October 19, 1999   **Name** _____

Show your work on these problems.

1. $\frac{d}{dx}\{(3x+1)^3 + x^{-1} + x^{-3}\}$

2. $\frac{d}{dx}(3x+1)(2x+5)(x^2-4)$

3. Let $Q(x) = \left(\dfrac{x+2}{x+1}\right)^4$. Find $Q'(x)$

4. Let $H(x) = \dfrac{f(x)}{(2x-3)^2}$, where $f(2) = 4$ and $f'(2) = 5$. What is $H'(2)$?

5. $\lim\limits_{h \to 0} \dfrac{\sqrt{3x+3h} - \sqrt{3x}}{h}$