Math 205/Quiz 4

SHOW ALL WORK!!! NO CREDIT OTHERWISE! MORE PROBLEMS ON THE BACK!!

1. Differentiate $f(x) = (x^3 - 3x^2 + 8x)(e^x + x^{-1})$.

2. Find the derivative of $f(x) = \frac{x + \tan(x)}{e^x + \cos(x)}$. 
3. Find \( \lim_{x \to 0} \frac{\sin(5x)}{\sin(7x)} \). Show all steps. No credit otherwise.

4. If \( f(3) = 4 \), \( g(3) = 2 \), \( f'(3) = -6 \), and \( g'(3) = 5 \), find \( (f - g)'(3) \).