Variant of **2.4.2+1**.

►. For each problem below do the following.

a. Express the statement in English without using variables ⟨so can not have an x nor a y⟩. E.g.,

5a. The statement says that there is a real number that is strictly less than every other real number.

b. Explain, in such a why as to indicate you understand, the indicated validity ⟨true/false-ness⟩ of the statement. You may use, without proof, properties of $\mathbb{R}$ you know from high school. For example, you may use Lemma 1 (without proof).

Lemma 1. If $a \geq 0$ and $b \geq 0$ then $ab \geq 0$.

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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