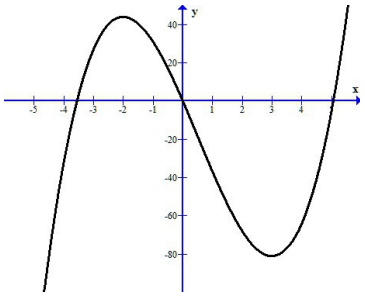
MAC1105 College Algebra
3.6 Practice Problems

1. Determine if each function is one-to-one.

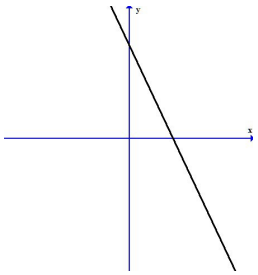
a. $f(x)=|x-5|; x\geq 5$

b. $f(x)=\begin{cases} 2x+3 & x\leq 4 \\ -x-2 & x>4 \end{cases}$

c.



d.



2. Find $f\circ g$ and $g\circ f$ determine whether each pair of functions f and g are inverses of each other. $f(x)=2x-5$ and $g(x)=\frac{x+5}{2}$

The following functions are one-to-one. For each function **a.** Find an equation for $f^{-1}(x)$, the inverse function. **b.** Verify that your equation is correct by showing that $f\left(f^{-1}(x)\right)=x$ and $f^{-1}\left(f(x)\right)=x$. Use these directions for problems 3-5.

3. $f(x)=3x+4$

4. $f(x)=x^3-5$

5. $f(x)=\dfrac{3x+1}{x-7}$

Evaluate the indicated functions without finding an equations for the function. Use these directions for problems 6-9. $f(x)=3x+7$ $g(x)=x+3$ $h(x)=2x^2+5x-7$

6. $(f\circ g)(3)$

7. $f^{-1}(4)$

8. $g^{-1}(4)$

9. $g(f[h(1)])$