MAT 115   Name: _____
Mr. Villegas   Date: _____

1. Given $f(x) = 4x^2$, find the following and simplify.

(a). $f(x + h)$ **(b)**. $f(x + h) - f(x)$ **(c)**. $\dfrac{f(x + h) - f(x)}{h}$

(d). If you let $h = 0$, what do you get from your answer to part (c)?

2. Given $f(x) = 2x^2 - x$, find the following and simplify.

(a). $f(x + h)$ **(b)**. $f(x + h) - f(x)$ **(c)**. $\dfrac{f(x + h) - f(x)}{h}$

(d). If you let $h = 0$, what do you get from your answer to part (c)?

3. Given $f(x) = 9 - \dfrac{1}{2}x^2$, find the following and simplify.

(a). $f(x + h)$ **(b)**. $f(x + h) - f(x)$ **(c)**. $\dfrac{f(x + h) - f(x)}{h}$

(d). If you let $h = 0$, what do you get from your answer to part (c)?

4. Given $f(x) = 1 - x^2$, find and simplify $\dfrac{f(x+h) - f(x)}{h}$.

If you let $h = 0$, what does your answer become?

5. Given $C(x) = 2x^2 - 4x + 3$, find and simplify $\dfrac{C(x+h) - C(x)}{h}$

If you let $h = 0$, what does your answer become?

6. Given $p(q) = q^2 + 2q - 5$, find and simplify $\dfrac{p(q+h) - p(q)}{h}$

If you let $h = 0$, what does your answer become?