231 Quiz 7

March 31, 2011 **Name** ________________________________

By printing my name I pledge to uphold the Honor Code.

Work individually. You may use your Notebooks but no loose papers, printouts, photocopies, books, calculators, cell phones, or other resources.

True/False.

T **F** If $x = -1$ is a maximum of the derivative $f'(x)$ of some function $f(x)$, then the function $f(x)$ has an inflection point at $x = -1$.

T **F** If $f'(1) < 0$ and $f'(3) > 0$, then $x = 2$ is a local minimum of $f(x)$.

T **F** If $f'(2) = 0$ and $f''(2) > 0$, then $x = 2$ is a local maximum of $f(x)$.

T **F** If $f(x)$ is differentiable on $\mathbb{R}$ and has a local extremum at $x = -2$, then $f'(-2) = 0$.

T **F** If $f'(x) < 0$ for all $x \in (0, 3)$, then $f(x)$ is decreasing on $[0, 3]$.

T **F** If $f(x)$ has a critical point at $x = 3$, then $f(x)$ has a local minimum or maximum at $x = 3$.

T **F** If $f(x)$ is differentiable on $\mathbb{R}$ and has a critical point at $x = 3$, then $f(x)$ has a local minimum or maximum at $x = 3$.

T **F** If $f'(x)$ is continuous on $(0, 8)$ and $f'(3)$ is negative, then $f'(x)$ is negative on all of $(1, 8)$.

T **F** If $f'(x)$ changes sign at $x = 3$, then $f'(3) = 0$.

T **F** If $f'(3) = 0$, then $f'(x)$ changes sign at $x = 3$.

T **F** For every function $f(x)$ with $f(1) = 0$ and $f(4) = 3$ there is some $c \in (1, 4)$ for which $f'(c) = 1$.

T **F** If $f''(1) = 0$, then $x = 1$ is an inflection point of $f(x)$.

T **F** If $f'(x) = 2x$, then $f(x) = x^2 + C$ for some constant C.

T **F** If $f(x)$ is positive on an interval I, then $f'(x)$ is increasing on I.

T **F** If $f(x)$ is continuous and differentiable everywhere with $f(2) = f(8) = 0$, then there is some $c \in (2, 8)$ such that $f'(c) = 6$.

T **F** If $f''(4)$ does not exist, then $f'(4)$ does not exist.

T **F** If $f'(x)$ is increasing on an interval I, then $f(x)$ is concave up on I.