

## Quiz 9

MATH 139-02  
Thursday, March 4, 2004

Differentiate each function. Be sure to show all appropriate work.

1.  $f(x) = (5x^3 - 7x^2 + 4)^6$

**Solution:**  $f'(x) = 6(5x^3 - 7x^2 + 4)^5(15x^2 - 14x)$ .

2.  $f(x) = \ln(1 - x^4)$

**Solution:**  $f'(x) = \frac{-4x^3}{1 - x^4}$ .

3.  $f(x) = (x^2 + 4)e^{2x}$

**Solution:**  $f'(x) = (2x)e^{2x} + (2e^{2x})(x^2 + 4) = 2(x^2 + x + 4)e^{2x}$ .

4.  $f(x) = \frac{x + 1}{x - 1}$

**Solution:**  $f'(x) = \frac{(1)(x - 1) - (1)(x + 1)}{(x - 1)^2} = \frac{-2}{(x - 1)^2}$ .