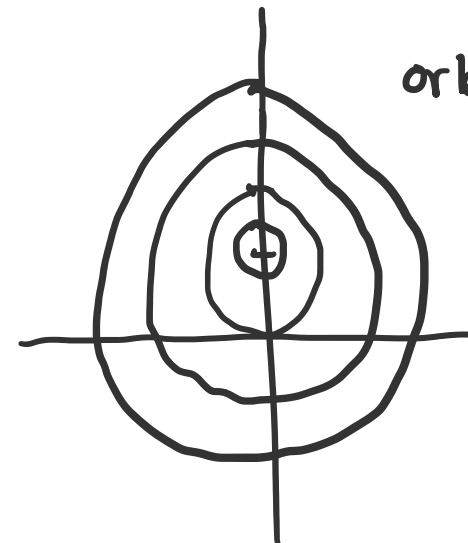# Quiz 3 MTH 416/616 Spring 2025

Find orbits of
$$\begin{cases} x' = y - 1 \\ y' = -xy \end{cases}$$

Soln:
$$\frac{dy}{dx} = \frac{-xy}{y-1}$$

$$\int y - 1 \, dy = -\int x \, dx$$

$$\boxed{\frac{y^2}{2} - y = -\frac{x^2}{2} + C}$$

orbits are circles centered at $(0,1)$