Finding derivative using limit definition

$$F(x) = x^2 + 5x - 7$$

$$\lim_{h \to 0} \frac{f(x+h) - f(x)}{h} = F'(x)$$

$$\lim_{h \to 0} \frac{[(x+h)^2 + 5(x+h) - 7] - [x^2 + 5x - 7]}{h}$$

FOIL

distributing the −

$(x+h)(x+h) = x^2 + xh + xh + h^2$

distributing the 5

$$\lim_{h \to 0} \frac{x^2 + 2xh + h^2 + 5x + 5h - 7 - x^2 - 5x + 7}{h}$$

$$\lim_{h \to 0} \frac{2xh + h^2 + 5h}{h}$$

$$\lim_{h \to 0} \frac{h[2x + h + 5]}{h} \rightarrow \lim_{h \to 0} 2x + 5 + h \rightarrow 2x + 5$$

plug 0 in for h