Homework No. 3  
Due April 26 in class

1. Textbook Chapter 8 No. 97
2. Textbook Chapter 8 No. 109
3. Textbook Chapter 8 No. 113
4. Textbook Chapter 8 No. 125
5. Textbook Chapter 8 No. 139

6. Textbook Chapter 8 No. 152 simplified: Show that $e^{A+B} = e^A e^B$ if $A$ and $B$ commute.  
   Note: This turns out to be a very important relation for quantum mechanical applications.  
   If $A$ and $B$ do not commute then the relation in general does not hold. To show what I am asking here requires considerable dexterity with summations and summation indices and changing orders of summation with carefully associated changes in summation limits.

7. Textbook Chapter 8 No. 153
8. Textbook Chapter 8 No. 165

ONLY FOR CHEM 290 STUDENTS

1. Textbook Chapter 3 No. 3
2. Textbook Chapter 3 No. 17
3. Textbook Chapter 3 No. 22
4. Textbook Chapter 3 No. 29