Reductio ad absurdum
Proove that $\sqrt{2}$ is not rational.
We suppose that $\sqrt{2}$ is rational.
$\Rightarrow \exists (a,b) \in \mathbb{Z}^2 | \sqrt{2} = \frac{a}{b}$ and $a \wedge b = 1$
$\Rightarrow a^2 = 2b^2$
$\Rightarrow a = 2k, k \in \mathbb{N}$
$\Rightarrow b^2 = 2k^2$
$\Rightarrow a \wedge b \geq 2$. **contradiction**