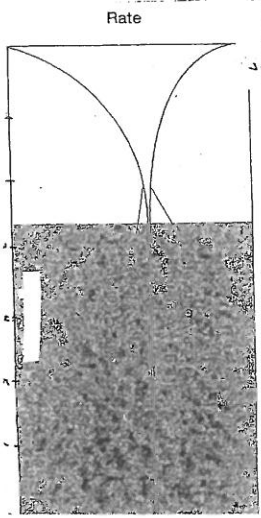
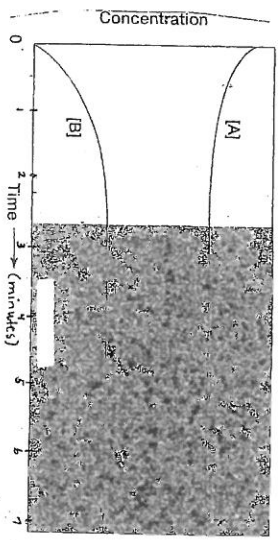


ANALYZING EQUILIBRIUM GRAPHS

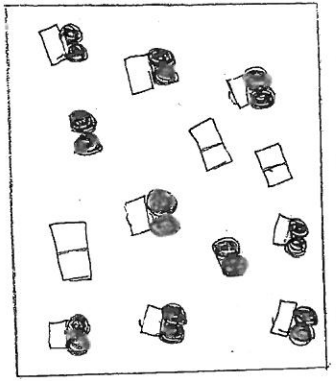
Refer to the graphs below to answer the following questions.

1. At approximately what time is equilibrium reached?
2. Initially, how do the rates of the forward and reverse reactions compare?
3. How do the rates of the forward and reverse reactions compare at equilibrium?
4. At equilibrium, how do the concentrations of A and B compare?
5. What is the balanced equilibrium equation for the reaction graphed below?
6. Does the equilibrium lie to the left or to the right?
7. Is K_{eq} less than 1, greater than 1, or equal to 1?
8. At 30 seconds how do Q and K_{eq} compare?
9. If the concentration of B was increased, would the reaction shift left or right?



Answer the following questions based on the diagram below.

1. What is the equilibrium expression?
2. Is K_{eq} greater than 1, less than 1, or equal to 1?
3. At equilibrium does the reaction lie to the left or right?
4. Indicate whether the shift is to the left or right for the following stresses added to the system:
 - a) add more water
 - b) add H_2
 - c) take out water
 - d) add heat
 - e) remove heat
 - f) increase pressure
 - g) decrease pressure
 - h) increase volume
 - i) decrease volume



Ratio at Equilibrium
 $2H_2O(g) + heat \rightleftharpoons O_2(g) + 2H_2(g)$

$[O_2] = Q$ 3 molecules
 $[H_2] = 2$ 2 molecules
 $[H_2O] = 2$ 2 molecules