

Note: You do not need to simplify your answers in #1 and #2.

1. (5 pts; p165 #99) Use the product rule and quotient rule to find $f'(t)$ for $f(t) = (t^5 + 3) \cdot \frac{t^3 - 1}{t^3 + 1}$.

2. (5 pts; p172 #20) Use the product rule and extended power rule to find $f'(x)$ for $f(x) = (x-4)^8(x+3)^9$.

3. (5 pts; p172 #47) Find an equation of the tangent line to the graph of $y = \sqrt{x^2 + 3x}$ at the point $(1, 2)$.

4. (5 pts; p173 #68) Find the marginal utility for the utility function $U(x) = 80\sqrt{\frac{2x+1}{3x+4}}$.