Theorem (1.6.2)**.** *Let x and y be integers. If x and y are even then $x + y$ is even.*

Proof. By definition, there exist integers m and n such that $2m = x$ and $2n = y$. $2m + 2n = 2(m + n)$. $m + n$ is an integer k because the sum of integers is an integer. Thus, $x + y = 2k$ is even, by definition. ■