8. [5 points]
   A curve is implicitly defined by the equation

$$\ln(kx) - 3xy^2 = \pi,$$

where k is a constant. Compute $\dfrac{dy}{dx}$. Your answer may include k. Show every step of your work.

Answer: $\dfrac{dy}{dx} =$ _____

9. [9 points] The function $g(x)$ is given by the equation

$$g(x) = \begin{cases} 3|x+2| - 8x - 11 & x \leq -1 \\ x^2 - 3x - 4 & -1 < x < 2 \\ 12(x-10)^{1/3} + 2x + 14 & x \geq 2. \end{cases}$$

   You must show work for parts a–d of this problem.

   a. [1 point] Is $g(x)$ continuous at -1?

   b. [2 points] Is $g(x)$ differentiable at -1?

   c. [1 point] Is $g(x)$ continuous at 2?

   d. [2 points] Is $g(x)$ differentiable at 2?

   e. [3 points] List **all** points at which $g(x)$ is not differentiable.