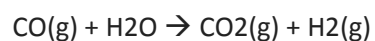


Answer on Question#39165, Chemistry, Inorganic Chemistry

Question:



In an experiment, .40 mol of CO and .45 mol of H₂O were placed in a 1.00 L vessel. At equilibrium there were .18 mol of CO remaining. Keq is what?

Solution:

$$K_{eq} = \frac{[\text{CO}_2][\text{H}_2]}{[\text{CO}][\text{H}_2\text{O}]}$$

$$[\text{CO}] = 0.18;$$

$$[\text{H}_2\text{O}] = 0.45 - (0.40 - 0.18) = 0.23;$$

$$[\text{CO}_2] = 0.40 - 0.18 = 0.22;$$

$$[\text{H}_2] = 0.40 - 0.18 = 0.22.$$

$$K_{eq} = 0.22 \cdot 0.22 / (0.18 \cdot 0.23) = 1.17.$$

Answer: 1.17