8. [8 points]

    a. [5 points] Consider the curve $\mathcal{C}$ defined by the equation

$$\ln(x^2) + y = e^{4y}.$$

For this curve $\mathcal{C}$, find a formula for $\dfrac{dy}{dx}$ in terms of x and y. Clearly show every step of your work.

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

    b. [3 points] Let $\mathcal{D}$ be a different implicitly defined curve. The curve $\mathcal{D}$ passes through the point $(2, 1)$ and satisfies

$$\frac{dy}{dx} = \frac{-2x - y}{x + 3y^2 - 1}.$$

Write an *equation* for the tangent line to the curve $\mathcal{D}$ at the point $(2, 1)$. Show your work.

Answer: _____