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- ▶ 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  $\mathbb{R} \setminus \mathbb{Q}$ .
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**Exercise.** A variant of Exercise 3.3.6c.

§3.3  
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**Conjecture 1.** For every pair of real numbers  $x$  and  $y$ , if  $x + y$  is irrational, then  $x$  is irrational and  $y$  is irrational.

i. Symbolically write Conjecture 1.

cut this out and put your solution here

ii. Determine if Conjecture 1 is true or false. If Conjecture 1 is true, then write a formal proof of Conjecture 1. If Conjecture 1 is false, then provide a counterexample that shows (and clearly explains) why Conjecture 1 is false.