

►. Explain, in such a way as to indicate you understand, the indicated validity of the statements below. You may use properties of  $\mathbb{R}$  and inequalities that you know from high school. No formal proofs necessary.

1. Explain why the statement  $(\forall x \in \mathbb{R})[x^2 \geq 0]$  is true.
2. Explain why the statement  $(\exists x \in \mathbb{R})[x^2 < 0]$  is false.
3. Explain why the statement  $(\exists y \in \mathbb{R})[17 < y]$  is true.
4. Explain why the statement  $(\forall x \in \mathbb{R})(\exists y \in \mathbb{R})[x < y]$  is true.
5. Explain why the statement  $(\exists x \in \mathbb{R})(\forall y \in \mathbb{R})[x < y]$  is false.

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DELETE this whole sentence and THEN put your answer to ALL parts down here.