1. 

2. Write in “if-then” from: 

3. write the negation of the statement:



4. Using *c* for “it is cold” and *w* for “it is windy”, write “To be windy it is necessary that it be cold” in symbols.

5. Write in “if-then” form

To get a good grade it is necessary that you study.

6. Find the negation of “It is Thursday and it is cold.”

7. A proposition is called tautology if it is always true.

Determine whether this proposition is a tautology: ((*p*  *q*)  *p*)  *q*.

8. On the island of knights and knaves you encounter two people, *A* and *B.* Person *A* says, "*B* is a knave." Person *B* says, "We are both knights." Determine whether each person is a knight or a knave.

9. On the island of knights and knaves you encounter two people. *A* and *B*. Person *A* says, "*B* is a knave." Person *B* says, "At least one of us is a knight." Determine whether each person is a knight or a knave.