[11-09-22-T11]

Assignment

■ **Please find the mistake in the following proof and then write a correct proof.**

THEOREM 7. $0 < a < 1$, $r, s \in \mathbb{Q}$, $r > s \Longrightarrow a^r < a^s$, $a \in \mathbb{R}$. $\mathbb{Q}$ the set of rational numbers.

Proof. Suppose $0 < a < 1$, $r, s \in \mathbb{Q}$, $r > s$. Consider $\frac{a^s}{a^r} = a^{s-r}$. Since $r < s$, $s - r > 0$. By Theorem 4, $a^{s-r} > 1$. Since $\frac{a^s}{a^r} > 1$, $a^r < a^s$. □