INTRODUCTION TO ABSTRACT MATHEMATICS
SPRING 2017

ASSIGNMENT 2.2
DUE JANUARY 27

Exercise 1. Textbook exercises 1.3.2, 2.1.2, 2.1.3, 2.1.5, 2.1.6.

Exercise 2. Express the following statements symbolically, and determine if they are true or false. You may assume that the universe of discourse is $\mathbb{R}$.

  a. For all $x \geq -1/4$, there is a y so that $y(y+1) = x$.

  b. There is a y so that for all $x \geq -1/4$, $y(y+1) = x$.

Exercise 3. Consider the following statements:

$$A = \text{``You can fool all of the people some of the time.''}$$
$$B = \text{``You can fool some of the people all of the time.''}$$
$$C = \text{``You can't fool all of the people all of the time.''}$$

If $F(x,t) = $ "Person x is fooled at time t," express each of these statements symbolically.

Exercise 4. Recall the statement $\forall n \, \exists k \, (n \text{ is odd } \Rightarrow n = 2k+1)$, in which the universe of discourse is the set of integers. In class I argued that this statement is true. In light of the fact that $\forall n$ allows n to be even, is it really?