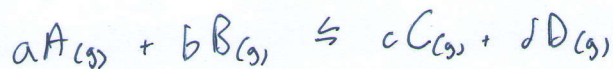


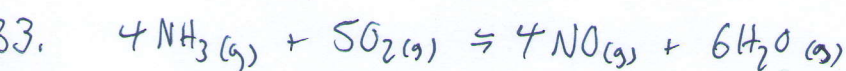
Equilibrium III Chiff # 31-41, odd

31. For an equilibrium involving gaseous substances, decreasing the volume will, in general, shift the equilibrium ~~to the right~~ ~~to the left~~ in the direction that results in the fewest number of moles of gas in the reaction vessel.



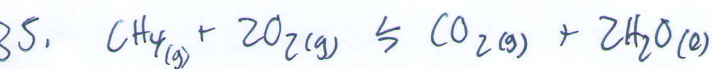
If $(a+b) > (c+d)$, decreasing V shifts equilibrium to the right.

If $(a+b) < (c+d)$, decreasing V shifts equilibrium to the left.

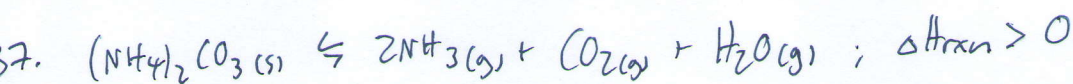


Starting at equilibrium...

- a) Increasing P_{O_2} will shift reaction to the right, producing more $NO + H_2O$
- b) Decreasing $[H_2O]$ will shift reaction to the right, ~~producing~~ consuming $NH_3 + O_2$
- c) Decreasing P_{NH_3} will shift reaction to the left, consuming $NO + H_2O$



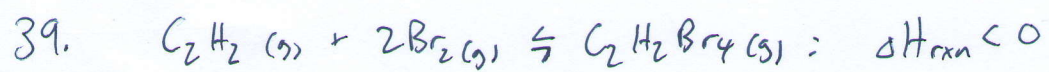
- a) ~~decreasing~~ $\downarrow H_2O(l) \Rightarrow$ no effect
- b) $\uparrow P_{CO_2} \Rightarrow$ shift left
- c) $\downarrow V \Rightarrow$ shift right
- d) $\uparrow P_{O_2} \Rightarrow$ shift right



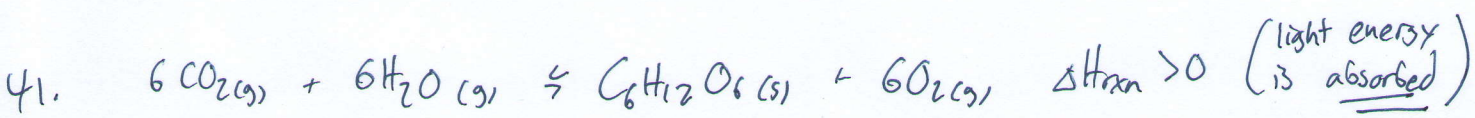
Since reaction is endothermic, can think of heat as a "reactant".

By decreasing the temperature of the equilibrium, you are removing heat; i.e., removing a reactant. To counteract this, the reaction equilibrium will shift left to

replace the reactant.



$\uparrow T \Rightarrow$ shift left \Rightarrow shift toward reactants



$\uparrow T \Rightarrow$ shift right \Rightarrow favors production of $C_6H_{12}O_6(s)$.