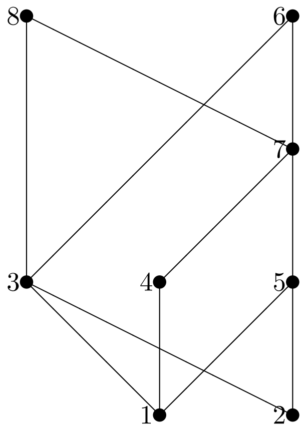
Name .... group BA... row .... col....

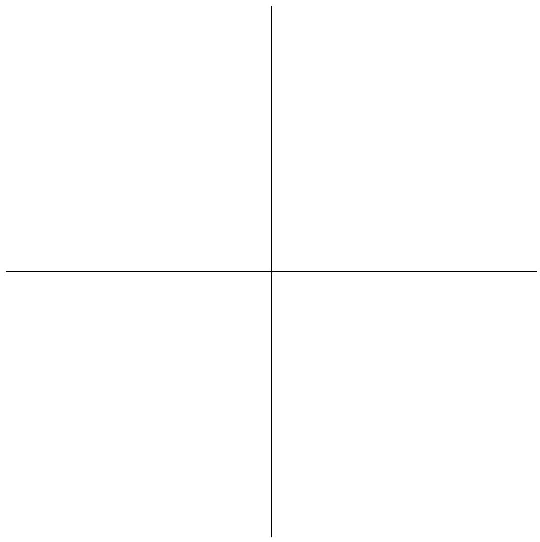
1.	2.	3.	$\sum$

1. Find sup and inf for every par of elements



inf	1	2	3	4	5	6	7	8
1	1	x	x	x	x	x	x	x
2		2	x	x	x	x	x	x
3			3	x	x	x	x	x
4				4	x	x	x	x
5					5	x	x	x
6						6	x	x
7							7	x
8								8

2. For $(x, y), (s, t) \in \mathbb{R}^2$ let $(x, y)R(s, t) \Leftrightarrow \exists k \in \mathbb{Z}\ x^2 - y + k = s^2 - t$. Prove R is equivalence relation. Find equivalence class $[(a, b)]_R$. Draw $[(1, 1)]_R$.

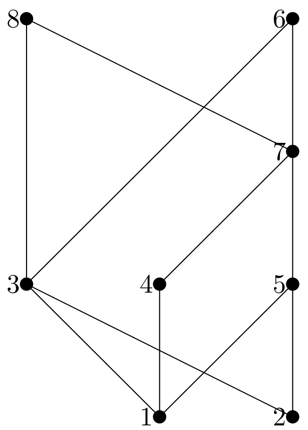


3. For $(x, y), (s, t) \in \mathbb{N}_+^2$ $(x, y) \preceq (s, t)$ iff $x \cdot y < s \cdot t \lor (x, y) = (s, t)$. Prove that $\preceq$ is a partial order. Draw the Hasse diagram for $(\{(x, y) : x, y \in \{1, 2, 3\}\}, \preceq)$. Find the smallest, largest, all minimal, all maximal elements.

Name .... group BA... row .... col....

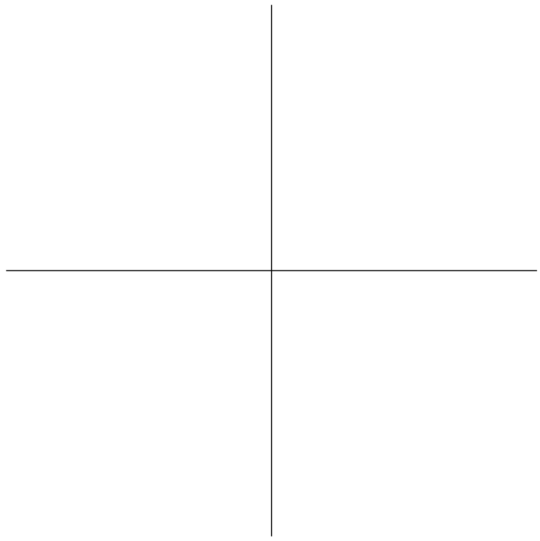
1.	2.	3.	$\sum$

1. Find sup and inf for every par of elements



sup	1	2	3	4	5	6	7	8
1	1							
2	x	2						
3	x	x	3					
4	x	x	x	4				
5	x	x	x	x	5			
6	x	x	x	x	x	6		
7	x	x	x	x	x	x	7	
8	x	x	x	x	x	x	x	8

2. For $(x,y),(s,t) \in \mathbb{R}^2$ let $(x,y)R(s,t) \Leftrightarrow \exists k \in \mathbb{Z}\ x^2 + y + k = s^2 + t$. Prove R is equivalence relation. Find equivalence class $[(a,b)]_R$. Draw $[(1,1)]_R$.



3. For $(x, y), (s, t) \in \mathbb{N}_+^2$ $(x, y) \preceq (s, t)$ iff $2x+y < 2s+t \vee (x, y) = (s, t)$. Prove that $\preceq$ is a partial order. Draw the Hasse diagram for $(\{(x, y) : x, y \in \{1, 2, 3\}\}, \preceq)$. Find the smallest, largest, all minimal, all maximal elements.