\[ \frac{dy}{dx} = \frac{v}{u} = -\frac{x}{y} \]
\[ \frac{1}{2} y^2 = -\frac{1}{2} x^2 + C \]
\[ x^2 + y^2 = 2C \quad \text{circles of radius } \sqrt{2C} \]

For steady flow, with \( p = \text{const} \), must have \( \nabla \cdot \mathbf{U} = \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0 \)
\[ u = \frac{-y}{x^2+y^2} \quad \frac{\partial y}{\partial x} = \frac{y \cdot 2x}{(x^2+y^2)^2} \]
\[ v = \frac{x}{x^2+y^2} \quad \frac{\partial x}{\partial y} = \frac{-x \cdot 2y}{(x^2+y^2)^2} \]