▶ Recall Symbolically Write Guidelines, which is posted homework page and handout page for your convenience. Note item 4 states: within an open sentence, you can use English words that are not logical connectives word (e.g. x is irrational).
▶ Recall, the symbol for the rational numbers is $\mathbb{Q}$ while the symbol for the irrational numbers is $\mathbb{R} \setminus \mathbb{Q}$.

Exercise. A variant of Exercise 3.3.8a. §3.3 p127

Theorem 3. If x is a real number, then $\left(x + \sqrt{2}\right)$ is irrational or $\left(-x + \sqrt{2}\right)$ is irrational.

i. Symbolically write Theorem 3. Hint: Use $\mathbb{R}$ as the universe.

cut this out and put your solution here

ii. Prove Theorem 3. Hint: You may use Theorem 3.20 (pg. 124) which says $\sqrt{2}$ is irrational.