

Discuss with your partner(s)

1. Prove $\sqrt{2}$ is irrational using a proof by contradiction.
2. In Seville, there is a barber who shaves all those men, and only those men, who do not shave themselves. Does the barber shave himself or not?
3. Let $S = \{A \mid A \text{ is a set and } A \notin A\}$. How is S related to # 2?