Chemistry
LeChatelier's Principle

Consider: $2\ A(g) + B(g) \leftrightarrows C(g) + 4\ D(g) + \text{heat}$

What would happen to [A] (go↑, go ↓, no change) if:

more B was added? _____

some B was removed? _____

the system is heated? _____

the system is cooled? _____

the pressure is increased _____

the pressure is decreased _____

more C was added? _____

some C is removed _____

a catalyst is added _____

What would happen to [C] (go↑, go ↓, no change) if:

more A was added? _____

some A was removed? _____

the system is heated? _____

the system is cooled? _____

the pressure is increased _____

the pressure is decreased _____

more D was added? _____

some D is removed _____

a catalyst is added _____

4. Consider the acid/base indicator: $HIn_{(yellow)(aq)} + \text{heat} \leftrightarrows H^+_{(aq)} + In^-_{(red)(aq)} + H_20_{(l)}$

If base is added to a yellow solution containing this indicator, what change would you expect to see? Explain.

If acid is added to a yellow solution containing this indicator, what change would you expect to see? Explain.

If base is added to a red solution containing this indicator, what change would you expect to see? Explain.

If acid is added to a red solution containing this indicator, what change would you expect to see? Explain.

If a yellow solution containing this indicator is heated, what change would you expect to see? Explain.

If a yellow solution containing this indicator is heated, what change would you expect to see? Explain.

If a solution containing this indicator had [red] = [yellow], what would you see with your eyes? Explain.