1. Prove that the square of any integer a is either of the form $3k$ or of the form $3k + 1$ for some integer k. [*Hint*: By the Division Algorithm, a must be of the form $3q$, $3q + 1$, or $3q + 2$.]

2. Use the Division Algorithm to prove that every odd integer is either of the $4k + 1$ or of the form $4k + 3$ for some integer k.

3. Find the quotient and remainder when 2002 is divided by 17. Be sure to write your answer in the form: $a = bq + r$.

4. Let a, b, and c be integers. If a divides b and b divides c, prove that a divides c.

5. Read Appendix A, and answer the following questions. What are some of the methods used to write proofs? Have we used any of these methods in class? If so, which one(s)?