Theorem (1.6.16)**.** *Let m and n be integers. If the product mn is even, then m is even or n is even.*

Proof. By the contrapositive. Suppose the negation of the consequent; that is, m is odd and n is odd. By definition, there exist integers k and j such that $m = 2k+1$ and $n = 2j+1$. Thus, $mn = (2k+1)(2j+1) = 2(kj+k+j)+1$. The factor $kj+k+j$ is an integer, and so the product mn is odd by definition. ■