Proove by Contrapositive $\forall n \in \mathbb{N}$ n^2+2n+2 is even $\rightarrow$ n is even

Contrapositive: n is odd $\rightarrow$ n^2+2n+2 is odd.

let $n \in \mathbb{N}$ be odd s.t $n = 2k+1$ for some $k \in \mathbb{N}$.

then $n^2+2n+2 = (2k+1)^2+2(2k+1)+2 = 4k^2+4k+1+4k+2+2$

$= 4k^2+8k+4+1 = 2(2k^2+4k+2)+1$ which is odd.

Hence the statement is true by contrapositive.