

Practice "Log" and "Exp"

1. Differentiate the following functions:

$$y = 9^x + \frac{14}{x^3}$$

$$g(t) = \ln \left(\left(\frac{1 - \sin t}{1 + \sin t} \right)^2 \right)$$

$$r(x) = \frac{\ln 5x}{x^5 \ln x^2} + \left(\ln \left(\frac{1}{x} \right) \right)^3$$

$$h(z) = e^{7^{(z^2)}}$$

$$f(x) = 3 \ln(3x + 6 \ln x)$$

$$f(x) = x^2 \ln(10 - 4x^2)$$

$$g(x) = \ln[x^4(x + 8)^9(x^2 + 6)^4]$$

$$p(x) = \ln \left(\frac{ex^3}{2^{(4-x)^2}} \right)$$

$$f(x) = (x^2 - \sqrt{x}) 3^x$$

$$y(x) = x^{\pi^2} + (\pi^2)^x$$

$$f(z) = \ln(3)z^2 + \ln(4)e^z$$

$$f(\theta) = 4^{\sqrt{\theta}}$$

$$f(t) = \ln \frac{(2t + 1)^3}{(3t - 1)^4}$$

$$G(t) = \ln(x + \sqrt{x^2 - 1})$$

$$H(t) = \ln \frac{a - x}{a + x}$$

$$f(x) = \sin[\ln(\cos x^3)]$$

$$f(x) = x4^{3x}$$

$$f(x) = \left(\frac{1}{2} \right)^{1-x}$$

2. Find the domain of f , and differentiate it.

$$f(x) = \frac{1}{1 + \ln x}$$

$$f(x) = \ln \ln \ln x$$

3. Find the equation of the tangent line to the function $y = \ln(x^3 - 7)$ at $x = 2$.

Answers: