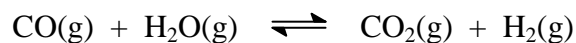


The CO(g) in water gas can be reacted further with H<sub>2</sub>O(g) in the so-called “water-gas shift” reaction:



At 900 K,  $K_c = 1.56$  for this reaction. A sample of water gas flowing over coal at 900 K contains a 1:1 mole ratio of CO(g) and H<sub>2</sub>(g), as well as 0.250 mol L<sup>-1</sup> H<sub>2</sub>O(g). This sample is placed in a sealed container at 900 K and allowed to come to equilibrium, at which point it contains 0.070 mol L<sup>-1</sup> CO<sub>2</sub>(g). What was the initial concentration of CO(g) and H<sub>2</sub>(g) in the sample?

**Marks**  
**4**

[CO] = [H<sub>2</sub>] =

If the walls of the container are chilled to below 100 °C, what will be the effect on the concentration of CO<sub>2</sub>(g)?