

Homework 3: The Alternating Points Lemma

*Week 3**Mathcamp 2014***Homework Problems.**

1. We ended class before getting to the third part of our proof of the Alternating Points Lemma; we managed to find an appropriate “seed” interval and showed that applying f to this seed increased its size by 1 at each step, but didn’t show that these new points “alternated sides” from left to right.

Prove this! (The notes contain a discussion of most of the cases; try thinking about this on your own before reading the notes?)

2. Construct a function with a point of period 5 that does not have the orbit given by the Alternating Points Lemma. Consequently, you know this function must have a point of period 3, as well; find this point!