

Discussion Questions from Section 1.6:

1. This section considers autonomous differential equations. What does that mean? Be prepared to define this term and to give examples of autonomous and nonautonomous differential equations.
2. What special property do slope fields have for autonomous equations? What does this property imply about solution curves?
3. What is a phase line for an autonomous differential equation? Be prepared to give a definition, an example, and an explanation of how phase lines are related to slope fields for autonomous equations.
4. Given a phase line diagram for a differential equation, you should be able to sketch a graph showing all possible solution curves
5. What is meant by *equilibrium point*? How are such points found? What role do they play in the creation and interpretation of phase line diagrams?

6. Explain what it means for an equilibrium point to be a source, sink, or node.
7. The linearization theorem provides a means for classifying equilibrium points as sources or sinks. Be prepared to state this theorem, or to use it in an example.