

$y^2 + x^4y^4 = 4 + ye^{x^2}$, so let $F(x, y) = y^2 + x^4y^4 - 4 - ye^{x^2} = 0$. Then

$$\frac{dy}{dx} = -\frac{F_x}{F_y} = -\frac{4x^3y^4 - 2xye^{x^2}}{2y + 4x^4y^3 - e^{x^2}} = \frac{2xye^{x^2} - 4x^3y^4}{2y + 4x^4y^3 - e^{x^2}}.$$