

Proofs

`qed_symbol` sets the end-of-proof symbol, `amsthm's \qedsymbol`, as `math`. Here it is a filled square instead of the default open box.

Theorem 1. $\sqrt{2}$ is irrational.

Proof. Suppose $\sqrt{2} = p/q$ in lowest terms. Then $p^2 = 2q^2$, so p is even, and then so is q : a contradiction. ■

When a proof ends in a display or a list, the symbol would sit on a line of its own. Put `\qedhere` where it should go, as in LaTeX:

Another proof of Theorem 1. Write $p = 2r$. Then $4r^2 = 2q^2$, so

$$q^2 = 2r^2. \quad \blacksquare$$

Proof. Two cases remain:

1. q is odd, which contradicts $q^2 = 2r^2$;
2. q is even, which contradicts lowest terms. ■

A proof inside a proof ends with a symbol of its own:

Proof. We need a lemma.

Proof. The lemma's own proof. ■

The rest follows. ■