Warm-up Problems

1. Our method for finding max/mins can be summed up as follows:
   
   I. Find all critical points
   II. Find all end points
   III. Plug everything into function and see which have largest and smallest $y$-values.

   (a) List the situations that this method works on.
   (b) List the situations that this method fails on.

2. A car drives 100 miles in one hour. Is it possible for the car to make this trip without ever actually driving at 100 mph?
   Why or why not?

3. A car drives 100 miles in one hour. Is it possible for the car to make this trip without ever actually driving at 101 mph or 99 mph?
   Why or why not?

Lecture Problems

4. For each of the functions and intervals, find an $x$-value, $c$, such that $f'(c) = \frac{f(b)-f(a)}{b-a}$.

   (a) $f(x) = x^2 - x$ on $[1, 5]$.
   (b) $f(x) = \frac{x+1}{x}$ on $\left[\frac{1}{2}, 2\right]$
   (c) $f(x) = x^3 + 2x^2 - x$ on $[-1, 2]$