Assignment 6

Due Thursday, Oct. 23, 2014

Note: there are 5 problems

1. Find all x for which

(i) $\quad |x-1| < \frac{1}{2}$,

(ii) $\quad |x^2-1| \leq \frac{1}{2}$.

2. Find all x, y for which $|x+y| = 1$.

3. Use a backward-forward method to prove that $|x+y| \leq |x| + |y|$. (Hint: look at the two cases, $x+y \geq 0$ and $x+y < 0$, and use properties of the absolute value.)

4. What is the relationship, if any, between the integral value expressions $[x+y]$ and $[x][y]$, for arbitrary $x, y \in \mathbb{R}$?

5. Prove that in a plane triangle ABC a pair of angle-bisectors cannot be perpendicular.