Pre-Calculus **Section 2.4 Worksheet [Day 2]** **Name:**_____
Sept 2013

Suppose the graph of $f(x)$ is given. Describe the transformations that would be performed on $f(x)$ to obtain the function.

1. y = f(x) + 3

2. y = f(x + 3)

3. y = f(-x) – 2

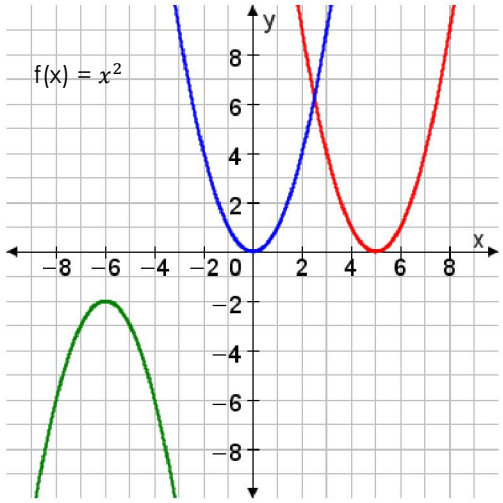
4. y = -2f(x)

5. $y = \frac{2}{3}f(x - 3)$

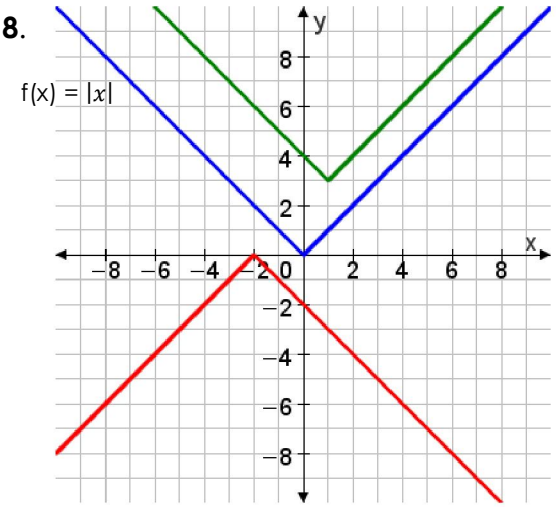
6. y = f(5x) + 1

The graphs of functions f, g, and h are given. Use function f to find a formula for functions g and h.

7.



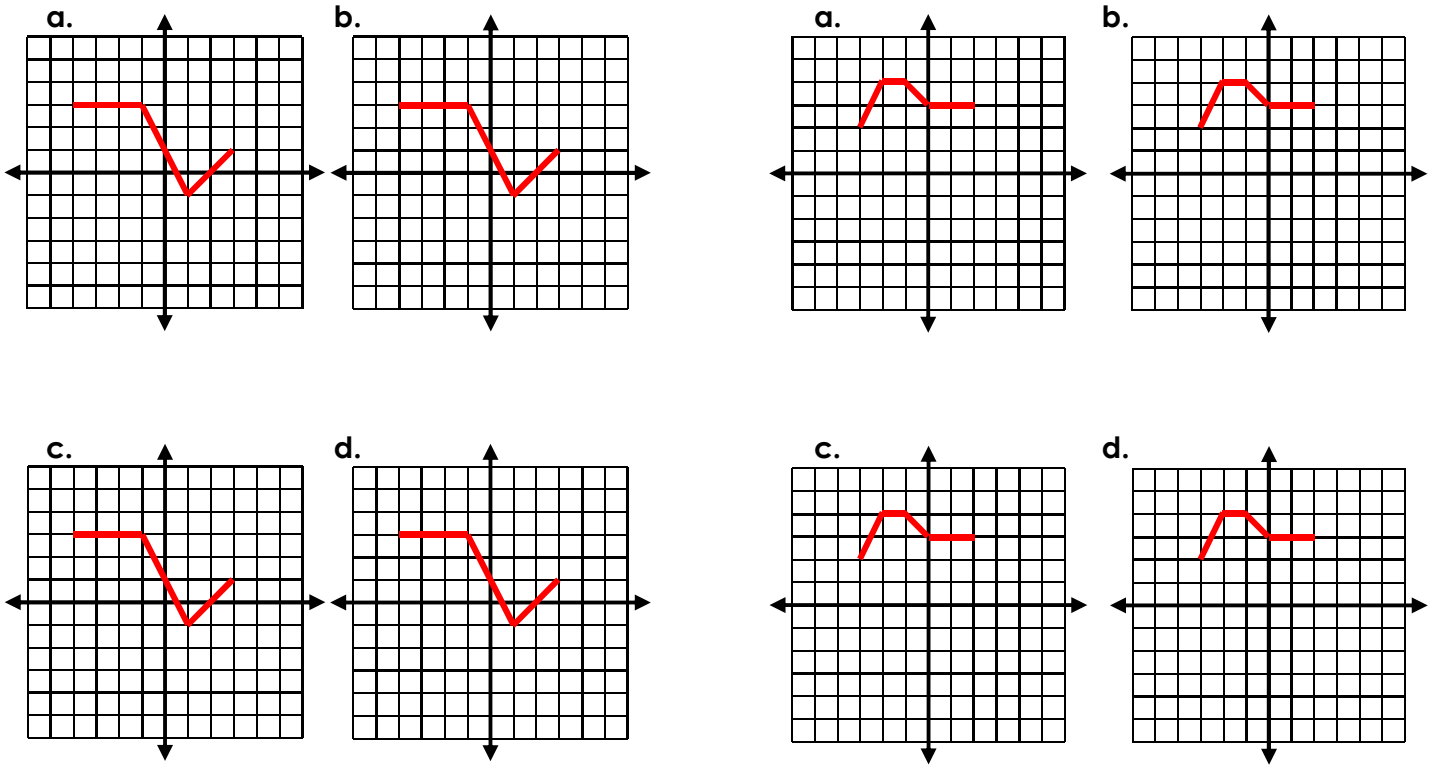
8.



The graph of $f(x)$ is given. Sketch the graphs of the given functions.

9. **a**) y = -f(x) **b**) y = f(2x) **c**) y = 2f(x) – 1 **d**) y = f(x – 2) + 2

10. **a**) y = f(-x) **b**) y = $f\left(\frac{1}{2}x\right)$ + 1 **c**) y = $-\frac{1}{2}$f(x) **d**) y = f(x + 1)



A function f is given , and the indicated transformations are applied to its graph (in the given order). Write the equation for the final transformed graph.

11. $f(x) = x^3$; shift left 1, stretch vertically by a factor of 3, shift up 1

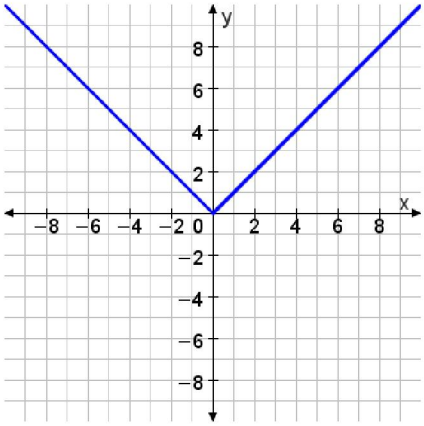
12. $f(x) = \sqrt{x}$; stretch horizontally by a factor of 2; reflect over the y-axis

13. $f(x) = |x|$; shrink horizontally by a factor of $\frac{1}{3}$; shrink vertically by a factor of $\frac{1}{5}$, shift down 7

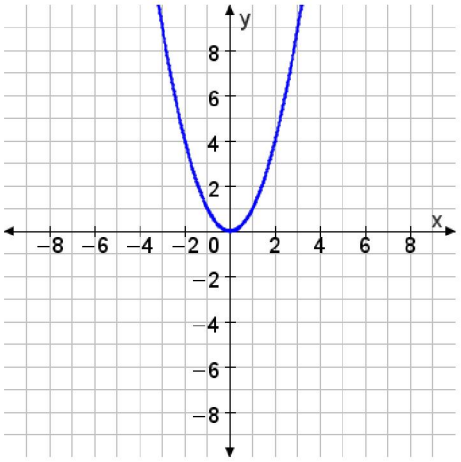
14. $f(x) = x^2$; shift right 3, reflect over the x-axis

Apply the given transformations to the graph. The parent functions are already drawn for you.

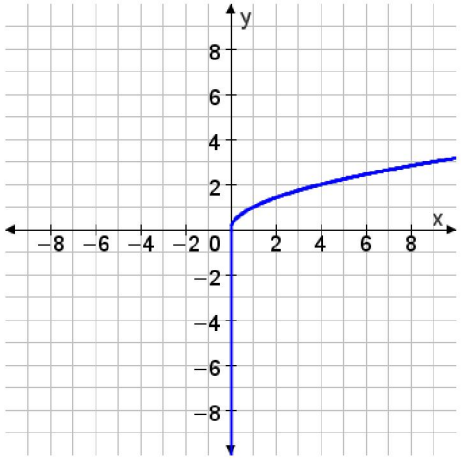
15. $f(x) = -|x - 3| + 2$



16. $f(x) = (x + 1)^2 - 4$

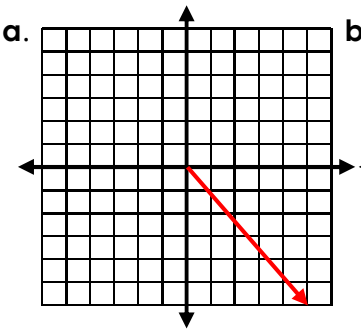


17. $f(x) = \sqrt{-x} + 2$

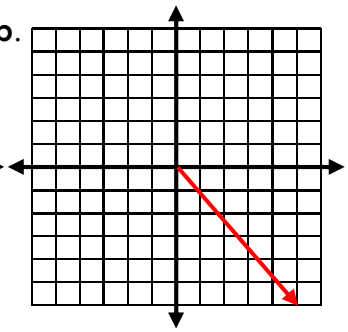


The graph of a function defined for $x \geq 0$ is given. Complete the graph for x < 0 to make a) an even function and b) an odd function.

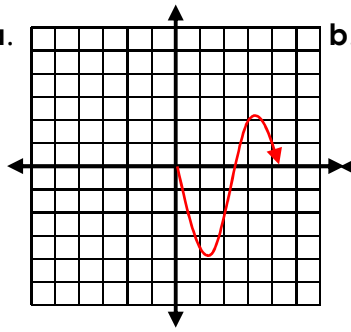
18. a.



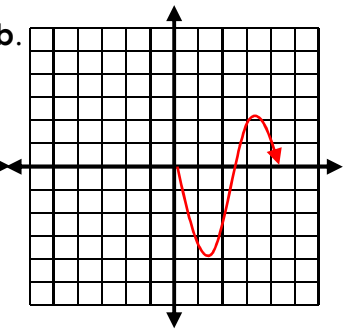
b.



19. a.



b.



Determine whether the function is even, odd, or neither.

20. $f(x) = x^2 + x$

21. $f(x) = x^3 - x$

22. $f(x) = 1 - \sqrt[3]{x}$

23. $f(x) = x^6 + x^2 + 2$