Reading Questions for Boyce and DiPrima, Section 1.3

[Submit your responses using the webform below.]

1. How do you distinguish between a partial differential equation and an ordinary one? In an ordinary DE, how do you tell which variable is to be considered independent, and which dependent?

2. "We assume (in this course) that it is always possible to solve a given ODE for the highest derivative." Even in the case of Equation (9), one may solve to get the two DEs of Equation (10). Can you write an example of a DE where it is impossible (by algebraic methods) to solve for the highest order derivative? Is your example linear or nonlinear? (This is one of the most important distinctions one must learn among DEs, so you should write down a number of examples off the top of your head and practice telling whether they are linear or nonlinear.)

3. How does one verify that a given function “solves” a given DE over a given interval?

4. What are the fundamental questions surrounding the solution of ODEs?

5. Identify one item (a concept, a step in an example, a statement, etc.) from this reading assignment you found difficult or confusing.