Equilibrium (#11-1)
Models of equilibrium

$A(s) + 2B(g) + C(g) \leftrightarrow + D(l) + F(g)$

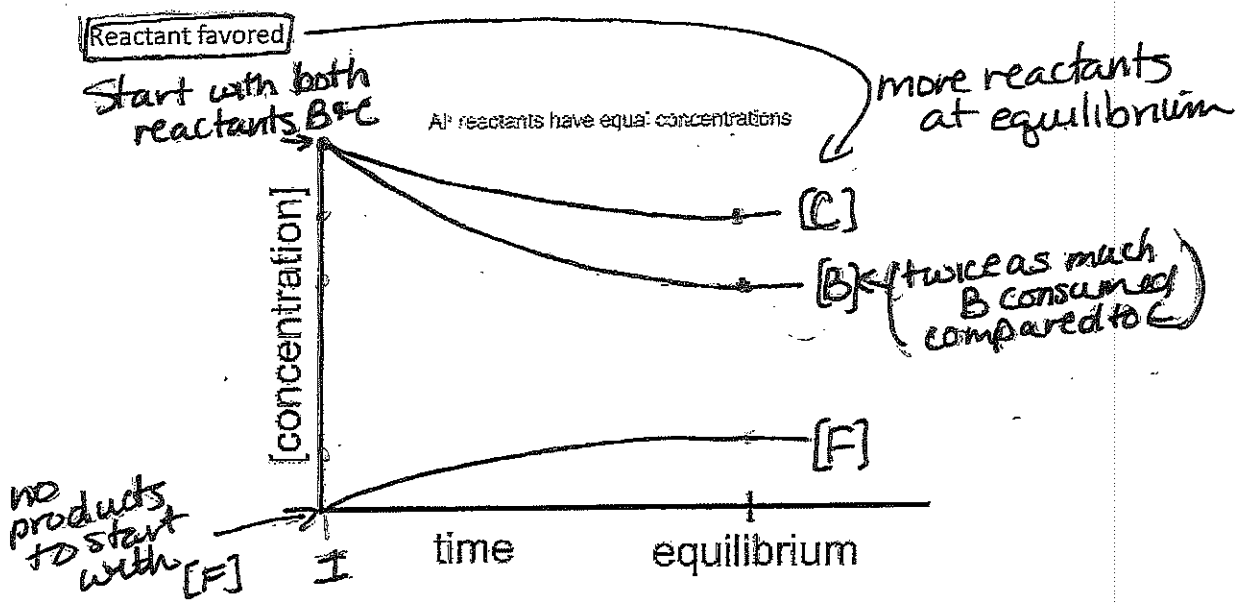
1. Write a Kc expression for this reaction above.

(gas or aqueous only) $K_c = \frac{[F]}{[B]^2[C]}$ ← use straight sided brackets for concentration

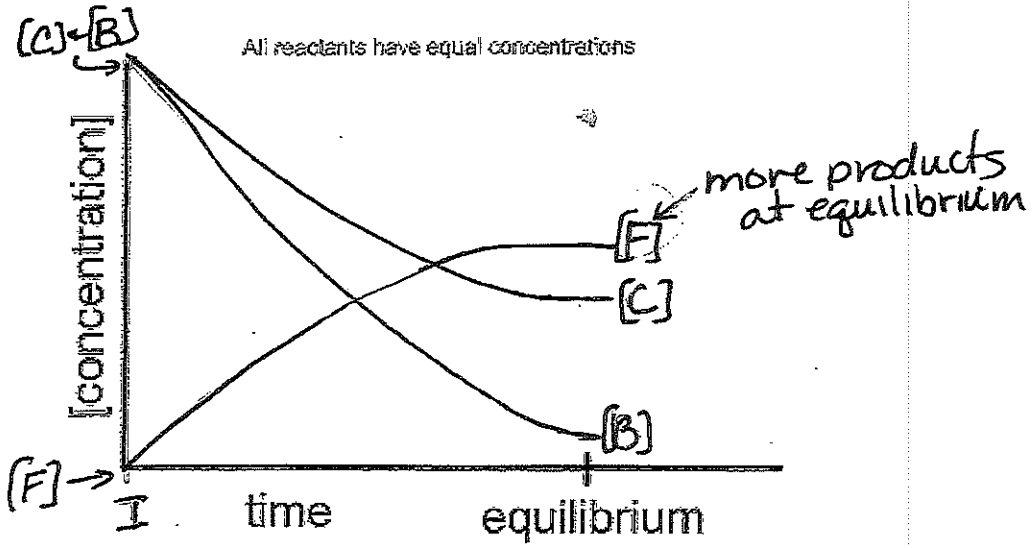
2. Write a Kp expression for the reaction above.

(gas only) $K_p = \frac{(P_F)}{(P_B)^2(P_C)}$ ← use partial pressures

3. Fill out the chart below for the reaction above.




Product favored



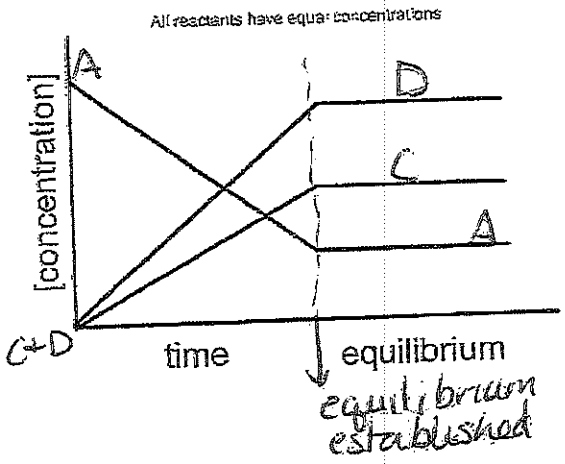
4. $A(g) \leftrightarrow C(g) + 2D(g)$

A sample of "A" is placed in a vessel and the reaction occurs until equilibrium.

a. Label line for each chemical it represents.
b. Label when equilibrium is established.
c. Write the Kc and Kp expressions for this reaction.

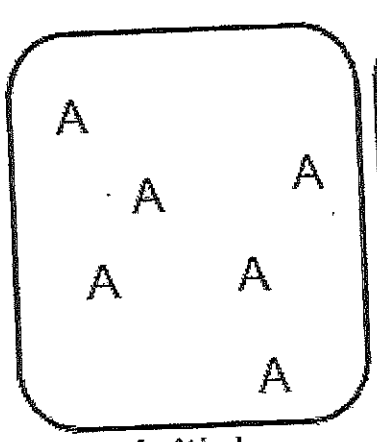
$K_c = \frac{[D]^2[C]}{[A]}$

$K_p = \frac{(P_D)^2(P_C)}{(P_A)}$

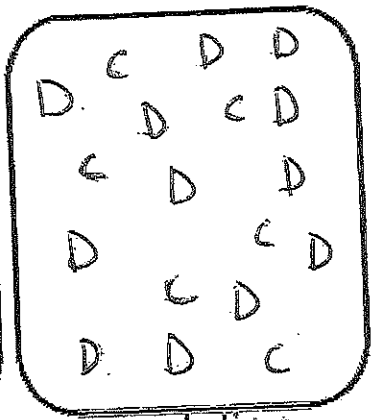



d. Complete the following particulate drawings.

6 A



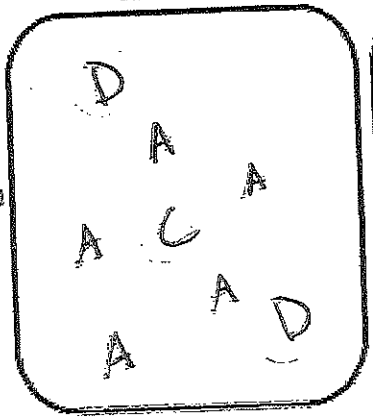

Initial



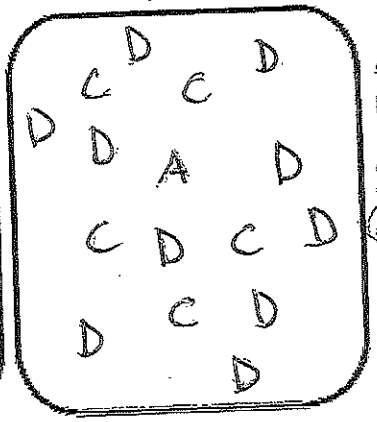

completion

$A(g) \leftrightarrow C(g) + 2D(g)$

| | | | |
|---|---|---|---|
| I | 6 | 0 | 0 |
| C | -6 | +6 | +12 |
| E | 0 | 6 | 12 |




reactant favored




product favored

$A(g) \leftrightarrow C(g) + 2D(g)$

| | | | |
|---|---|---|---|
| I | 6 | 0 | 0 |
| C | -1 | +1 | +2 |
| E | 5 | 1 | 2 |

$A(g) \leftrightarrow C(g) + 2D(g)$

| | | | |
|---|---|---|---|
| I | 6 | 0 | 0 |
| C | -5 | +5 | +10 |
| E | 1 | 5 | 10 |