Worksheet $I2$

Beginning Sets and Analytic Claims

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10. Prove or Disprove (Analytic Claims)

Claim 10.1. *$U = \mathbb{R}$. Let $x \in \mathbb{R} \wedge x > 0$ It is the case that $\frac{1}{x} > 0$.*
Prove or disprove the claim.

Claim 10.2. *$U = \mathbb{R}$. Let $x \in \mathbb{R} \wedge y \in \mathbb{R} \ni x < y$. It is the case that $\frac{1}{x} > \frac{1}{y}$.*
.
Prove or disprove the claim.

Claim 10.3. *$U = \mathbb{R}$. Let $x \in \mathbb{R} \wedge y \in \mathbb{R} \ni x > 0$ and $y \leq 0$. It is the case that $x \cdot y \leq 0$.*
Prove or disprove the claim.

Prove or disprove the following:

Claim 10.4. *$U = \mathbb{R}$ $x \cdot 0 = 0$.*

Claim 10.5. *$U = \mathbb{R}$ $x \in \mathbb{R}$. $x^2 > 0$.*

Claim 10.6. *$U = \mathbb{R}$ $x \in \mathbb{R}$. $x^2 \geq 0$.*

Claim 10.7. *$U = \mathbb{R}$ $x < 0 \ \wedge \ y > 0$ implies $x \cdot y < 0$.*

Claim 10.8. *$U = \mathbb{R}$ $x < 0 \ \wedge \ y > 0$ implies $x + y < 0$.*

Comment: "∞" is not a real number.