1. For every $a, b, c \in \mathbb{N}$, $\text{lcm}(ca, cb) = c \cdot \text{lcm}(a, b)$.

2. Every multiple of 4 can be written in the form $1 + (-1)^n(2n-1)$.

3. For every integer n, n^2+3n+3 is odd.

4. Let $a,b \in \mathbb{N}$. If $\gcd(a,b) > 1$, then $b \mid a$ or b is not prime.
   (First, think about your logical **strategy**.)