1. Let compete(x, y) be the statement “student x has competed for UT in sport y”, where the domain of x is “UT students” and the domain of y is all varsity sports in which UT competes with other universities. Express each of the following statements in terms of compete(x, y), quantifiers, and logical connectives such as ¬, ∨, ∧, →, ↔, and ≡.

   a. No student at UT has ever competed in a varsity sport at UT.

   b. There is a student at UT who has competed in some varsity sport at UT.

   c. Every varsity sport has had a student from UT compete.

   d. There is a student at UT who has competed in both football and baseball.

   e. At least two students from UT have competed in tennis.

2. What relevant conclusion(s) can you draw from each of these sets of premises? Show the steps you take to reach each conclusion, explaining which rules of inference you used.

   a. “Everyone in the landing party has a phaser.”
      “Captain Kirk does not have a phaser.”
      “Spock has a phaser.”

   b. “I am either watching The Walking Dead on TV or doing my homework.”
      “I am not doing my homework.”
      “If I watch The Walking Dead on TV, I get hungry for chips.”