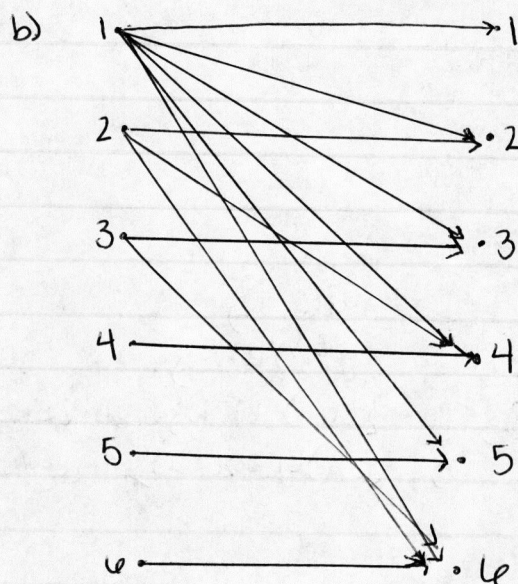


I pledge my honor that I have abided by the Stevens
honor system. *Fairway*

11/10/15

Homework 9 9.1: 2, 4, 6 (defgh), 10, 12, 42, 44

2. a) $R = \{(1,1), (1,2), (1,3), (1,4), (1,5), (1,6), (2,2), (2,4), (2,6), (3,3), (3,6), (4,4), (5,5), (6,6)\}$



c)

R	1	2	3	4	5	6
1	x	x	x	x	x	x
2		x		x		x
3			x			x
4				x		
5					x	
6						x

4. a) Antisymmetric, Transitive
b) Reflexive, Symmetric, Transitive
c) Reflexive, Symmetric, Transitive
d) Reflexive, Symmetric

6. d) Antisymmetric
e) Reflexive, Symmetric
f) Symmetric
g) antisymmetric, Transitive
h) Symmetric

10. a) $\{(a,b) \mid a=b\}$
 b) $\{(a,b), (b,a), (a,c)\}$

12. a) irreflexive
 b) Not irreflexive
 c) Not irreflexive
 d) Not irreflexive

42. $\{\}$ $\{(0,0)\}$ $\{(0,1)\}$ $\{(1,0)\}$
 $\{(1,1)\}$ $\{(0,0), (0,1)\}$ $\{(0,0), (1,0)\}$ $\{(0,0), (1,1)\}$
 $\{(0,1), (1,0)\}$ $\{(0,1), (1,1)\}$ $\{(1,0), (1,1)\}$ $\{(0,0), (0,1), (1,0)\}$
 $\{(0,0), (0,1), (1,1)\}$ $\{(0,0), (1,0), (1,1)\}$ $\{(0,1), (1,0), (1,1)\}$ $\{(0,0), (0,1), (1,0), (1,1)\}$

44. a) reflexive?
 $\{(0,0), (1,1)\}, \{(0,0), (0,1), (1,1)\}, \{(0,0), (1,0), (1,1)\}, \{(0,0), (0,1), (1,0), (1,1)\}$
 b) irreflexive?
 $\{\}, \{(0,1)\}, \{(1,0)\}, \{(0,1), (1,0)\}$
 c) symmetric?
 $\{\}, \{(0,0)\}, \{(1,1)\}, \{(0,0), (1,1)\}, \{(0,1), (1,0)\}, \{(0,0), (1,0), (0,1)\},$
 $\{(0,1), (1,0), (1,1)\}, \{(0,0), (0,1), (1,0), (1,1)\}$
 d) antisymmetric?
 $\{\}, \{(0,0)\}, \{(0,1)\}, \{(1,0)\}, \{(1,1)\}, \{(0,0), (0,1)\}, \{(0,0), (1,0)\},$
 $\{(0,0), (1,1)\}, \{(0,1), (1,1)\}, \{(1,0), (1,1)\}, \{(0,0), (0,1), (1,1)\}, \{(0,0), (1,0), (1,1)\}$
 e) asymmetric?
 $\{\}, \{(0,1)\}, \{(1,0)\}$
 f) transitive?
 $\{\}, \{(0,0)\}, \{(0,1)\}, \{(1,0)\}, \{(1,1)\}, \{(0,0), (0,1)\}, \{(0,0), (1,0)\}, \{(0,0), (1,1)\},$
 $\{(0,1), (1,1)\}, \{(1,0), (1,1)\}, \{(0,0), (0,1), (1,1)\}, \{(0,0), (1,0), (1,1)\}, \{(0,0), (0,1), (1,0), (1,1)\}$