INSTRUCTIONS: Answer the following short-answer questions (in 10 minutes).
GOAL: This reading quiz is designed to illuminate your understanding of the concepts in Chapter 2 of the book: Modeling Using Systems of ODEs, Geometry of Systems of ODEs, Analytic Methods for Special Systems, Euler’s Method for Systems.

1. (2 points.) What is an equilibrium solution for a system of differential equations \( \frac{d\vec{x}}{dt} = \vec{F}(\vec{x}) \) and how does it differ (geometrically) from an equilibrium solution for a differential equation, \( y' = f(y) \)?

2. (2 points.) What are two equilibrium solutions for the standard Lotka-Volterra predator-prey model discussed in your text? What is the physical interpretation of these equilibria?

3. (2 points.) Explain in your own words what the difference between coupled and decoupled systems of equations are. Give an example of each type.

4. (2 points.) Which are generally easier to solve, coupled systems of equations or decoupled systems of equations? EXPLAIN YOUR ANSWER.

5. (2 points.) TRUE or FALSE: “Euler’s Method can never be used to approximate solutions to a second-order nonlinear ordinary differential equation.” EXPLAIN YOUR ANSWER.

BONUS (2 points.) Discuss your feeling about the textbook, Blanchard, Devaney & Hall. On a scale of 1 to 10, what would you rate the textbook in clarity, usefulness and quality?