

(1) Calculate the derivatives of

(a)

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

(b)

$$g(x) = \ln \left( \frac{x^3 - 1}{x^4} \right)$$

(c) (Hint: Take the natural logarithm of both sides and use implicit differentiation.)

$$y = x^{x^2+1}$$

(d)

$$h(x) = 10^x \tan x$$

(e)

$$y = \frac{2^{x^2+1}}{x-1}$$