This list is intended as the start of a study guide. There is no guarantee that because a topic is listed here that it will be on the midterm, nor is there a guarantee that every problem on the midterm is represented in the list below. I've broken down the topics into three categories: problem solving, tasks, and basic computations. You can expect to find all of these categories represented on the midterm. The midterm will cover Chapter 2 sections 1, 2, 3, 5, 6, and 7 as well as the review material from Chapter 1.

Problem Solving and the Big Picture

- Solve word problems involving rates of change.
- Use the relationship between rates of change and slopes of tangent lines to interpret graphs.
- Understand the meaning of continuity.
- Use the squeeze theorem to compute a limit.

Tasks:

- Compute average rates of change.
- Determine where a function is continuous.
- Determine horizontal and vertical asymptotes of the graph of a function using limits.
- Compute average rates of change.
- Determine the secant line connecting two points on a graph.
- Compute instantaneous rates of change (and be able to interpret what they mean).
- Determine the tangent line at a point on a graph.

Computations:

- Compute limits.
- Compute one-sided limits.
- Compute infinite limits (e.g. $\lim_{x \to 0^-} x^{-1} = -\infty$).
- Compute limits at infinity (e.g. $\lim_{x \to \infty} \frac{x}{1+x} = 1$).
- Show that a limit does not exist (e.g. $\lim_{x \to 0} x^{-1}$ does not exist).
- Demonstrate mastery of review material (especially working with fractions, exponential functions, logarithmic functions, and inverse functions).