Theorem (1.6.3)**.** *If n is an even integer, then n^2 is an even integer.*

Proof. By definition, there exists an integer k such that $n = 2k$.
$(2k)^2 = 4k^2 = 2(2k^2)$. $2k^2$ is an integer $\therefore$ n^2 is even, by definition. ■