Thm (Pumping Lemma)

If A is a regular language, then there is a number p (pumping length) such that for $s \in A$ and $|s| \geq p$, s can be decomposed into $s = xyz$, satisfying the following conditions

① for $i \geq 0$, $xy^iz \in A$

② $|y| > 0$, and

③ $|xy| \leq p$