Phase Portraits for Autonomous Systems

Plot an autonomous system of two ODEs, including the direction field, critical point(s), and phase portraits as desired.

Instructions

- To begin, enter the necessary information into the fields below:
 - the bounds for the plot window
 - F(x, y) and G(x, y), the right-hand sides of the autonomous ODEs $\dot{x} = F(x, y)$ and $\dot{y} = G(x, y)$
 - one equilibrium (critical) point as a list [a, b], and multiple such points in a sequence [a, b], [c, d]
 - bounds for t, the independent variable of the ODEs, and hence, the parameter along orbits (trajectories or paths)
- Click the **Enter Data** button to obtain a direction field and all entered equilibrium (critical) points.
- ullet Click on the plot area and select the Click and Drag Manipulator (\bullet) from the Plot menu

or plotting toolbar. Then click anywhere in the direction field to create a phase portrait through that point.

• The **Erase Phase Portrait** button erases all orbits and field arrows. The **Clear All** button clears every field in the template.

