## ASSIGNMENT 4
## CHEMISTRY 300
### Due: 4:30 pm Wednesday 11 October 2006

1. Do question 6 on page 852 of the text.

2. Do queston 8 on page 852 of the text.

3. Consider 200 cylindrical individuals in a mosh pit. The area of the mosh pit is 20 m $\times$ 20 m. The diameter of each individual is 0.30 m and their speed in 0.46 m s$^{-1}$. Assuming chaotic motion, calculate:
   (a) the mean free path.
   (b) the number of collisions per minute an individual is involved in.
   (c) the total number of collisions per minute.

4. Consider a gas at constant temperature. If the pressure is doubled, what effect that does this have on:
   (a) the number of collisions per second made by any one molecule.
   (b) the total number of collisions per second occurring in 1 m$^3$ of gas.
   (c) the mean free path of a gas molecule.