7. [5 points] An implicit function is described by the equation

\[ \cos(xy) = 7x^2 + y. \]

Find a formula for \( \frac{dy}{dx} \) in terms of \( y \) and \( x \). You must show every step of your work.

*Solution:*

\[
- \sin(xy) \left( y + x \frac{dy}{dx} \right) = 14x + \frac{dy}{dx} \\
- x \sin(xy) \frac{dy}{dx} - \frac{dy}{dx} = 14x + y \sin(xy) \\
- \frac{dy}{dx} (x \sin(xy) + 1) = 14x + y \sin(xy) \\
\frac{dy}{dx} = - \frac{14x + y \sin(xy)}{x \sin(xy) + 1}
\]