

MAT 129
Lab #1
February 26, 2007

Prove each of the following statements. In each, a and b denote integers.

1. a is even implies a^2 is even.

2. If s and t are rational numbers with $t \neq 0$, then $\frac{s}{t}$ is a rational number.

3. If p and q are prime numbers and $p|q$, then $p = q$.

4. If a and b are consecutive integers, then $(a + b)^2$ is an odd integer.

5. Suppose a is even. Then $a + b$ is odd if and only if b is odd.

6. Consider the statement A: If m is an even integer, then $m + 2$ is an even integer.
 - a. State the contrapositive of A.
 - b. Prove the contrapositive of A.