HOMEWORK #2

Problem 1. Consider the partition

 $\mathcal{P} = \{\{1, 3, 7, 8, 9, 10\}, \{2, 4\}, \{5\}, \{6\}\}.$

Let \sim be the associated equivalence relation.

- (a) What is $\overline{7}$?
- (b) Is it true that $7 \sim 5$?
- (c) List 4 elements of A so that $a \not\sim b$ for any distict a and b in your list.

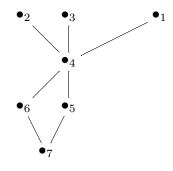
Problem 2. The following table describes an equivalence relation. Find the associated set of ordered pairs that is this relation.

\sim	1	2	3	4	5	6	
1	*	*	*				
2	*	*	*				
3	*	*	*				х
4				*		*	
5					*		
6				*		*	

х

Problem 3. There are 5 partitions on the set $\{0, 1, 2\}$. Find them all.

Problem 4. Given this Hasse diagram, find the associated parital order, giving your answer as a table.



\preceq	1	2	3	4	5	6	7
1	*						
2	*	*					
3	*	*	*	*			
4	*			*			
5	*	*	*	*	*		
6	*	*	*	*		*	
7	*	*	*	*	*	*	*

Problem 5. Given the partial order indicated by this table, find the associated Hasse diagram.

Problem 6. If \leq is the partial order indicated in this talble, what are all the maximal elements?

\preceq	1	2	3	4	5	6	7	8	9
1	*	*	*	*	*	*	*	*	*
2		*				*			
3			*				*		
4			*	*			*	*	*
5		*	*		*	*	*		
6						*			
7							*		
8								*	
9								*	*