1.10.4.1: Practice Equilibrium Constants

Exercise 1.10.4.1.1

$$3H_{2(g)} + N_{2(g)} \longleftrightarrow 2NH_{3(g)} \tag{1.10.4.1.1}$$

What is the equilibrium constant expression of the reaction above?

Answer

$$K_{eq} = \frac{[NH_3]^2}{[H_2]^3[N_2]}$$

Exercise 1.10.4.1.1

$$2SO_{2(g)} + O_{2(g)} \longleftrightarrow 2SO_{3(g)} \tag{1.10.4.1.2}$$

The K_{eq} of the reaction above is 3.4 x 10^2. Is the equilibrium mixture mostly SO_2 and O_2 or mostly SO_3?

Answer

mostly SO_3

Exercise 1.10.4.1.1

$$C_{(s)} + 2S_{(g)} \longleftrightarrow CS_{2(g)} \tag{1.10.4.1.3}$$

What is the equilibrium constant expression of the reaction above?

Answer

$$K_{eq} = \frac{[CS_2]}{[S]^2}$$

Exercise 1.10.4.1.1

$$Pb^{2+}_{(aq)} + 2Cl^{1-}_{(aq)} \longleftrightarrow PbCl_{2(s)} \tag{1.10.4.1.4}$$

What is the equilibrium constant expression of the reaction above?

Answer

$$K_{eq} = \frac{1}{[Pb^{2+}][Cl^{1-}]^2}$$