

Proof by contradiction that $\sqrt{7}$ is irrational, continued

Note that 7 being prime was important in the proof.

We said that if 7 divides a^2 then 7 divides a , and we used that 7 is prime.

This was necessary since it doesn't hold that if 4 divides a^2 then 4 divides a (e.g., let $a = 6$).

Here's a longer justification for why 7 must divide a if 7 divides a^2 .