3. (18 points) Below is a graph of the curve implicitly defined by the equation

\[ 2y^2 - xy - x^2 = -18. \]

(a) Find a formula for \( \frac{dy}{dx} \) as a function of both \( x \) and \( y \).

(b) Find the value of \( \frac{dy}{dx} \) at the point (5, -1).

(c) Find any points \((x_0, y_0)\) where \( \frac{dy}{dx} \) is undefined, or give justification why no such points exist.

(d) Find any points \((x_0, y_0)\) where \( \frac{dy}{dx} = 0 \), or give justification why no such points exist.