

1. Use the derivative  $f'(x) = \frac{5}{1+e^x}$  to find all values of  $x$  where the function  $f(x)$  is continuous.
  2. Find the equation of the line tangent to the graph of  $x^2y^3 + \ln(xy) = 1$  at  $(1,1)$ .
  3. If the consumption function is  $C = 0.0012I^2 + \sqrt{I}$ , find the marginal propensity to save when  $I = 100$ .
  4. Find the derivative of  $f(x) = \left(\frac{x^2-5}{x+4}\right)^{-5}$  **(Do not simplify)**.
  5. Find the derivative of  $f(x) = 2^{x-x^2} - \log_2(x - x^2)^6$  **(Do not simplify)**.
  6. If  $w = x + \ln x$  and  $x = t^2 + t + 1$ , find  $\frac{dw}{dt}$  when  $t = 0$ .
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1. Use the derivative  $f'(x) = \frac{x^2}{1+e^x}$  to find all values of  $x$  where the function  $f(x)$  is continuous.
2. Find the equation of the line tangent to the graph of  $x^3y^2 - \ln(xy) = x$  at  $(1,1)$ .
3. If the consumption function is  $C = 0.0032I^2 - \sqrt{I}$ , find the marginal propensity to save when  $I = 100$ .
4. Find the derivative of  $f(x) = \left(\frac{x+5}{x^3+4}\right)^{-4}$  **(Do not simplify)**.
5. Find the derivative of  $f(x) = 3^{x+x^2} - \log_3(x + x^2)^7$  **(Do not simplify)**.
6. If  $w = x^2 + x + 1$  and  $x = \ln(1+t)$ , find  $\frac{dw}{dt}$  when  $t = 0$ .