1. **Chapter 1.3 Problem 22, Page 27**
   Construct a slope field for the given differential equation. Then sketch the solution curve corresponding to the given initial condition. Use this solution curve to estimate the desired value of the solution \( y(x) \).
   \[ y' = y - x, \quad y(4) = 0; \quad y(-4) = ? \]

2. **Chapter 1.4 Problem 13, Page 41**
   Find general solution (implicit if necessary, explicit if convenient) of the differential equation.
   \[ y^3 \frac{dy}{dx} = (y^4 + 1) \cos x \]

3. **Chapter 1.4 Problem 25, Page 41**
   Find explicit particular solution of the initial value problem.
   \[ x \frac{dy}{dx} - y = 2x^2, \quad y(1) = 1 \]

4. **Chapter 1.4 Problem 51, Page 43**
   An accident at a nuclear power plant has left the surrounding area polluted with radioactive material that decays naturally. The initial amount of radioactive material present is 15 su (safe units), and 5 months later it is still 10 su.
   - Write a formula giving the amount \( A(t) \) of radioactive material (in su) remaining after \( t \) months.
   - What amount of radioactive material will remain after 8 months?
   - How long- total number of months or fraction thereof- will it be until \( A = 1 \) su, so it is safe for people to return to the area?

5. **Chapter 1.5 Problem 17, Page 54**
   Find general solution of the differential equation. For a given initial condition, find the corresponding particular solution.
   \[ (1 + x) \frac{dy}{dx} + y = \cos x, \quad y(0) = 1 \]

6. **Chapter 1.5 Problem 27, Page 54**
   Solve the differential equation by regarding \( y \) as the independent variable rather than \( x \).
   \[ (x + ye^y) \frac{dy}{dx} = 1 \]