3. [7 points] Consider the curve $\mathcal{D}$ defined by the equation

$$x^2y(1-y) = 9.$$ 

Note that the curve $\mathcal{D}$ satisfies

$$\frac{dy}{dx} = \frac{2xy(y-1)}{x^2(1-2y)}.$$ 

a. [4 points] Exactly one of the following points $(x, y)$ lies on the curve $\mathcal{D}$. Circle that one point.

$(0.9, 10)$  $(1, -8)$  $(3, 9)$  $(9, 3)$  $(10, 0.9)$

Then find an equation for the tangent line to the curve $\mathcal{D}$ at the point you chose.

**Answer:** $y = \rule{400px}{0.5pt}$

b. [3 points] Find all points on the curve $\mathcal{D}$ where the slope of the curve is undefined. Give your answers as ordered pairs. Write NONE if there are no such points.

**Answer:** $(x, y) = \rule{400px}{0.5pt}$