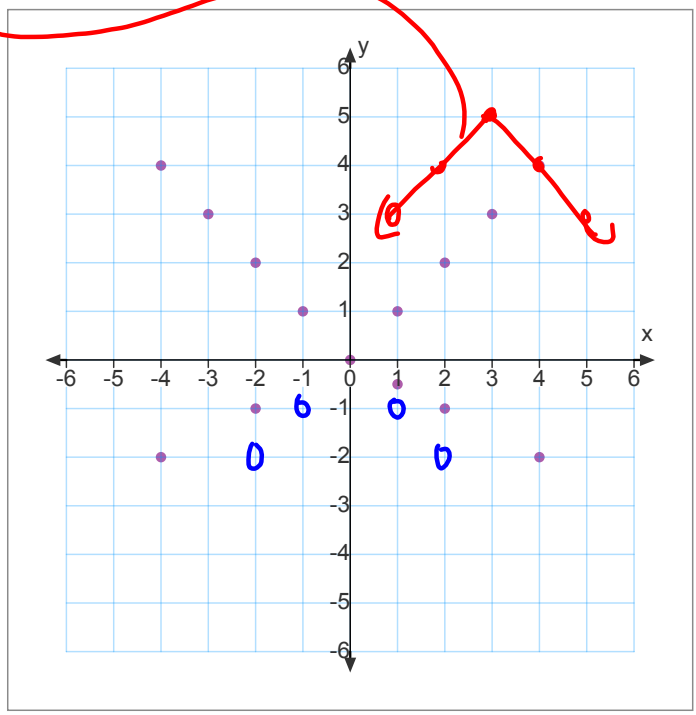
$\rightarrow (-6+4, -10+6)$

$\rightarrow (-2, -4)$

4. Graph each of the following functions and determine the domain and range.

a) $y = -\frac{1}{2}|2x-6|+5$

$= -\frac{1}{2}|2(x-3)|+5$

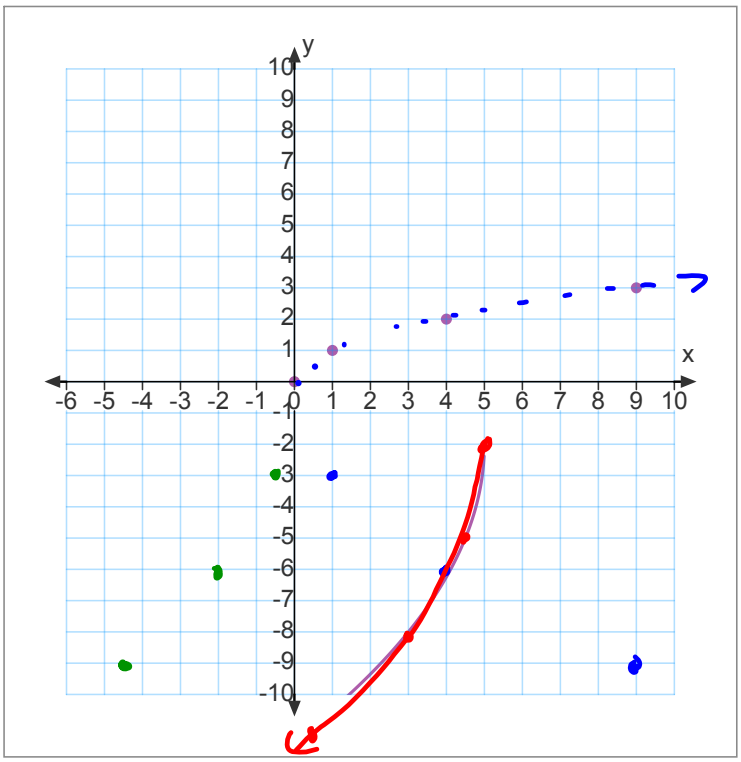


b) $f(x) = -3\sqrt{-2x+10}-2$

$y = -3\sqrt{-2x+10}-2$

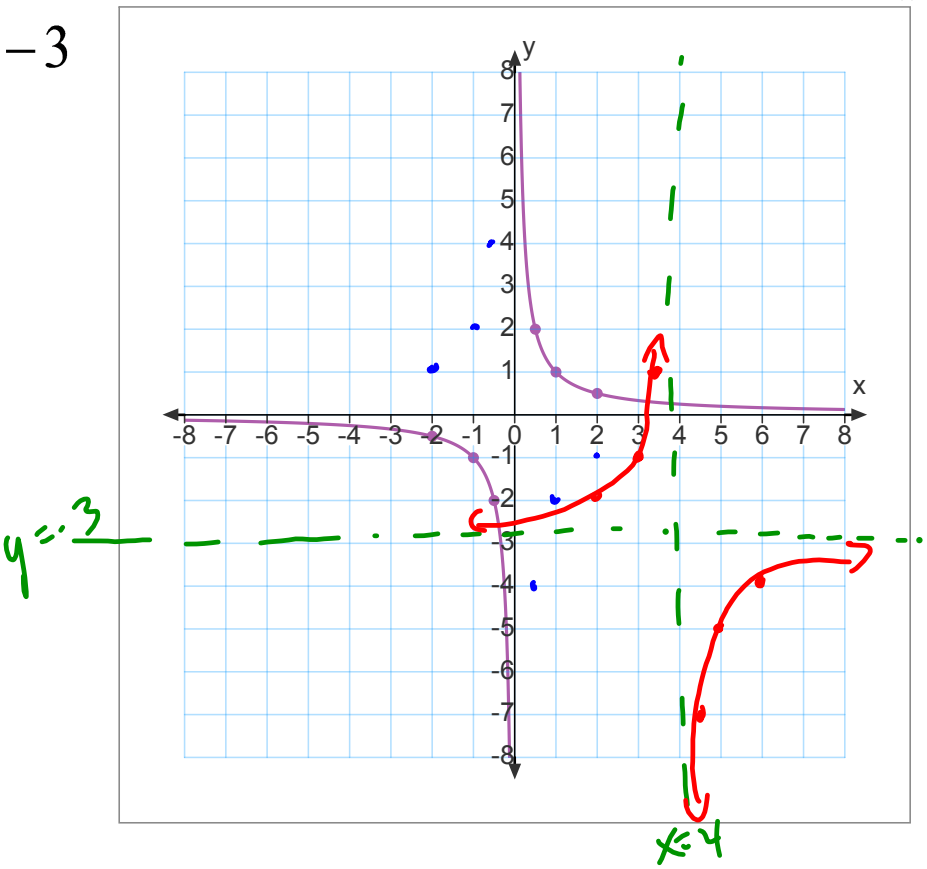
$= -3\sqrt{-2(x-5)}-2$

$=$



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

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



5. If $f(x) = 3x - 5$ and $g(x) = 2x^2 - 5$

Determine each of the following:

a) $f(-2)$

$= 3(-2) - 5$
$= -6 - 5$
$= -11$

b) $f(2) + g(-2)$

$= 3(2) - 5 + 2(-2)^2 - 5$
$= 1 + 3$
$= 4$

c) $g(x-3)$

$= 2(x-3)^2 - 5$
$= 2(x^2 - 6x + 9) - 5$
$= 2x^2 - 12x + 18 - 5$
$= 2x^2 - 12x + 13$

d) $f(x) = -3$

$-3 = 3x - 5$
$-3 + 5 = 3x$
$2 = 3x$
$\frac{2}{3} = x$

6. Determine the inverse of each of the following functions

a) $f(x)=4x-5$

$x=4y-5$

$x+5=4y$

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

$f^{-1}(x)=\frac{x+5}{4}$

b) $\{(-5,3),(2,4),(6,-1),(-2,8)\}$

Inverse $\{(3,-5),(4,2),(-1,6),(8,-2)\}$

c) $y=-3(x-5)^2+8$

$x=-3(y-5)^2+8$

$\frac{x-8}{-3}=(y-5)^2$

$\pm\sqrt{\frac{x-8}{-3}}=y-5$

$\pm\sqrt{\frac{x-8}{-3}}+5=y$

Not a function

d) $f(x)=-2\sqrt{3x-6}+5$

$x=-2\sqrt{3y-6}+5$

$\frac{x-5}{-2}=\sqrt{3y-6}$

$\left(\frac{x-5}{-2}\right)^2=3y-6$

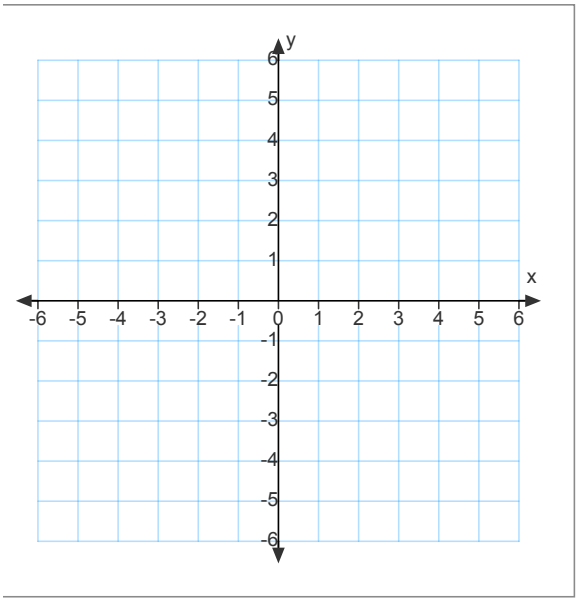
$\left(\frac{x-5}{-2}\right)^2+6=3y$

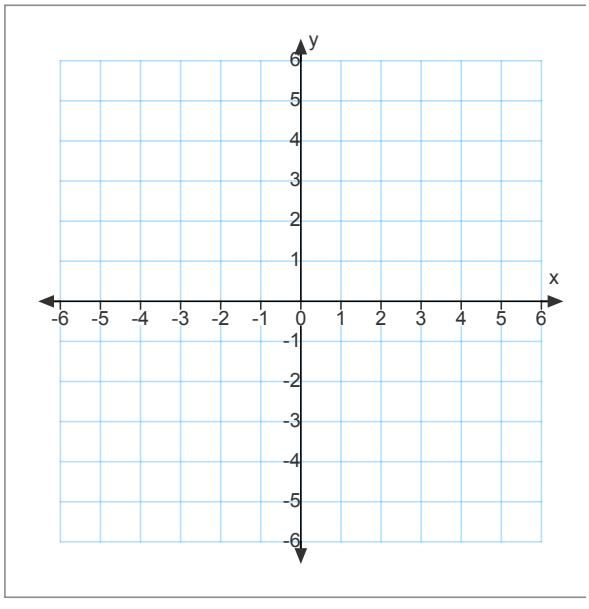
$\frac{\left(\frac{x-5}{-2}\right)^2+6}{3}=y$

7. Graph each of the original functions and their inverses from #6

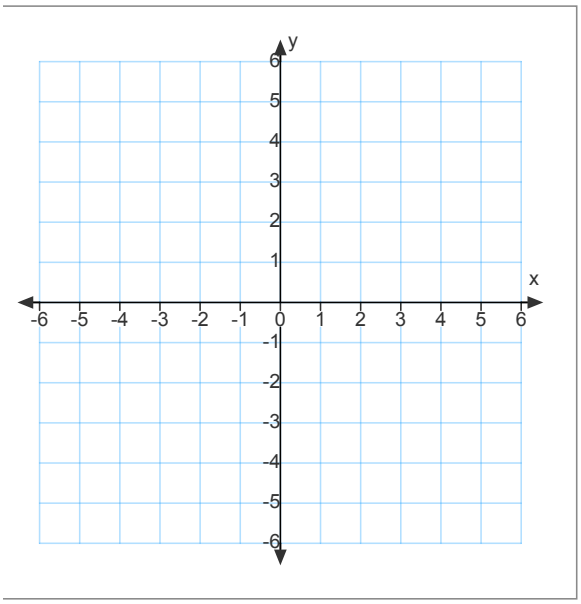
a) $f(x)=4x-5$

b) $\{(-5,3),(2,4),(6,-1),(-2,8)\}$

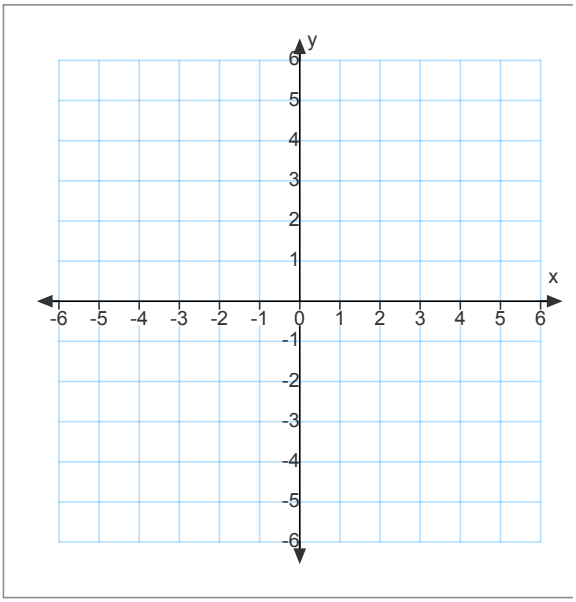




c) $y = -3(x-5)^2 + 8$

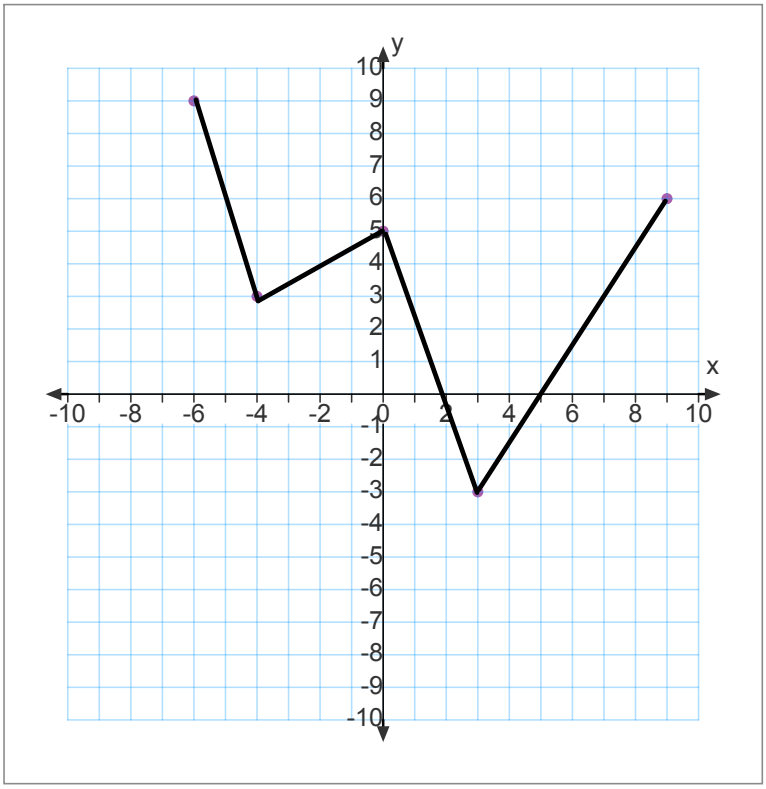


d) $f(x) = -2\sqrt{3x-6} + 5$



8. Determine the domain and range of each inverse function above.

9. Given $f(x)$, graph $f(-2x)$.



10. Determine the domain and range of each function in all the questions above.

11. Be able to identify what are functions and WHY - just like quiz

Go over old quizes and homework