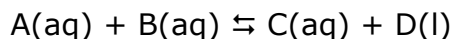
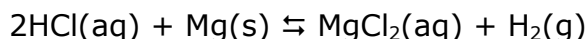


Reaction Quotient Worksheet

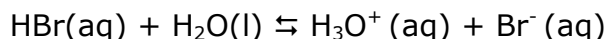
- 1) The initial concentrations of A, B, and C are 1.1 M, 2.2 M, and 3.3 M respectively and the value of K is 1.3×10^3 at 25 °C.
- Is this system at equilibrium?
 - If not, which way will it shift?



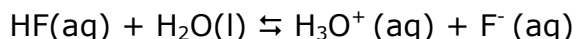
- 2) The initial concentrations of HCl, $MgCl_2$, and H_2 are 0.52 M, 1.8×10^{-3} M, and 3.3×10^{-3} M respectively and the value of K is 120 at 27 °C.
- Is this system at equilibrium?
 - If not, which way will it shift?



- 3) The initial concentrations of HBr, H_3O^+ , and Br^- are 0.29 M, 0.29 M, and 0.29 M respectively. The value of K is 1.8×10^{-6} at 42 °C.
- Is the system at equilibrium?
 - If not, which way will it shift?



- 4) The initial concentration of HF is 0.52 M and the value of K is 2.4×10^{-5} at 19 °C.
- Is this system at equilibrium?
 - If not, which way will it shift?
 - What will the equilibrium concentrations become?



- 5) The initial concentrations of N_2O_4 and NO_2 are 5.5 M and 2.4 M respectively. The value of K is 24 at 35 °C.
- Is this system at equilibrium?
 - If not, which way will it shift?
 - What will the equilibrium concentrations become?

