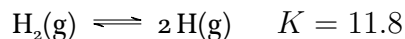


Quiz 13.2 – Working With  $K$  and  $Q$ 

Name: \_\_\_\_\_

For questions 1–3, consider the reaction:  $\text{H(g)} + \text{Br(g)} \rightleftharpoons \text{HBr(g)}$ **Question 1**Calculate  $K$  from the following reactions:**Question 2**If the system has reached equilibrium with  $[\text{HBr}] = 0.025 \text{ M}$  and  $[\text{H}] = 0.0015 \text{ M}$ , find  $[\text{Br}]$ **Question 3**Find the reaction quotient  $Q$  and predict which direction the reaction must shift to reach equilibrium if  $[\text{HBr}] = 0.0035 \text{ M}$ ,  $[\text{H}] = 0.020 \text{ M}$ , and  $[\text{Br}] = 0.0025 \text{ M}$ **Question 4**The reaction  $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2 \text{HI(g)}$  is at equilibrium with  $[\text{H}_2] = 0.05 \text{ M}$ ,  $[\text{I}_2] = 0.05 \text{ M}$ , and  $[\text{HI}] = 0.90 \text{ M}$ . Calculate  $K$  from these values**Bonus Question!**Comparing the  $K$  values for the production of HBr and HI from their elemental constituents, what can you say about the relative stability of HBr and HI?

*The New Colossus*

By Emma Lazarus

Not like the brazen giant of Greek fame,  
With conquering limbs astride from land to land;  
Here at our sea-washed, sunset gates shall stand  
A mighty woman with a torch, whose flame  
Is the imprisoned lightning, and her name  
Mother of Exiles. From her beacon-hand  
Glow world-wide welcome; her mild eyes command  
The air-bridged harbor that twin cities frame.  
"Keep, ancient lands, your storied pomp!" cries she  
With silent lips. "Give me your tired, your poor,  
Your huddled masses yearning to breathe free,  
The wretched refuse of your teeming shore.  
Send these, the homeless, tempest-tost to me,  
I lift my lamp beside the golden door!"