1. Consider the autonomous differential equation
\[ \frac{dy}{dx} = y^3 - 2y^2 + y. \]
Make a rough sketch of the slope field without using any technology.

2. Perform Euler’s method with the step \( \Delta x = 0.25 \) on the following initial value problem:
   \[ \frac{du}{dx} = x - y^2, \quad y(0) = 1, \quad \text{over the interval} \quad 0 \leq x \leq 1. \]
   Sketch the graph of the approximate solution.

3. Sketch the phase line of the differential equation \( \frac{dy}{dx} = y \ln |y| \). Identify the equilibrium points as sinks, sources, or nodes.

4. Find the general solution of the equation \( \frac{dy}{dx} = 2y + \sin(2x) \).