$f(x) = 6x^2 - 3x + 3$

find $\lim\limits_{h \to 0} \dfrac{f(x+h) - f(x)}{h}$ (show all work)

$$f(x+h) = 6(x+h)^2 - 3(x+h) + 3$$
$$= 6(x^2 + 2xh + h^2) - 3x - 3h + 3$$
$$= 6x^2 + 12xh + 6h^2 - 3x - 3h + 3 \Big\} add$$
$$-f(x) = -6x^2 + 3x - 3$$
$$f(x+h) - f(x) = 12xh + 6h^2 - 3h$$

$$\lim\limits_{h \to 0} \dfrac{f(x+h) - f(x)}{h} = \lim\limits_{h \to 0} \dfrac{12xh + 6h^2 - 3h}{h}$$

$$= \lim\limits_{h \to 0} 12x + 6h - 3 = \boxed{12x - 3}$$