1. Find an explicit solution to the following differential equation.

\[ xy' + y = x - \frac{y}{\ln x} \]
2. Find an implicit solution to the following initial value problem.

\[ \frac{dy}{dx} = \frac{-3y}{3x - 7y}; \quad y(1) = 1 \]
3. Find an explicit solution to the following initial value problem.

\[ y'' - 4y' + 4y = 0; \quad y(0) = \frac{1}{2}, \quad y'(0) = 3 \]
4. Find an explicit solution to the following differential equation.

\[ y'' = y' + (y')^2 \]
5. Sketch a slope field or several solutions to the following differential equation. Indicate the equilibrium solutions and their stability.

\[ x' = -x^4 - 3x^3 + 70x^2 \]

Consider the solution with \( x(0) = 2 \). What is the long-term behavior of this solution?