L3

1. Sets
2. Relations
3. Functions
4. Binary relation
5. Relations can be represented as directed graphs

Reflexive

- $R \subset A \times A$, $(a, a) \in R$

Antisymmetric

- $R \subset A \times A$ and if $(a, b) \in R \implies (b, a) \notin R$

Partial Order relationship

- Reflexive, antisymmetric, transitive
- $\{(a, b) : a, b \in Z, a >= b\}$

Total order

- Is a partial order relation
- $a, b \in A$, either $a, b \in R$
  or $b, a \in R$
- The ancestral relationship when we have siblings is not total
- $\leq$ is a toset

Language

- Symbols are used to represent sounds of the alphabet
- Alphabet is a finite set of symbols
- A string over an alphabet is a finite sequence of symbols from the alphabet
- language is a semantic ordering of a subset of all combinations of strings