

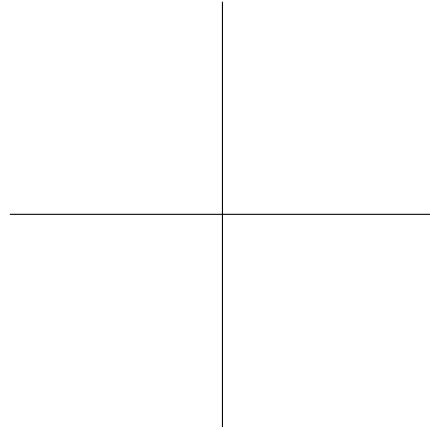
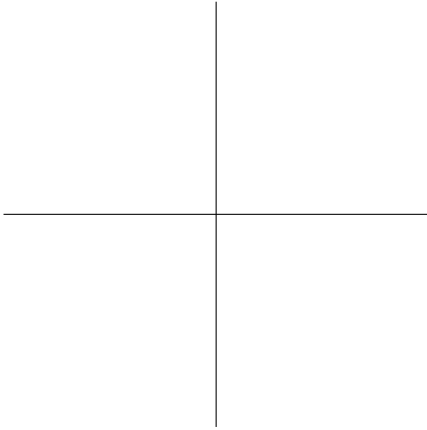
Name

AA	1	2	row	col....
	1.	2.	3.		Σ

2. For $X_{a,b} = \{(x, y) \in \mathbb{R}^2 : y > a(x - b)^3\}$ where $a, b \in \mathbb{R}$. Find:

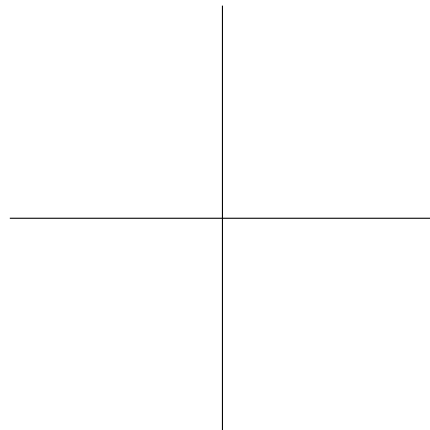
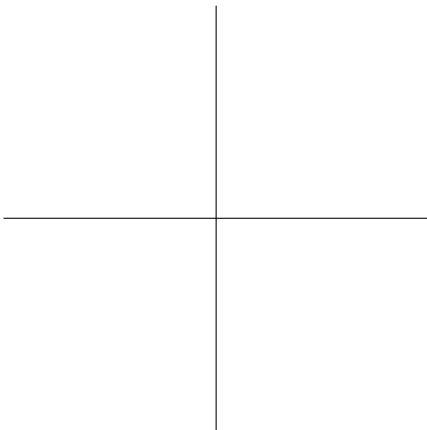
$$\bigcap_{a>0} X_{a,b}$$

$$\bigcup_{b>0} \bigcap_{a>0} X_{a,b}$$



$$\bigcup_{a \in \mathbb{R}} X_{a,b}$$

$$\bigcap_{b>0} \bigcup_{a \in \mathbb{R}} X_{a,b}$$



2. For $x, y \in \mathbb{R}$ $x \sim y \Leftrightarrow \cos x = \cos y$. Prove \sim is equivalence relation.

Find equivalence classes $[\pi/2]_{\sim}, [0]_{\sim}, [a]_{\sim}$.

3. For $(x, y), (s, t) \in \mathbb{R}^2$ let $(x, y) \sim (s, t) \Leftrightarrow \exists k \in \mathbb{Z} x + y + k = s + t$. Prove that \sim is equivalence relation, find equivalence class $[(0, 0)]_{\sim}, [(1, 0)]_{\sim}, [(a, b)]_{\sim}$.

Name

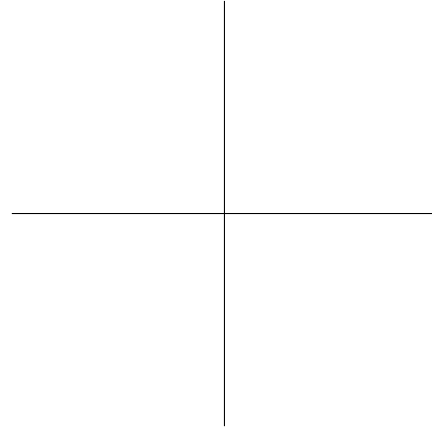
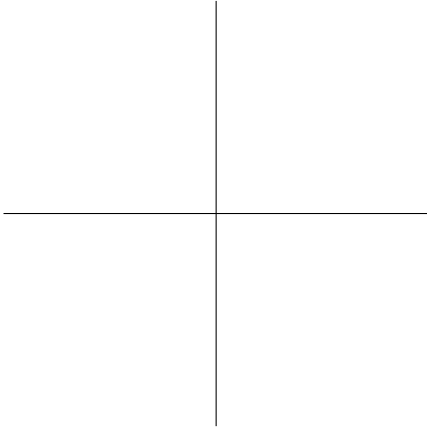
AA 1 2 row col....

1.	2.	3.	Σ

2. For $X_{a,b} = \{(x, y) \in \mathbb{R}^2 : y \leq a(x - b)^3\}$ where $a, b \in \mathbb{R}$. Find:

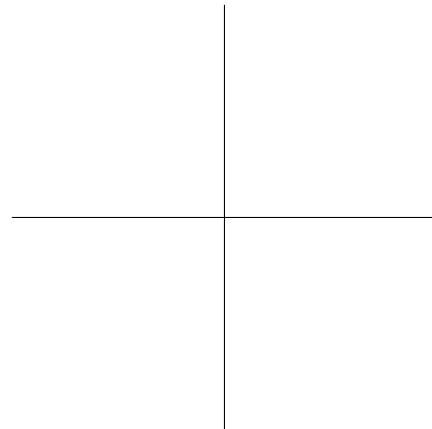
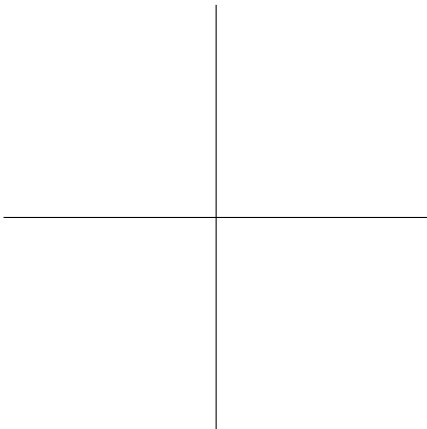
$\bigcap_{a>0} X_{a,b}$

$\bigcup_{b>0} \bigcap_{a>0} X_{a,b}$



$\bigcup_{a \in \mathbb{R}} X_{a,b}$

$\bigcap_{b \in \mathbb{R}} \bigcup_{a \in \mathbb{R}} X_{a,b}$



2. For $x, y \in \mathbb{R}$ $x \sim y \Leftrightarrow \sin x = \sin y$. Prove \sim is equivalence relation.

Find equivalence classes $[\pi/2]_{\sim}, [0]_{\sim}, [a]_{\sim}$.

3. For $(x, y), (s, t) \in \mathbb{R}^2$ let $(x, y) \sim (s, t) \Leftrightarrow \exists k \in \mathbb{Z} x - y + k = s - t$. Prove that \sim is equivalence relation, find equivalence class $[(0, 0)]_{\sim}, [(1, 0)]_{\sim}, [(a, b)]_{\sim}$.