

Theorem (1.6.4). *The additive inverse of an even number is an even number.*

Proof. Let n be an even number. There exists an integer k such that $n = 2k$, by definition. The additive inverse of n is $-2k$. By commutativity of addition, $-2k = 2(-k)$, and $-k$ is an integer because the product of integers is an integer $\therefore -n$ is an even number by definition. ■