Name ..... GA .... row .... col....

1.	2.	3.	$\sum$

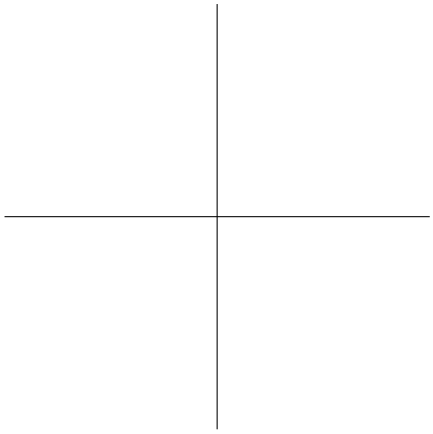
1.(1p) Find:

$\bigcap_{i\in\mathbb{N}_+}[1+\frac{1}{2i},5-\frac{1}{i})\times[1-\frac{1}{2i},5+\frac{1}{i}]=$

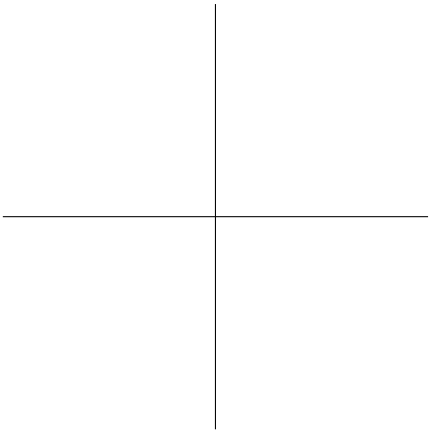
$\left(\bigcup_{i\in\mathbb{N}_+}[1+\frac{1}{2i},5-\frac{1}{i})\right)\times\left(\bigcup_{i\in\mathbb{N}_+}[1-\frac{1}{2i},5+\frac{1}{i}]\right)=$

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

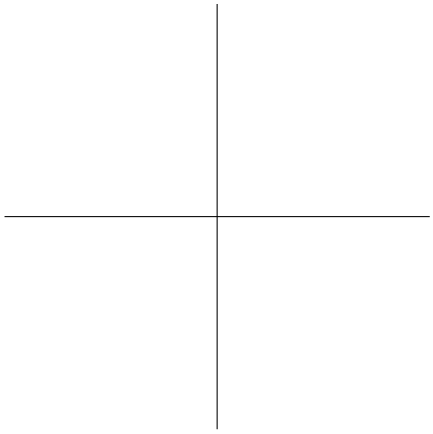
$\bigcap_{a\in\mathbb{R}} X_{a,b}$



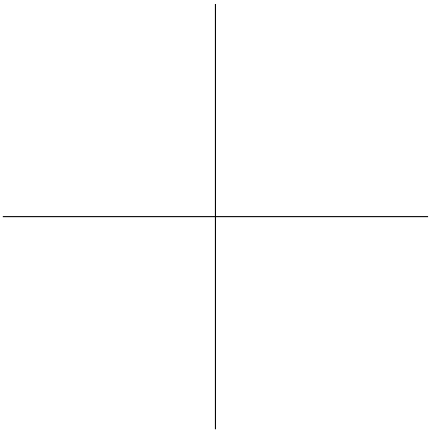
$\bigcup_{b\in\mathbb{R}}\bigcap_{a\in\mathbb{R}} X_{a,b}$



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



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



3.(4p) Are given relations functions? For functions find their domain, set of values and settle if they are one-to-one functions ? $x, y, z \in \mathbb{R}$.

$(x, y)Rz \Leftrightarrow 4z^2 + x^2y^2z^2 = 4xy$

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

Name ..... GA .... row .... col....

1.	2.	3.	$\sum$

1.(1p) Find:

$\bigcap_{i\in\mathbb{N}_+}[1+\frac{1}{2i},5-\frac{1}{i})\times[1-\frac{1}{2i},5-\frac{1}{i}]=$

$\left(\bigcup_{i\in\mathbb{N}_+}[1+\frac{1}{2i},5-\frac{1}{i})\right)\times\left(\bigcup_{i\in\mathbb{N}_+}[1-\frac{1}{2i},5-\frac{1}{i}]\right)=$

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

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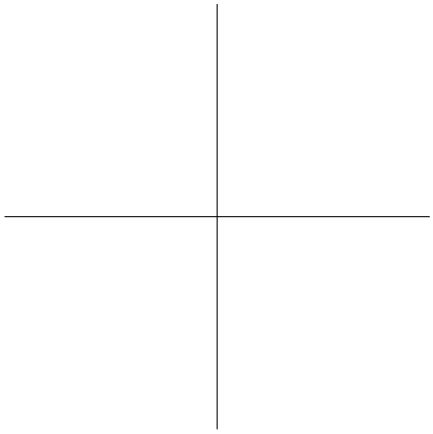

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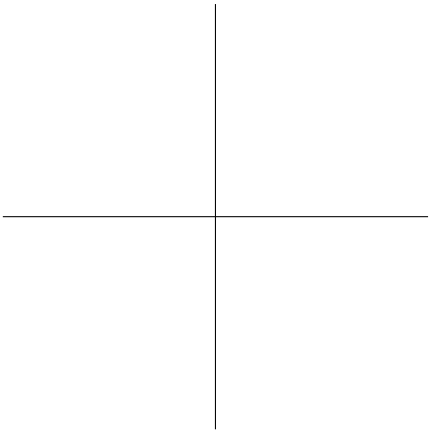

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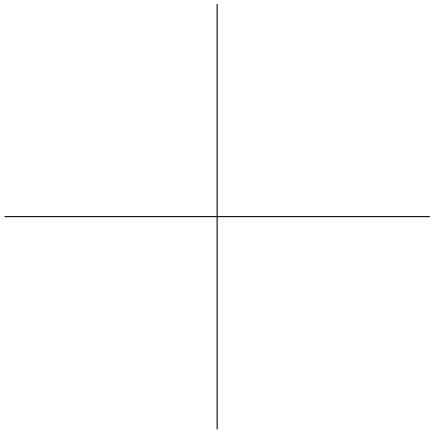

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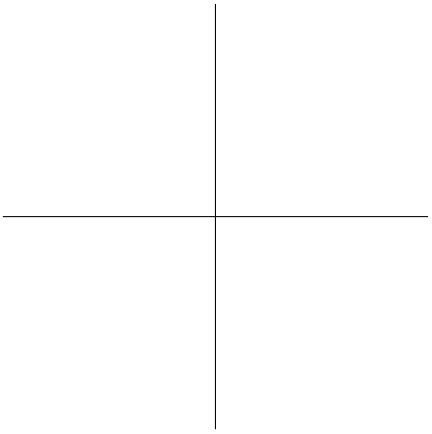

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$(x, y)Sz \Leftrightarrow 4z^2 + 4x^2y^2z^2 = xy$