Name ..... FA 1 2 3 row .... col....

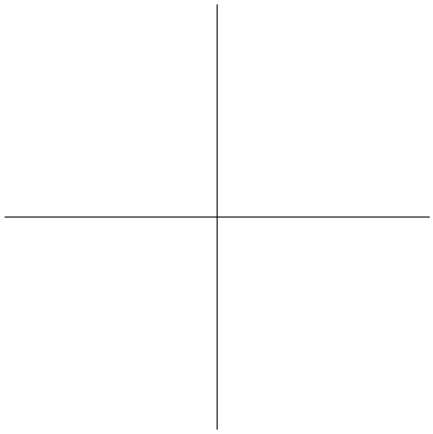
1.	2.	3.	4.	$\sum$

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 $\in, \mathbb{R}, \mathbb{R}^{\mathbb{R}}, \leq, <, =, \cdot, +, -, 0$.

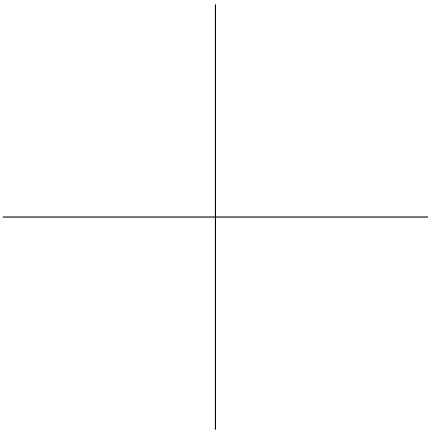
function f is unbounded from above or from below

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

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



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



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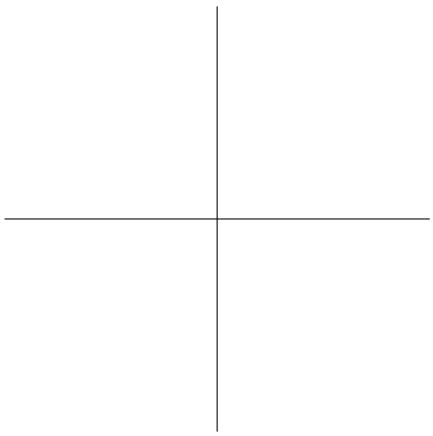

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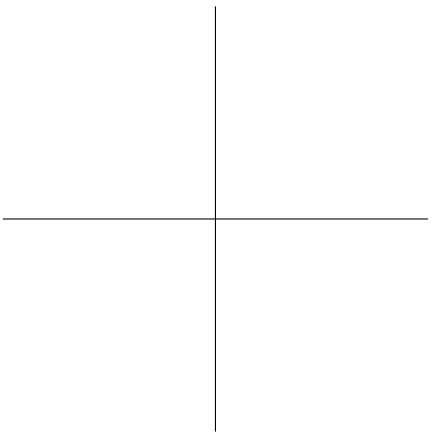
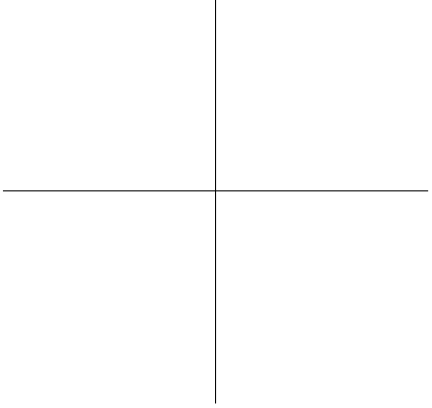


3. Find $f[(-3,2)\times(-2,1]] =$
and $f^{-1}[[0,\infty)]$ for $f:\mathbb{R}^2\to\mathbb{R}$ where $f(x,y)=(x-1)^2-\frac{1}{y}$



4. Are given relations functions? For functions find their domain, set of valued and settle if they are one-to-one functions ? $x,y,z\in\mathbb{R}$.
$(x,y)Rz \Leftrightarrow 4z^2+x^2y^2=4xyz$
$(x,y)Uz \Leftrightarrow \sin z = x^2+y^2+1$

Name ....., FA 1 2 3 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 has zero, but has no largest zero

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

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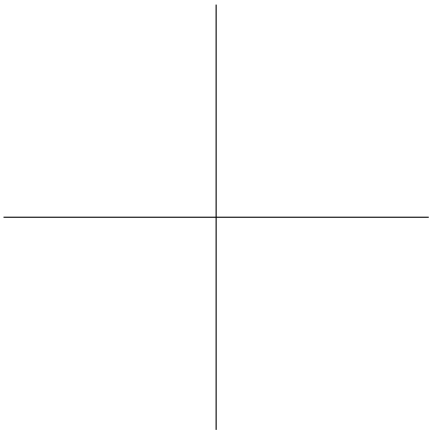

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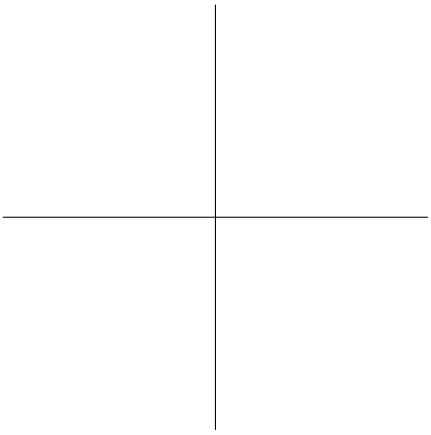

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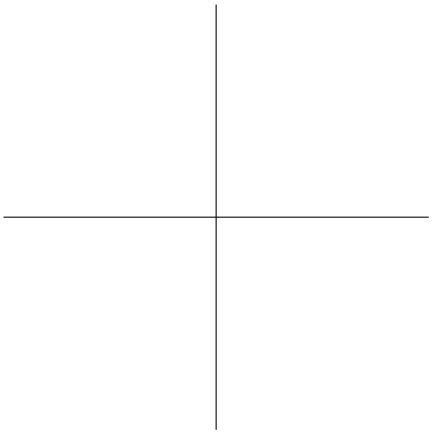

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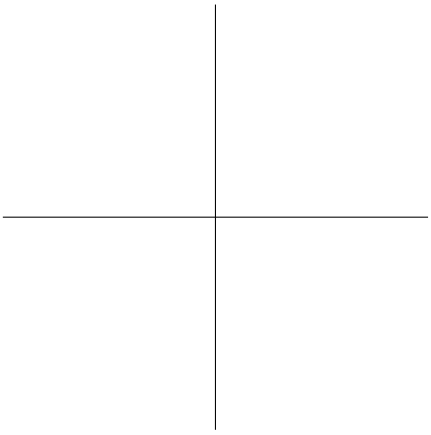

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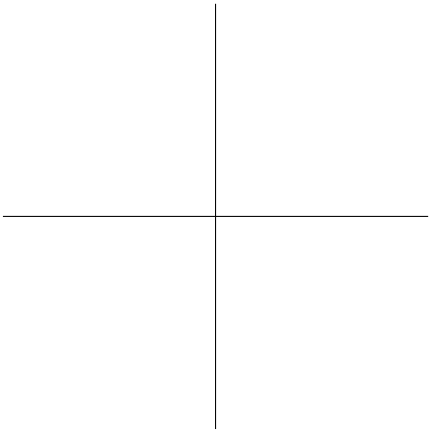

4. Are given relations functions? For functions find their domain, set of valued and settle if they are one-to-one functions ? $x,y,z\in\mathbb{R}$.
$(x,y)Tz \Leftrightarrow \cos(x^2+y^2)=z^2+1$
$(x,y)Pz \Leftrightarrow x^2=(z-y^2)^2$

Name ..... , , FA 1 2 3 row .... col....

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Function has infinitely many maximums

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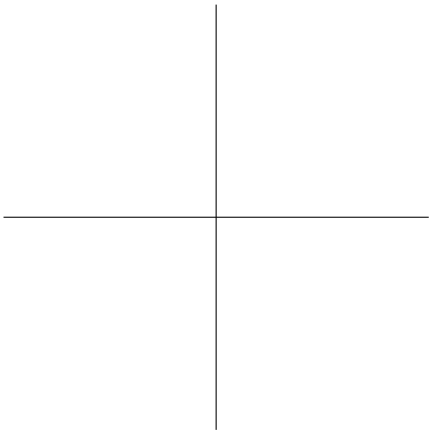

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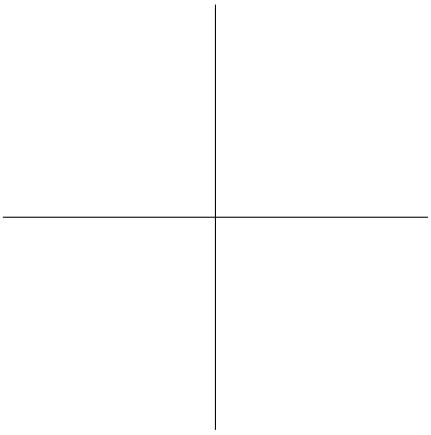

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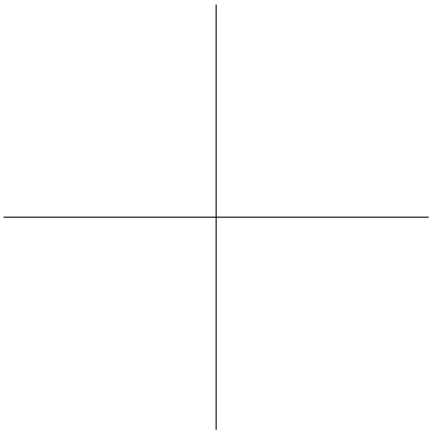

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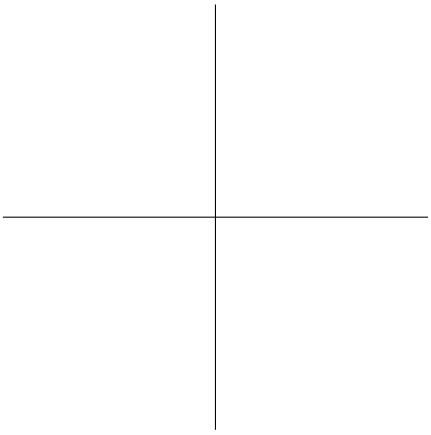

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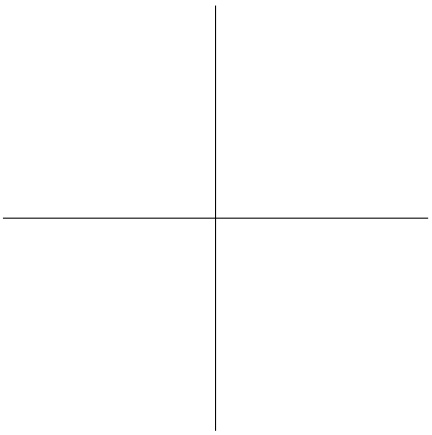

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