7. [5 points] The equation $x^3 + y^3 - xy^2 = 5$ defines y implicitly as a function of x. Find a formula for $\dfrac{dy}{dx}$ in terms of x and y. Show every step of your work.

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

8. [8 points] Let $\mathcal{C}$ be the curve defined by the equation $x^2 + y^3 = 8y$. Note that

$$\frac{dy}{dx} = \frac{2x}{8 - 3y^2}.$$

a. [4 points] Find the coordinates of all points (x, y) on the curve $\mathcal{C}$ where the tangent line to $\mathcal{C}$ is horizontal. Write your answer as a list of points in the form (x, y), or write NONE if there are no such points. *Show all your work.*

Answer: _____

b. [4 points] The curve $\mathcal{C}$ intersects the line $y = 1$ at exactly one point with a positive x value. Find an equation of the line tangent to the curve $\mathcal{C}$ at this point. *Show all your work.*

Answer: $y = $ _____