HOMEWORK 8 - MATH 110
DUE DATE: Friday, November 8
INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each problem is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Let $N = $ "Olga will go out for tennis" and $K = $ "Olga will go out for track". Write in symbolic logical form the English statement "Either Olga will go out for tennis or she will go out for track but not both".

2. Construct the truth table for the statement form $\neg P \wedge (Q \vee \neg R)$.

3. Determine whether $P \vee (P \wedge Q) \equiv P$.

4. Determine whether $(P \wedge Q) \vee R \equiv P \wedge (Q \vee R)$.

5. Use De Morgan's Laws to write the negation for the statement "Sam swims on Thursdays and Kate plays tennis on Saturdays".

6. Find out whether the following statement form is a tautology or a contradiction
$$(\neg P \vee Q) \vee (P \wedge \neg Q).$$