

Math 2200. Discrete Mathematics. Lecture 1. 08.26.08

1. How can the following English sentences be translated into logical expressions:

1. It is necessary to wash your boss's car to get promoted.
2. To enter the country you need a passport or a voter registration card.
3. Carol gets seasick whenever she is on a boat.
4. Dinner for two includes two items from column A or three items from column B.
5. The bus runs late on exactly those days when I take it.
6. You can pay using US dollars or euros.
7. If you read the paper everyday, you will be informed, and conversely.

2. Construct a truth table for the compound proposition

$$(p \oplus q) \vee (p \oplus \bar{q}).$$

3. An island has two kinds of inhabitants, knights, who always tell the truth, and knaves, who always lie. You encounter two people A and B . What are A and B if:

1. A says " B is a knight" and B says "The two of us are opposite types"?
2. both A and B say "I am a knight".