The symbol for the rational numbers is $\mathbb{Q}$ while the symbol for the irrational numbers is $\mathbb{R} \setminus \mathbb{Q}$.
So you can express that x is an irrational number by $x \notin \mathbb{Q}$ or by $x \in \mathbb{R} \setminus \mathbb{Q}$.
Recall for any sets R and Q, the set R set minus Q is the set $R \setminus Q \stackrel{\text{def.}}{=} \{x \in R \colon x \notin Q\}$.
Note the difference in direction in the slash for set minus $(R \setminus Q)$ and quotient of numbers $(1/2 = 0.5)$.

A symbol for the positive real numbers is $\mathbb{R}^{>0}$ where $\mathbb{R}^{>0} = \{x \in \mathbb{R} \colon x > 0\}$.
You may use the fact we showed in class that if p is a prime then $\sqrt{p}$ is irrational.

▶. **Conjecture A**. For each positive real number x, if x is irrational, then x^2 is irrational.

1. Symbolically write Conjecture A.
2. State whether Conjecture A is true or false.
3. Justisfy your answer to the previous part. You should understand that this means the following. If Conjecture A is true, then provide a proof of Conjecture A. If Conjecture A is false, then provide a counterexample and clearly explain why the conterexample is indeed a counterexample.

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