Number Theory HW Week 1

1. Find an unsolved problem in Number Theory other than the examples I gave in class and be able to describe it in class.
2. Find all the quadratic residues modulo 17.
3. Find all the primitive roots modulo 17.
4. In book 1.1 #1b, prove by induction that for all positive integers that the following is true.

$$1+3+…+\left(2n-1\right)=n^{2}$$

1. Describe the problem with my induction argument that all jellybeans are the same color.

Point values, 1 – 4 6 pts each, 5 is 3 pts.