Le Chatelier's Principle Worksheet
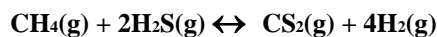
1) Which change would cause the equilibrium to shift to the **right** in this endothermic rxn? *Circle an answer choice!*

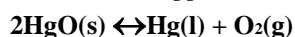$CH_4(g) + 2H_2S(g) \leftrightarrow CS_2(g) + 4H_2(g)$

    a. *Decrease the concentration of dihydrogen sulfide.*
    b. *Increase the pressure on the system.*
    c. *Increase the temperature of the system.*
    d. *Increase the concentration of carbon disulfide.*

2) What happens to equilibrium position in each situation below
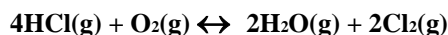
    $2SO_3(g) \leftrightarrow 2SO_2(g) + O_2(g)$

- Sulfur dioxide is added to the system.

- Sulfur trioxide is removed from the system.

- Oxygen is added to the system.

3) What would happen to the position of the equilibrium

$2HgO(s) \leftrightarrow Hg(l) + O_2(g)$

- HgO is added to the system.

- The pressure on the system increases.

4) When the volume of the following mixture of gases is increased, what will be the effect on equilibrium position?

$4HCl(g) + O_2(g) \leftrightarrow 2H_2O(g) + 2Cl_2(g)$

5) Predict the effect of decreasing the volume of the container for each equilibrium.

- $2H_2O(g) + N_2(g) \leftrightarrow 2H_2(g) + 2NO(g)$

- $SiO_2(s) + 4HF(g) \leftrightarrow SiF_4(g) + 2H_2O(g)$

- $CO(g) + H_2(g) \leftrightarrow C(s) + H_2O(g)$
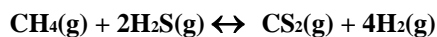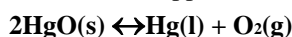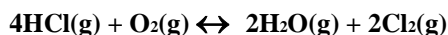
6) Predict the effect of decreasing the temperature on the position of the following equilibria.

- $H_2(g) + Cl_2(g) \leftrightarrow 2HCl(g) + 49.7 \text{ kJ}$

- $2NH_3(g) \leftrightarrow N_2(g) + 3H_2(g)$
  $\Delta H = +37.2 \text{ kJ}$

- $CO(g) + H_2O(g) \leftrightarrow CO_2(g) + H_2(g)$
  $\Delta H = -27.6 \text{ kJ}$