

Quiz for January 13, 2009 – 8:00 section

Remove everything from your desk except this page and a pencil or pen.

Let $f(x) = 3x^2 - 5$. Find $\frac{f(w) - f(x)}{w - x}$. Simplify as much as possible.

Answer: We have

$$\begin{aligned}\frac{f(w) - f(x)}{w - x} &= \frac{3w^2 - 5 - (3x^2 - 5)}{w - x} = \frac{3w^2 - 3x^2}{w - x} = \frac{3(w - x)(w + x)}{w - x} \\ &= \boxed{3(w + x)}.\end{aligned}$$