

Things to prove:

- Ask: how do we say "n is even"?
- Direct Proof: $\forall n \in \mathbb{Z} . n(n + 1)$ is even
- Ask: how do we say n is rational?
- Proof by contradiction: $\exists x \in \mathbb{R} . \neg(x \text{ is rational})$
- Proof by exhaustion: $\exists x \in \mathbb{R} . \exists y \in \mathbb{R} . \neg(x \text{ is rational} \wedge \neg(y \text{ is rational})) \wedge x^y$ is rational
- Ask: how do we say n divides k?
- $\exists z \in \mathbb{Z} . \forall m \in \mathbb{Z} . z$ divides m
- Ask: how do we say p is prime?
- $\exists! m . m$ is prime $\wedge m$ is even
- Summation Notation
- $\forall n \in \mathbb{N} \exists m \in \mathbb{N} \sum_{i=1}^m \frac{1}{i} \geq n$