1. Induction

2. Proof

3. Theorem

Proof: Let \( \frac{a}{b} = \frac{c}{d} \), then \( \frac{a}{b} = \frac{c}{d} \) implies \( ad = bc \). Therefore, \( \frac{a}{b} \cdot b = \frac{c}{d} \cdot b \), which simplifies to \( a = c \). Thus, \( \frac{a}{b} = \frac{c}{d} \) if and only if \( a = c \).