
LECTURE 5: MORE PROOFS

Date: September 6, 2019.

Definition 1. An integer n is **even** if there is an integer k such that $n = 2k$. An integer n is **odd** if there is an integer k such that $n = 2k + 1$.

Problem 1. Prove: If n is an integer such that $3n + 2$ is odd then n is odd.

Problem 2. Prove: An integer n is odd if and only if n^2 is odd.

Definition 2. For a real number x , $|x|$ is defined as follows.

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{otherwise} \end{cases}$$

Problem 3. For real numbers x, y , $|xy| = |x||y|$.