Math 2C03: Quiz #1 Information

QUIZ: MONDAY, JUNE 29TH, 7PM (FIRST 10 MINUTES OF CLASS)
McMaster University

Potential Quiz Questions:

Your quiz on Monday will consist of one or two of the questions listed below.

1. What is the difference between an *ordinary* differential equation and a *partial* differential equation? Give an example of each.
2. (a) What does it mean for a function to be C^n on an interval I?
   (b) Give an example of a function (and an interval) which is C^1.
   (c) Give an example of a function (and an interval) which is NOT C^1.
3. What's the difference between an *explicit* and *implicit* solution of an n^{th}-order differential equation? Define each and give an example.
4. State the existence and uniqueness theorem (Theorem 1.2.1) for first-order differential equations.
5. (a) What is an n^{th}-order *linear* differential equation?
   (b) Give an example of a first-order *linear* and a *nonlinear* DE.
   (c) Describe how you would find an explicit solution for a first-order linear DE.
6. Give an example of a first-order *exact* differential equation. Give an example of a first-order differential equation that is NOT exact. Explain your reasoning.