

Homework on relations

CISC1100, Fall 2009

Due Oct 30th , Friday

1. Read chapter 3 of the book. Make sure you understand the practice problems.
2. Exercise problems (Page 64): 3.1 (please specify 5 ordered pairs for each relation), 3.3, 3.4, 3.5 (a), (c), (e)
3. $A=\{1,2,3\}$, for the following relation defined on domain $P(A)$, i.e., power set of A , also the set of all subsets of A , draw a graph representation of the relation, and comment on whether this relation is reflexive, irreflexive, symmetric, anti-symmetric, and transitive.

$$R = \{(x, y) \mid x \subseteq A \text{ and } y \subseteq A \text{ and } x \subseteq y\}.$$

Hint:

- a) WE first want to write out our domain, i.e. $P(A)=P(\{1,2,3\})$. Remember the definition of power set from the earlier classes, and remember how many elements there should be in the power set.
- b) Next for each pair of elements of the domain, we check if they are related to each other (in each direction) using above definition given in set builder notation.