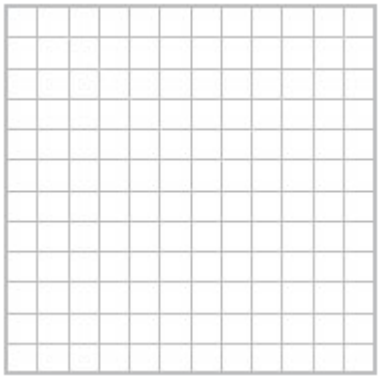
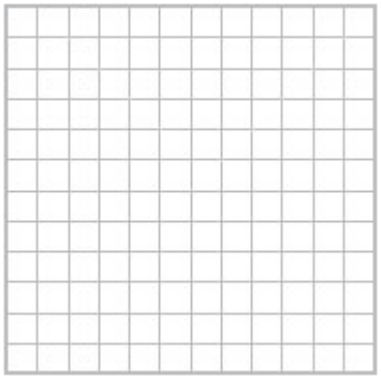
Pre-Calculus **Name** _____
Unit 1 Review **Hour** ____

Graph each function.

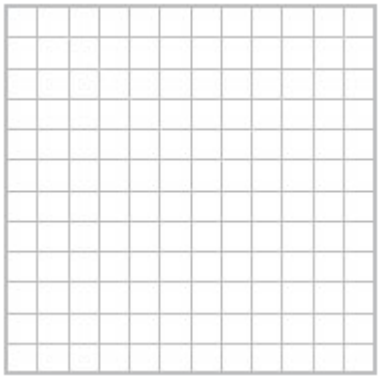
1. $f(x)=\begin{cases}-x+1 & \text{if } x<0\\ x & \text{if } x\geq 0\end{cases}$



2. $f(x)=\begin{cases}-1 & \text{if } x<1\\ 2x-2 & \text{if } x\geq 1\end{cases}$



3. $f(x)=\begin{cases}|x| & if\ \ x\leq 3\\ 2x+3 & if\ \ x>3\end{cases}$



Evaluate the function for the given values.

4. $f(x)=\begin{cases}|x| & if\ \ x\leq 3\\ 2x+3 & if\ \ x>3\end{cases}$ $g(x)=\begin{cases}x^2 & if\ \ x\leq 0\\ 2x-7 & if\ \ x>0\end{cases}$;

a. $f(-2)$

c. $g(4)$

b. $f(3)$

d. $g(0)$

5. The cost of electricity is \$.003 per Kwh for the first 500 Kwh. Any amount over 500 Kwh costs \$.004 per Kwh. Write a piecewise-defined function for the total cost of electricity.

Given $f(x)=25-x^2$ and $g(x)=5-x+2x^2$. Find

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

Find the inverse.

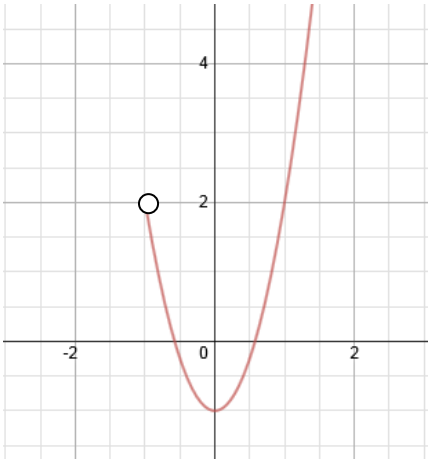
7. $f(x)=5x-2$

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

9. List the ways you can verify if two functions are inverses.

a. Use composition to verify that f(x) and g(x) are inverses $f(x)=3x^2+3$ $g(x)=\sqrt{\frac{x-3}{3}}$

10. State the domain and range for the graph.



11. You are a sales representative for an automotive manufacturer. You are paid an annual salary plus a bonus of 3% of your sales over $500,000. Consider the two functions: $S(x) = x - 500,000$ and $B(x) = 0.03x$

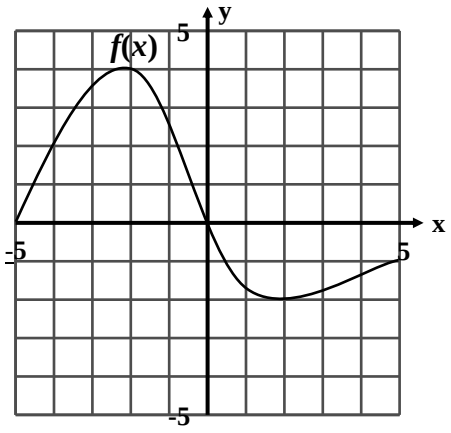
a. Find $S(B(x))$

b. Find $B(S(x))$

c. Assume that x is greater than $500,000. Which composite function above would represent your bonus?

12. Find the inverse of $g(x) = \frac{3x}{2x+5}$?

13. Given the graph, evaluate the following:



f(2) = f(-5) =

x when f(x) = 2

14. Given g(x) = 3x – 1 and f(x) from problem 13, evaluate the following:

f(g(2)) =

g(f(2)) =