Homework Problems.

1. In class, I didn't make the proof of our first major theorem very clear. Read its proof in the notes, and talk to me at TAU if you have questions!

2. Find a continuous function that has at least one point of period 4, but that has no points of period k for any $k \neq 4, 2, 1$.

3. Find a continuous function with a point of period 5, but no point of period 3. Or prove such a crazy thing cannot exist.

4. Find a function with points of every even order, but no odd order. Or prove such a crazy thing cannot exist.

5. (a) Prove or disprove: at any point in time, there are two points on the earth that are (1) on opposite ends of the earth and (2) the same temperature.

   (b) Prove or disprove: at any point in time, there are two points on the earth that are (1) on opposite ends of the earth and (2) the same temperature and (3) have the same smog density.