General Chemistry II

Amorde, Fall '09

B onus #2

1) The decomposition of hydrogen peroxide was studied, and the following data were obtained at a particular temperature:

Time(s)	$[H_2O_2]$(M)
0	1.00
120	0.91
300	0.78
600	0.59
1200	0.37
1800	0.22
2400	0.13
3000	0.082
3600	0.050

A) Please write out the rate expression and *general* rate law for the decomposition of H_2O_2.

B) Please determine if the decomposition of H_2O_2 is zero, first, or second order inH_2O_2.

C) Please calculate the equation of the straight line in question A.

D) Calculate the rate constant for the decomposition of H_2O_2.

E) Write the equilibrium expression for the decomposition of H_2O_2

F) Let's say the reaction reaches equilibrium at 500 seconds. What is the concentration of each product? What is K_c?

G) Calculate Q for the reaction at 100 sec., is it moving forward or backward?