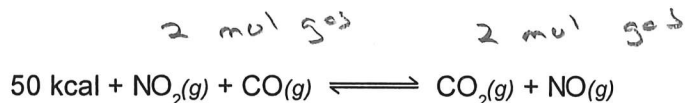


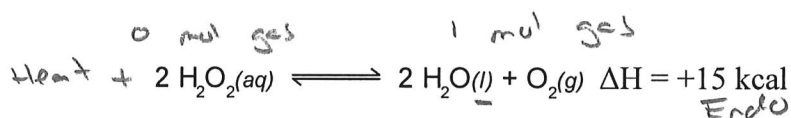
# Le Chatelier's Principle

NAME \_\_\_\_\_

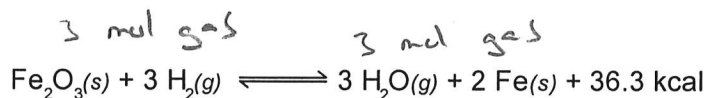
Which way will the equilibrium shift when each of the following changes is made to the system at equilibrium?



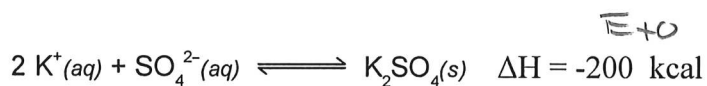
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|---|---|
| <ol style="list-style-type: none"> <li>1. Increase [NO] ←</li> <li>2. Increase the pressure no shift</li> <li>3. Add a catalyst no shift</li> <li>4. Increase [CO] →</li> </ol> | <ol style="list-style-type: none"> <li>5. Decrease temperature ←</li> <li>6. Decrease [CO<sub>2</sub>] →</li> <li>7. Increase the volume of the container no shift<br/>P ↓</li> </ol> |
|---|---|



- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Increase the temperature →</li> <li>2. Increase [H<sub>2</sub>O] no shift</li> <li>3. Increase [H<sub>2</sub>O<sub>2</sub>] →</li> </ol> | <ol style="list-style-type: none"> <li>4. Increase the pressure ←</li> <li>5. Increase the partial pressure of O<sub>2</sub> ←</li> <li>6. Decrease the volume ←<br/>P ↑</li> </ol> |
|--|---|



- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Increase [Fe] no shift</li> <li>2. Increase the temperature ←</li> <li>3. Increase the pressure no shift</li> </ol> | <ol style="list-style-type: none"> <li>4. Decrease [H<sub>2</sub>O] →</li> <li>5. Decrease the partial pressure of H<sub>2</sub> ←</li> <li>6. Add a sample of Ne gas no shift</li> </ol> |
|---|---|



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| <ol style="list-style-type: none"> <li>1. Decrease the pressure no shift</li> <li>2. Add BaCl<sub>2</sub>(aq) ←</li> <li>3. Increase [SO<sub>4</sub><sup>2-</sup>] →</li> <li>4. Decrease [K<sup>+</sup>] ←</li> </ol> | <ol style="list-style-type: none"> <li>5. Decrease the volume no shift<br/>P ↑</li> <li>6. Add K<sub>2</sub>SO<sub>4</sub>(solid) no shift</li> <li>7. Decrease temperature →</li> </ol> |
|--|--|

BaSO<sub>4</sub> will  
precipitate  
lowering  
[SO<sub>4</sub><sup>2-</sup>]