Proof by contradiction

Theorem: $\sqrt{7}$ is irrational.

Proof by contradiction.

If $\sqrt{7}$ is rational, then *by definition* $\exists$ integers a, b such that $\frac{a}{b} = \sqrt{7}$.
Without loss of generality, we will assume a and b are relatively prime (where relatively prime means that they have no common factors greater than 1).