

Name

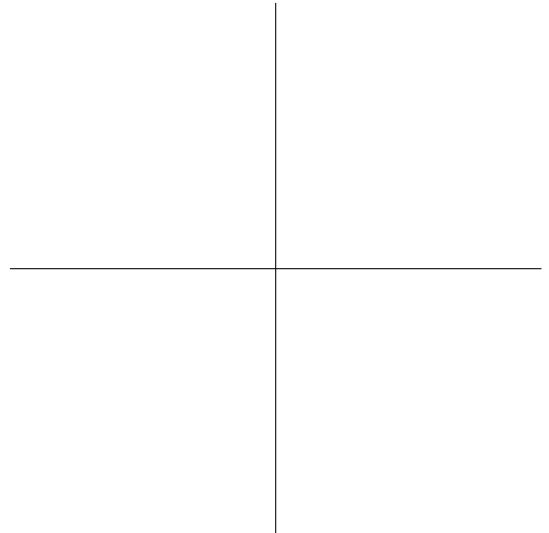
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1.	2.	3.	4.	Σ

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

a) function f is odd or even

b) function f is constant on some interval

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



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

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

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

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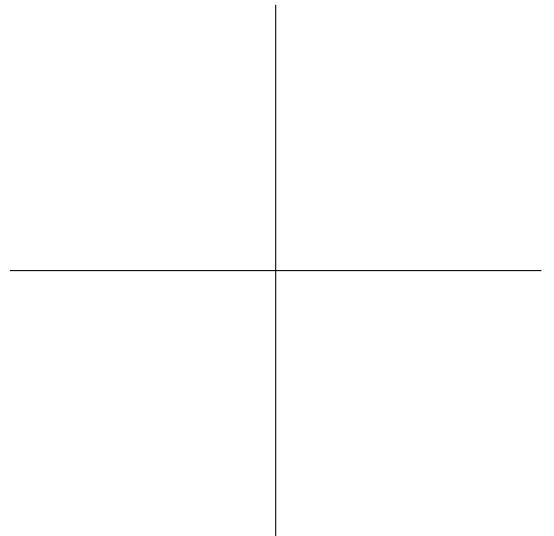
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1. Write the mathematical formulas corresponding to the following statements with the help of the following signs only: propositional connectives, quantifiers, variables varied through set \mathbb{R} and symbols $\in, \mathbb{R}, \mathbb{R}^{\mathbb{R}},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

a) function f is bounded from above or below

b) every positive number is a value of the function f

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



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

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

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