

Theorem (1.6.1). *Let x and y be integers. If x and y are odd, then $x + y$ is even.*

Proof. By definition, there exists integers m and n such that $x = 2m + 1$ and $y = 2n + 1$. $2m + 1 + 2n + 1 = 2(m + n + 1)$. $m + n + 1$ is an integer k because the sum of integers is an integer $\therefore x + y = 2k$ is even by definition. ■