Critical Thinking Questions (CTQs)

- 1. Explain how the **chain rule** is used in implicit differentuation. L'Hôpital
- 2. Write a word problem starring YOU that requires the use of related rates to solve. Then explain how to solve the problem.
- 3. What does it mean to say that $\lim_{x\to\infty} f(x) = L$ and $\lim_{x\to a} f(x) = \infty$?
- 4. Explain two different methods (the First Derivative Test and the Second Derivative Test) for finding relative extrema. Which do you prefer and why?
- 5. Explain how to use the Second Derivative Test to determine intervals of concavity for a function f(x).
- 6. When looking at the graph of f', explain how to find inflection points of f? When looking at the graph of f', explain how to find local extrema for f.
- 7. Explain how to find absolute extrema on (a) a closed interval and (b) an open interval.
- 8. Write a word problem starring YOU that requires the use of optimization to solve. Then explain how to solve the problem.