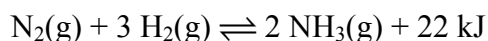


1. In the following reaction, what direction will the system shift after these stresses are applied?



- a. $\text{NH}_3(\text{g})$ is added _____
 b. $\text{N}_2(\text{g})$ is removed _____
 c. pressure is increased _____
 d. temperature is increased _____

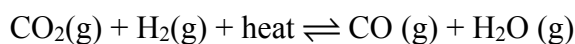
2. In the following reaction:



In which direction, left or right, will the equilibrium shift if the following changes are made?

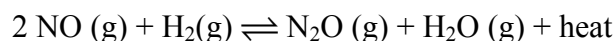
- a. NO is added _____
 b. the system is cooled _____
 c. H_2 is removed _____
 d. pressure is increased _____
 e. N_2O is added _____
 f. H_2O is removed _____

3. In this reaction:



- a. Is heat absorbed or released by the forward reaction? _____
 b. In which direction will the equilibrium shift if these changes are made?
 i. CO is added _____
 ii. temperature is increased _____
 iii. CO_2 is added _____
 iv. system is cooled _____
 v. H_2 is removed _____
 vi. pressure is increased _____
 vii. catalyst is added _____

4. In this reaction:



What will happen to the $[\text{H}_2\text{O}]$ when equilibrium is reestablished after these stresses are applied?

- a. temperature is increased _____
 b. a catalyst is added _____
 c. pressure is decreased _____
 d. NO is added _____
 e. N_2O is removed _____

5. How would an increase in pressure affect the following reactions?

- a. $2 \text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2 \text{H}_2\text{O}(\text{g})$ _____
 b. $4 \text{H}_2(\text{g}) + \text{Fe}_3\text{O}_4(\text{s}) \rightleftharpoons 3 \text{Fe}(\text{s}) + 4 \text{H}_2\text{O}(\text{l})$ _____
 c. $\text{H}_2(\text{g}) + \text{Cl}_2(\text{g}) \rightleftharpoons 2 \text{HCl}(\text{g})$ _____