

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

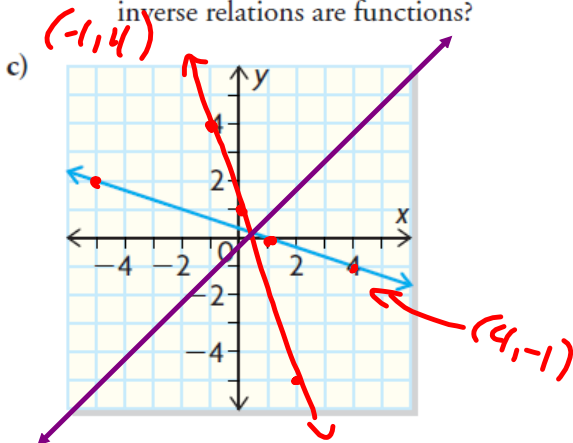
Last day's work: pp. 46-49 #2 – 4, (5 – 7)ace, 12

~~SWYK First?~~

[19, 20]

Return and Correct Last day's Checkpoint 2.1

- p. 46 2. Copy the graph of each function and graph its inverse. For each graph, identify the points that are common to the function and its inverse. Which inverse relations are functions?



- p. 47 4. For each linear function, interchange x and y . Then solve for y to determine the inverse.

a) $y = 4x - 3$

b) $y = 2 - \frac{1}{2}x$

c) $3x + 4y = 6$

d) $2y - 10 = 5x$

$\rightarrow 3y + 4x = 6$

$3y = -4x + 6$

$y = -\frac{4}{3}x + \frac{6}{3}$

$= -\frac{4}{3}x + 2$

b) $x = 2 - \frac{1}{2}y$

$\frac{-2}{1}(x-2) = \frac{1}{2}y$

$-2x + 4 = y$

- p. 47 5. Determine the inverse of each linear function by ~~reversing the operations~~

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

c) $f(x) = 5x$

e) $f(x) = 6 - 5x$

b) $f(x) = 3x + 1$

d) $f(x) = \frac{1}{2}x - 1$

f) $f(x) = \frac{3}{4}x + 2$

$y = \frac{3}{4}x + 2$

$x = \frac{3}{4}y + 2$

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

$\frac{4x-8}{3} = \frac{3y}{3}$

$\frac{4x-8}{3} = y$

p. 47 6. Determine the inverse of each linear function by interchanging the variables.

a) $f(x) = x + 7$

c) $f(x) = 5$

e) $f(x) = x$

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

d) $f(x) = -\frac{1}{5}x - 2$

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

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

$4x = y - 3$

$4x + 3 = y$

7. Sketch the graph of each function in questions 5 and 6, and sketch its inverse. Is each inverse linear? Is each inverse a function? Explain.

For 5e) 5. Determine the inverse of each linear function by reversing the operations.

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

c) $f(x) = 5x$

e) $f(x) = 6 - 5x$

b) $f(x) = 3x + 1$

d) $f(x) = \frac{1}{2}x - 1$

f) $f(x) = \frac{3}{4}x + 2$

e) $f(x) = 6 - 5x$
 $y = 6 - 5x$
 $x = 6 - 5y$

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

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

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

$= -\frac{1}{5}x + \frac{6}{5}$

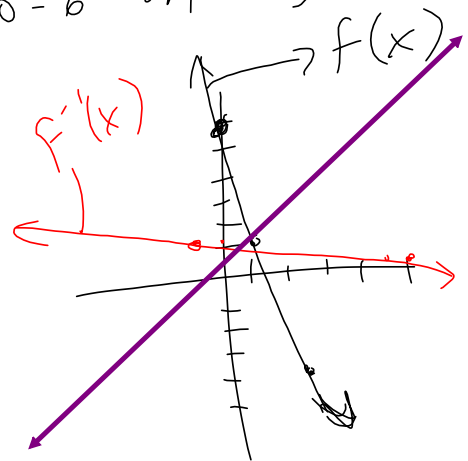
$b = \frac{6}{5} \quad m = -\frac{1}{5}$

also $y = -5x + 6$
 $b = 6 \quad m = -5$

$x = 6 - 5y$

$5y = -x + 6$

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



p. 47

12. The formula for converting a temperature in degrees Celsius into degrees

A Fahrenheit is $F = \frac{9}{5}C + 32$. Shirelle, an American visitor to Canada, uses a simpler rule to convert from Celsius to Fahrenheit: Double the Celsius temperature, then add 30.

- Use function notation to write an equation for this rule. Call the function f and let x represent the temperature in degrees Celsius.
- Write f^{-1} as a rule. Who might use this rule?
- Determine $f^{-1}(x)$.
- One day, the temperature was 14°C . Use function notation to express this temperature in degrees Fahrenheit.
- Another day, the temperature was 70°F . Use function notation to express this temperature in degrees Celsius.

$$f(x) = 2x + 30$$

$$f(14) = 2(14) + 30$$

$$= 28 + 30$$

$$= 58$$

$$C(70) = \frac{70}{2} - 15$$

$$= 35 - 15$$

$$= 20$$

$$b) \quad y = 2x + 30$$

$$x = \frac{y - 30}{2}$$

$$x - 30 = 2y$$

$$\frac{x - 30}{2} = y$$

$$\text{or } y = \frac{x - 30}{2} \quad \text{or } y = \frac{x}{2} - \frac{30}{2}$$

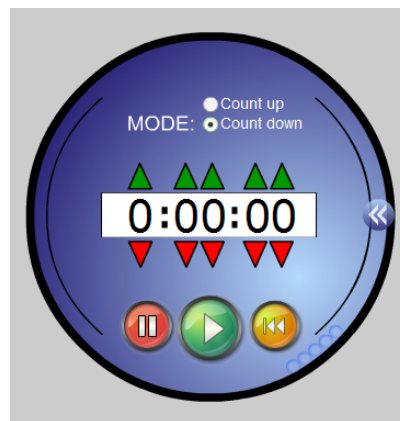
$$= \frac{x}{2} - 15$$

$$f^{-1}(x) = \frac{x}{2} - 15$$

$$C(f) = \frac{f}{2} - 15$$

Time to: **Show What You Know**

*Please clear off and **separate** your desks.*



Today's Homework Practice includes:

pp. 76-77 #1 – 5, 7, 8, 10, 12* – 19

*use web fix

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Review for Chapter 1 - Introduction to Functions

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

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

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

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

-Horizontal stretch by a factor of 2

-Reflection over the y-axis

-Translated vertically up 5

-Translated horizontally left 4

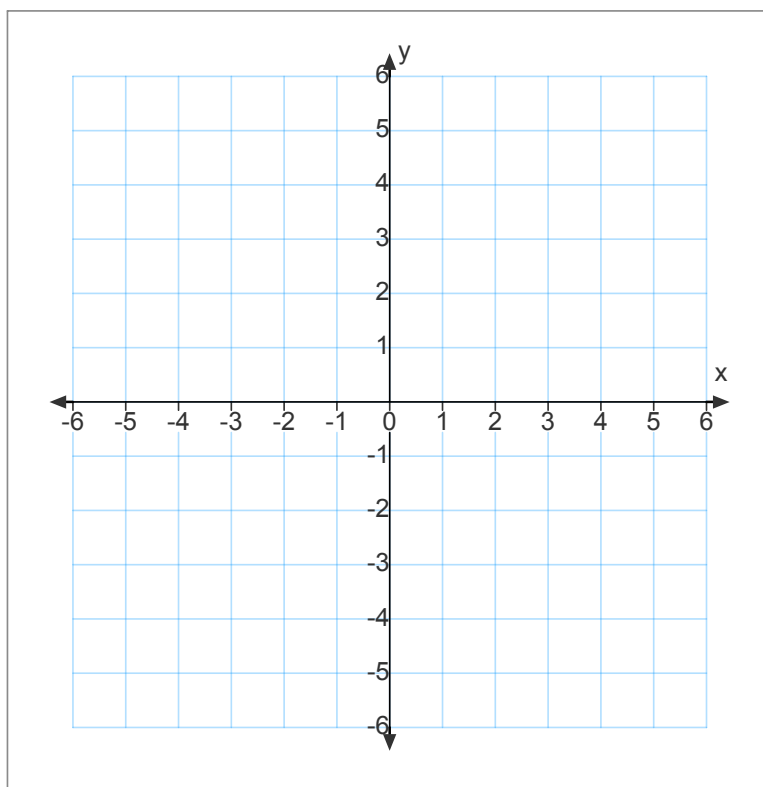
b) Write an equation for the above transformations if the mother function is the reciprocal function.

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

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

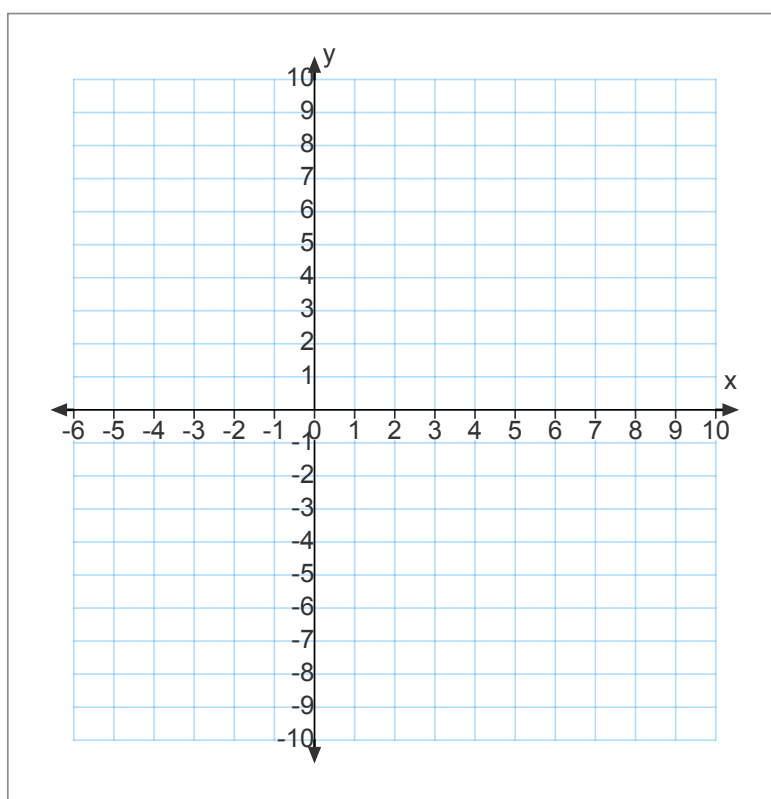
4. Graph each of the following functions and determine the domain and range.

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



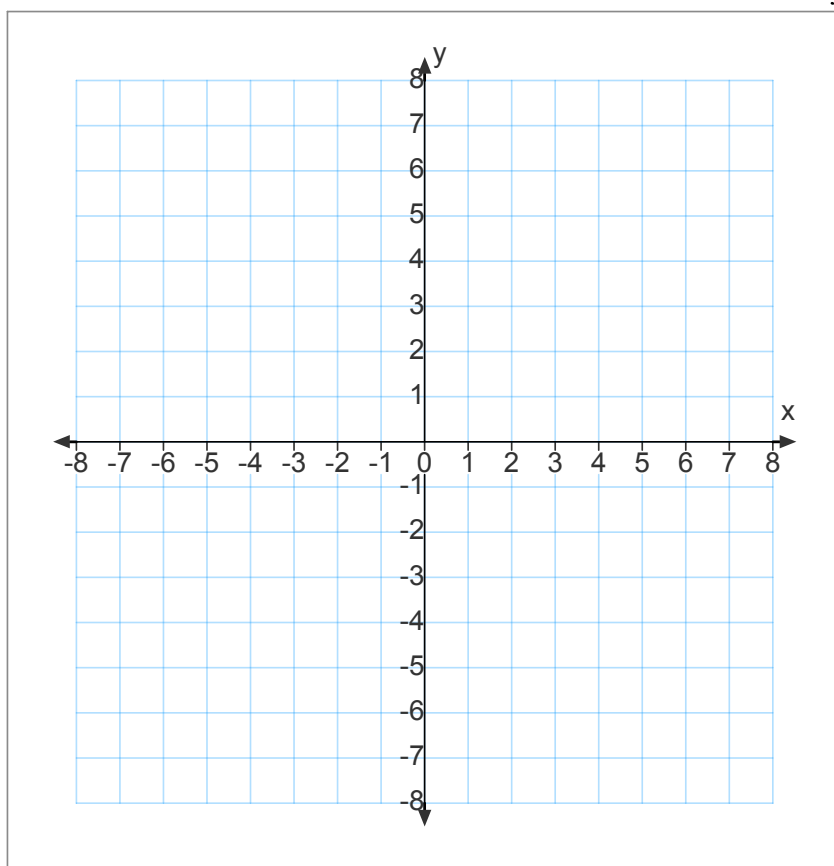
b) $f(x) = -3\sqrt{-2x+10} - 2$

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



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

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



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

Determine each of the following:

a) $f(-2)$

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

c) $g(x - 3)$

d) $f(x) = -3$

6. Determine the inverse of each of the following functions

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

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

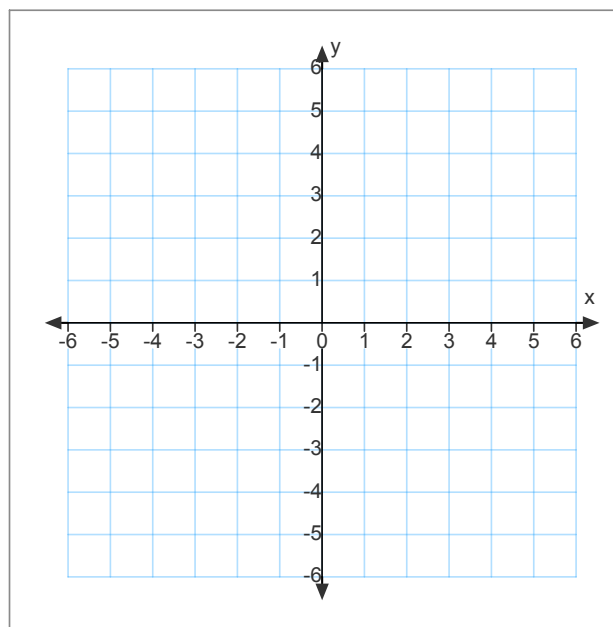
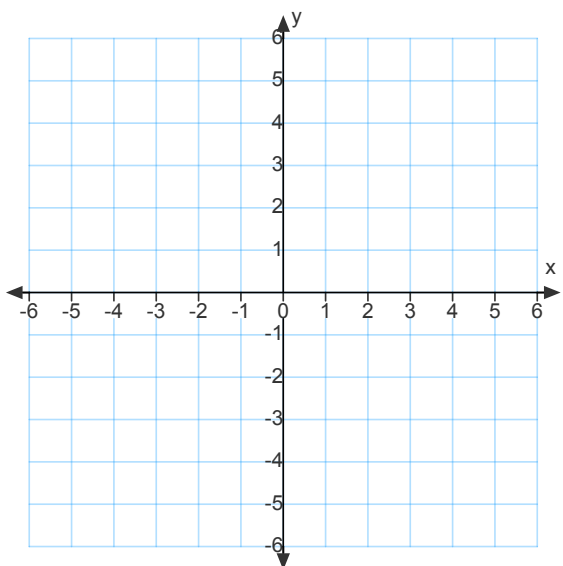
c) $y = -3(x - 5)^2 + 8$

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

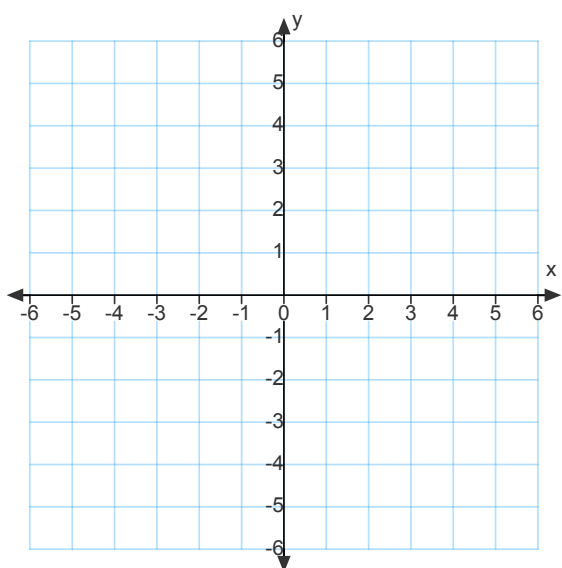
7. Graph each of the original functions and their inverses from #6

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

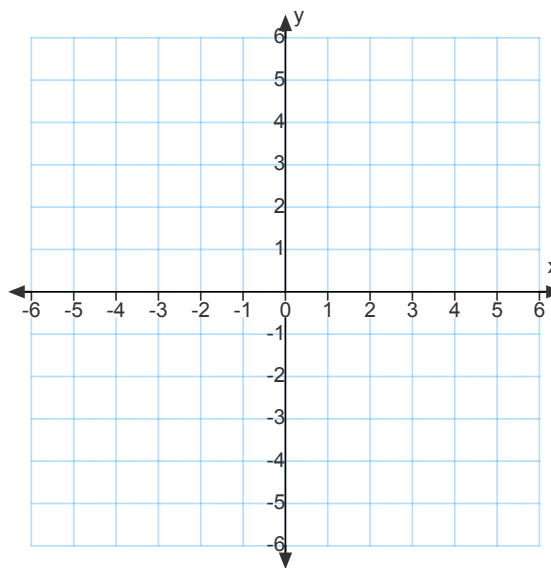
b) $\{(-5,3), (2,4), (6,-1), (-2,8)\}$



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

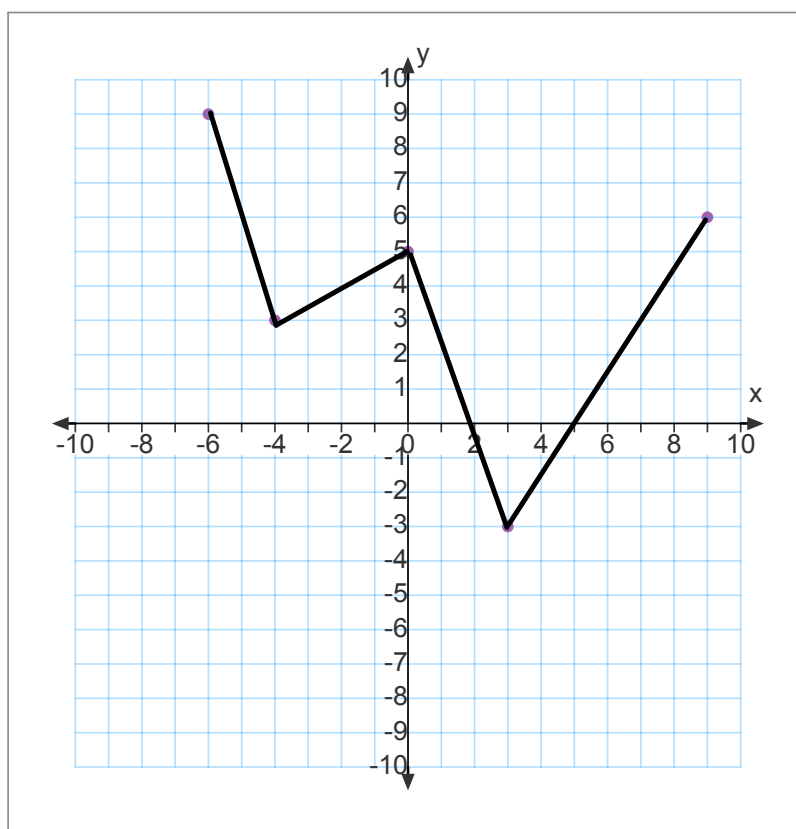


d) $f(x) = -2\sqrt{3x - 6} + 5$



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 quizzes and homework