Chapter 4 & 5.

Recall: if A, B are sets, a relation from A to B is a subset of $A \times B$.

a) Partial order: a relation on a set of A is a relation R from A to A that satisfy:

R is reflexive if aRa.

anti-Symmetric if $\forall a,b \in A, (aRb \wedge bRa \rightarrow a=b)$.

transitive: $\forall a,b,c \in A, aRb \wedge bRc \rightarrow aRc$.

Let R be a partial order on set A. Then an element $a \in A$ is

Smallest if $\forall b \in A\ (aRb)$.

minimum if $\forall b \in A, (bRa \rightarrow b=a)$