

6) $n \in \mathbb{Z}$ odd and $m \in \mathbb{Z}$ odd $\Rightarrow n \cdot m$ is odd

Hyp. 1: $n = 2p + 1$; $m = 2q + 1$

Hyp. 2: $(2p + 1) \cdot (2q + 1)$

$$4pq + 2p + 2q + 1$$

$$6pq + 1$$

$\underbrace{L}_{\in \mathbb{N}} + 1 \rightarrow$ definition of an odd number $\in \mathbb{N}$

any even number $\in \mathbb{N}$ multiplied by any number $\in \mathbb{N}$ is even

Thesis: $(2n) \cdot p \quad (n, p \in \mathbb{N})$

$$2np$$

$$2r \quad (r \in \mathbb{N})$$

$2r \Rightarrow$ even, following schema $2r$, with $r \in \mathbb{N}$

q.e.d