Review of Absolute and Local Max & Min

In place of having class today, I'd like you to attempt to complete this handout. Answering the following questions will make you review the definitions and concepts necessary to understanding the next section (Section 4.7) on applied optimization.

Directions: Hunt through your notes and the textbook to answer the following questions.

1. What does it mean for a function f to have a local max/min at $x = c$?

2. What does it mean for a function f to have an absolute max/min at $x = c$ on all of $(-\infty, \infty)$?

3. What does it mean for a function f to have an absolute max/min at $x = c$ on the closed interval $[a, b]$?

4. What types of functions always have an absolute max/min on a closed interval? What theorem tells us this?

5. What does it mean for $x = c$ to be a critical number of a function f?

6. How do you find critical numbers?

7. What relationship is there between critical numbers and local maximums/minimums? (Be careful: one implies the other, but not the other way around.)

8. What are the steps for finding absolute maximums/minimums on a closed interval?