8. [16 points] Respond to each of the following, giving a short—one sentence explanation of your answer. **Note:** little partial credit will be given on this problem.

   a. [4 points] True or false: the slope field to the right corresponds to the differential equation \( y' = x^2 + y^2 \).
      Explain in one sentence.
      Answer: ______

   b. [4 points] True or false: the function \( y = Ce^{-x} \), where \( C \) is an unspecified constant, is the general solution to \( y'' + 2y' + y = 0 \). Explain in one sentence.
      Answer: ______

   c. [4 points] True or false: if we apply Euler’s method and the improved Euler method to \( y' = x \), \( y(0) = 0 \) with step-size \( h = 0.1 \), both predict after one step that \( y(0.1) = 0 \). Explain in one sentence.
      Answer: ______

   d. [4 points] True or false: the graph to the right, below, could be the solution to the differential equation \( y' = a^2 y \) for some value of the constant \( a \).
      Answer: ______