

$$y' = \frac{2x}{x^2+y}, \quad y(0)=1$$

Integrate,

$$y = \int \frac{2x}{x^2+y} dx = \ln|x^2+y| + C$$

Apply initial condition:

$$y(0) = \ln|0^2+y| + C = \ln y + C = 1$$

$$C = 1 - \ln y$$

So, $y = \ln|x^2+y| + 1 - \ln y$