Scientific calculators are allowed but not required. Calculators with graphing and computer algebra capabilities are not allowed. Show your work and give exact answers.

1. (4 points) For the IVP

   \[ y' = y \quad y(0) = 1 \]

   Use Euler’s Method with a step size of \( h = 1 \) to find approximate values of the solution at \( t = 1, 2 \).

2. (8 points) Suppose a population grows according to a logistic model with initial population 1000 and carrying capacity 10,000. If the population grows to 2500 after one year, what will the population be after another three years?
3. (8 points) Solve the initial value problem

\[ \frac{dy}{dx} = \frac{3x^2 + 4x + 2}{2(y - 1)}, \quad y(0) = -1. \]

Please give an explicit solution.