

**Derivatives of Logarithmic Functions (3.9)****Derivatives of Exponential Functions:** Differentiate.

1)  $y = x^3 4^{2x}$

2)  $f(x) = 5^{3x^2}$

**Derivatives of Logarithmic Functions:** Differentiate.

3)  $y = \log_4 \cos x$

4)  $f(x) = \log_2(1 + 4x^{-1}), \quad x = 4$

**Logarithmic Differentiation:** Use logarithmic differentiation to find the derivative of the function.

5)  $y = \frac{x^2 \sqrt[3]{7x-14}}{(1+x^2)^4}$

6)  $y = \frac{(x^2-8)^{1/3} \sqrt{x^3+1}}{x^6-7x+5}$