Theorem 1. *A problem A is polynomial-time reducible to problem B, denoted $A \leq_P B$, if all instance of A can be reduced to B.*

Parallel to set theory: $A \subseteq B$, $\forall a \in A, a \in B$
Let $A \leq_P B$, if I can solve B in polynomial time, then I can solve A in polynomial time.

Theorem 2. *A problem P is a complexity class in NP such that there is a polynomial time to solve them*

$$P \subseteq NP$$
$$\forall Q \in P, Q \in NP$$

Theorem 3. *A problem H is NP-complete if for all $q \in$ NP are polynomially reducible to H.*

In notation,

$$H \in NP \wedge \forall Q \in NP : Q \leq_P H$$