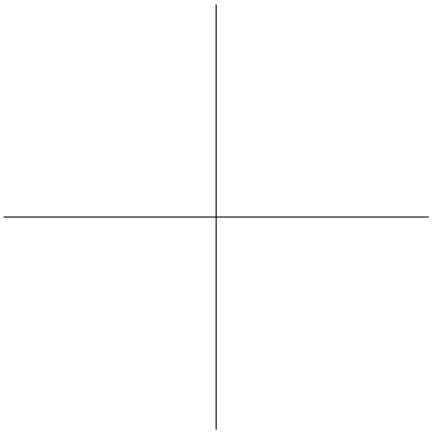
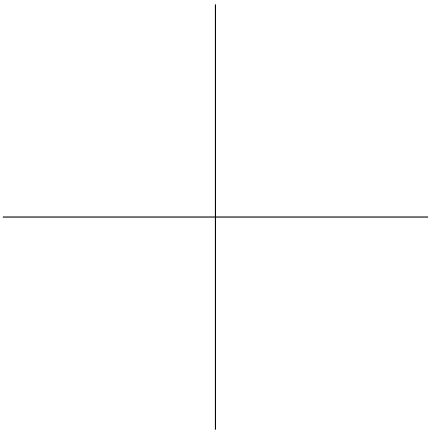
Name ..... EA 1 2 row .... col....

1.	2.	3.	4.	$\sum$

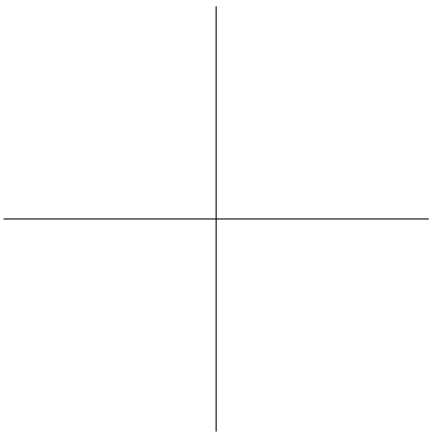
1. Write the mathematical formulas corresponding to the following statements with the help of the following signs only: propositional connectives, quantifiers, variables varied through set $\mathbb{R}$ and symbols $\in, \mathbb{R}, \mathbb{R}^{\mathbb{R}}, \leq, <, =, \cdot, +, -, 0$.
function f is increasing from some point

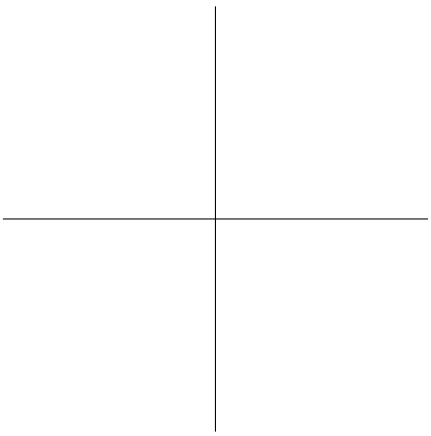
2. For $X_{a,b} = \{(x, y) \in \mathbb{R}^2 : y > a(x - b) + \frac{1}{b}\}$ where $a, b \in \mathbb{R}$. Find:
$\bigcap_{a>0} X_{a,b}$ $\bigcup_{b\in\mathbb{R}} \bigcap_{a>0} X_{a,b}$



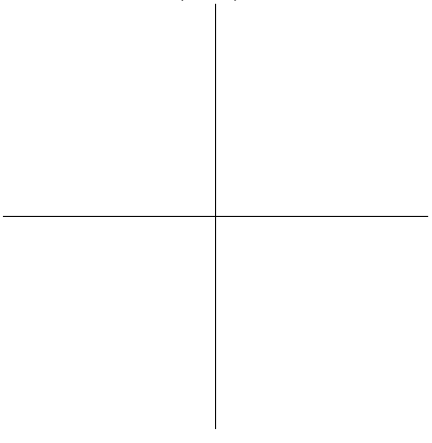


$\bigcup_{a>0} X_{a,b}$ $\bigcap_{b<0} \bigcup_{a>0} X_{a,b}$





3. Find $f[A]$ and $f^{-1}[f[A]]$ for $A = [-2, 1] \times [-1, 1]$ for $f : \mathbb{R}^2 \to \mathbb{R}$ where $f(x, y) = x^2 - y$



4. Are given relations functions? For functions find their domain, set of valued and settle if they are one-to-one functions ? $x, y, z \in \mathbb{R}$.

$(x, y)Rz \Leftrightarrow (z - x)^2 = -x^2 y$

$(x, y)Sz \Leftrightarrow (z + y)^2 = -(x + y)^2$

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function f is constant on some infinite interval

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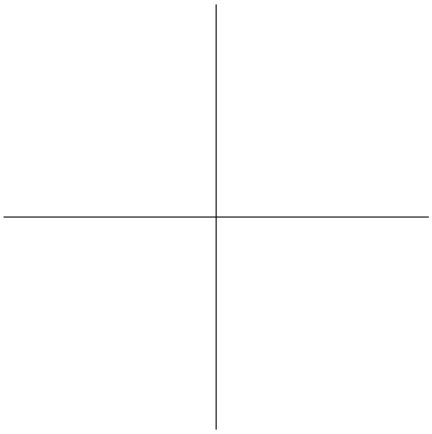

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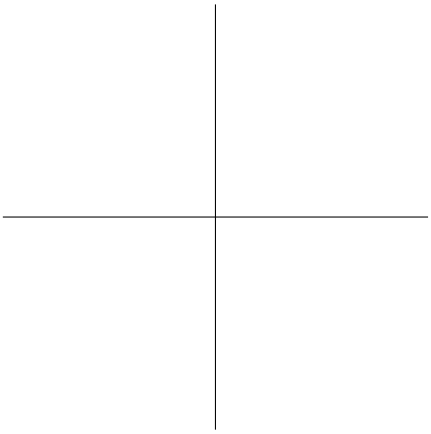

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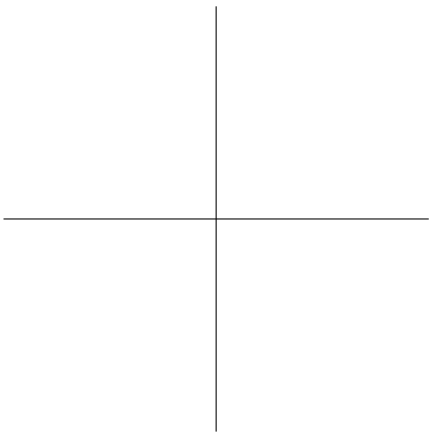
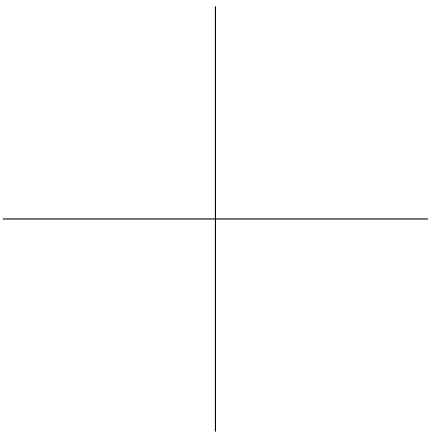


$\bigcap_{b<0} \bigcup_{a>0} X_{a,b}$



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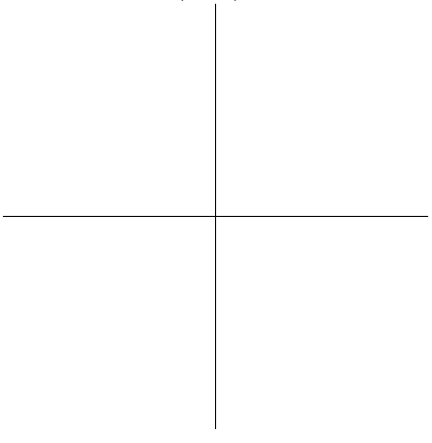

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