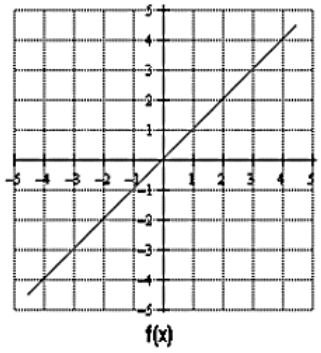
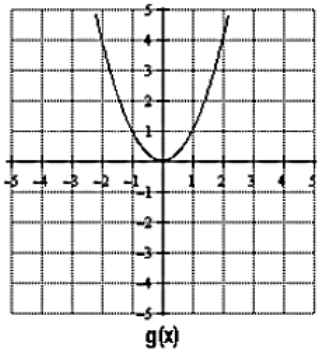
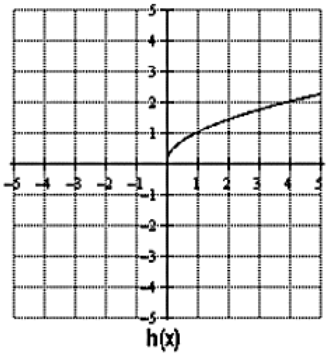
Calculus **Name:** _____

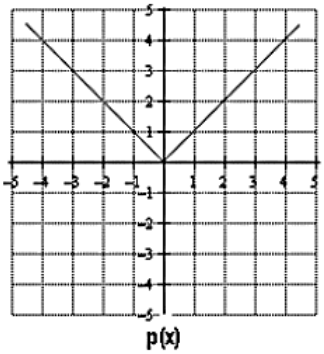
HW 18: Quiz Review #1 Unit 3.1-3.3 **Period:** _____

1. Given below are graphs of four functions, $f(x), g(x), h(x), and\ p(x)$. Graph the derivative on the same coordinate system.



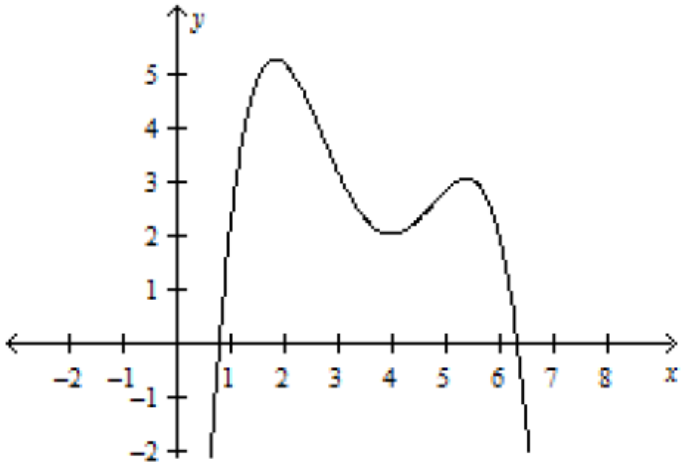






2. Use the graph of $f(x)$ to perform the actions described.

a) Label a point A on the graph where the derivative is negative.
b) Label a point B on the graph where the value of the function is negative.
c) Label a point C on the graph where the derivative is greatest in value.
d) Label a point D on the graph where the derivative is zero.
e) Label two different points, E and F on the graph where the values of the derivatives are opposites.



3. Consider the function $f(x) = 3x^2 - 2x + 1$

a) Find $f'(x)$ using the definition $f'(x) = \lim_{h \to 0} \frac{f(x+h) - f(x)}{h}$.

b) Find the equation of the tangent line to $f(x)$ at the point where $x = -1$.

c) Find the equation of the normal line to $f(x)$ at the point where $x = -1$.

4. Consider the function $(x) = \sqrt{3 - x}$.

a) Find $f'(a)$ using the definition $f'(a) = \lim_{x \to a} \frac{f(x) - f(a)}{x - a}$

b) Find the equation of the tangent line to f(x) at the point where $x = -6$.

c) Find the equation of the normal line to f(x) at the point where $x = -6$.