

Math 215: Introduction to Advanced Mathematics
Problem Set 3

Due Friday September 20

Do pg. 54: 11

- 1) Prove that if k is an integer and $3k + 1$ is even, then k is odd.
- 2) Prove that if the product of two integers is odd, then both of them must be odd.
- 3) Show that there are no integers x and y such that $x^2 + x = 2y + 1$.
[Hint: One way to do this is to try to prove this by contradiction and consider cases depending on whether x and y are even or odd.]