Theory

Language as a set of strings
Regular operation on language A, B
- Unim A u B = {xlXEA or XEB}
- Contentanation = AoB={XYl XEA and XEB}
- Star A* = {X_1, X2 ..... Xk l k>=0, XiEA}

Theorem:
- There exist a language that is not regular

Type of proof
- If A and only if B
  - Prove A leads to B and B leads to A
- Proof by counter example (prove false
- Proof by construction
- Proof by induction

Prove n2 >= 2N given n >=2
- Base case 2^2>= 2x2
- Induction case: also true for n=m, prove that n = m+1
  - $(M+1)^2$ >= 2(M+1)
  - M^2+2m+1>= 2M+2
  - M^2>= 1