1. Sketch the slope field for the differential equation \( \frac{dy}{dx} = -\frac{x}{y} \), and graph some of the solutions \( y = \pm \sqrt{C - x^2} \).

2. On the slope field (Fig. 1) for the differential equation \( \frac{dy}{dt} = y^2 - y - 2 \):
   (a) Sketch the three solutions which have initial conditions \((0, 0)\), \((0, -2)\), and \((0, 1.5)\).
   (b) Find any equilibrium solutions, and decide if they are stable or unstable.

3. On the slope field (Fig. 2) for the differential equation \( \frac{dy}{dt} = t - y \):
   (a) Sketch the two solutions which have initial conditions \((-3, 3)\) and \((0, -3)\).
   (b) Guess one linear solution to the differential equation and check that it works.
Figure 1: Slope field for $\frac{dy}{dt} = y^2 - y - 2$.

Figure 2: Slope field for $\frac{dy}{dt} = t - y$. 