

## Lecture Examples

**Ex 1** Under what conditions is the sentence “It is not the case that I both play basketball and golf” true?

**Ex 2** Under what conditions is the sentence “Either I do not play basketball or I do not play golf” true?

**On-Your-Own Examples**

**Ex 1** Analyze the truth values of the symbolic statement  $q \rightarrow \sim p$ .

**Ex 2** Construct a truth table for the symbolic expression  $p \vee \sim p$ .

**Ex 3** Analyze the truth values of the symbolic statement  $p \wedge \sim (q \vee r)$

**Ex 4** Construct a truth table for the symbolic expression  $(\sim r \vee p) \rightarrow (q \wedge p)$ .

**Ex 5** Compare the truth values of the symbolic expressions  $p \wedge \sim q$  and  $p \rightarrow q$ .

**Ex 6** Construct a truth table for the following compound statement: “I walk up the stairs if I want to exercise or if the elevator isn’t working.”

**Ex 7** Construct a truth table to determine whether the following statements are equivalent.  
The Reds won 90 games or the Reds didn’t make the playoffs.  
If the Reds did not win 90 games, then the Reds did not make the playoffs.

**Ex 8** Apply De Morgan's Laws to the following statements (leave your answer in natural language):

(a) It is not true that Marco is on both the soccer team and the tennis team.

(b) It is not true that Martha plays piano or violin.