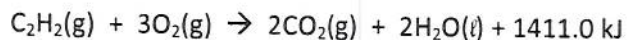


Name

Key

Thermochemistry Quiz

A



1. Is the reaction above endothermic or exothermic? a. endo b. exo c. can't tell

2. If a reaction is **endothermic**, which has **more** energy—the reactants or the products?
a. reactants b. products c. the reactants and products have the same energy

3. Consider the following equation: $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g}) + 483.6 \text{ kJ}$

- a. If 2.00 moles of $\text{H}_2\text{O}(\text{g})$ are produced by the above reaction, how much energy will be given off?
483.6 kJ

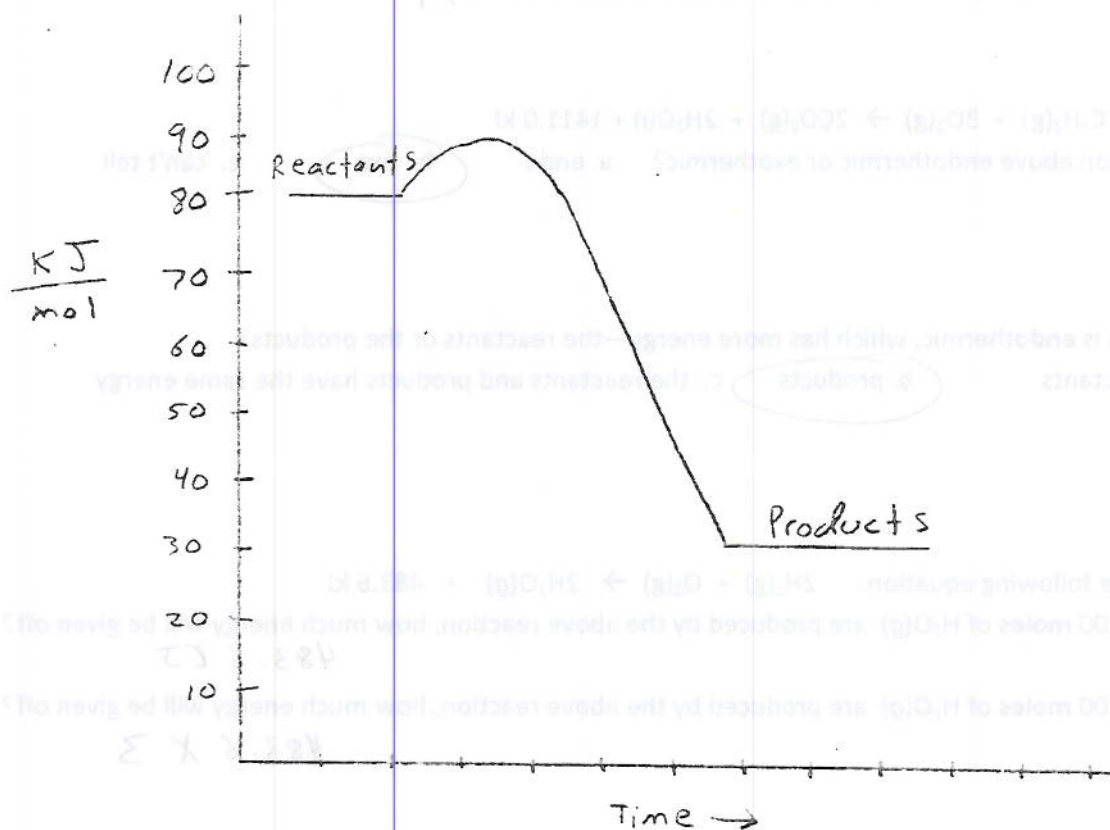
- b. If 6.00 moles of $\text{H}_2\text{O}(\text{g})$ are produced by the above reaction, how much energy will be given off?
483.6 x 3

4. A student noticed that a solution produced heat during a reaction. How should the reaction be classified?

a. as exothermic

b. as endothermic

c. a physical change



Use the graph above to answer the following questions:

5. How much activation energy must be added to get this reaction started?
 - a. 80 kJ
 - b. 30 kJ
 - c. 90 kJ
 - d. 10 kJ
 - e. 50 kJ

6. Is the reaction exothermic or endothermic?
 - a. exothermic
 - b. endothermic

7. Which has more energy—the reactants or the products?

8. What is ΔH for the reaction?
 - a. 60 kJ
 - b. -60 kJ
 - c. 50 kJ
 - d. -50 kJ
 - e. 80 kJ
 - f. -30 kJ

Name _____

Key

Dynamic Equilibrium and Le Chatelier's Principle Quiz

A

(There may be more than one correct answer for each question! Circle all correct answers!)

1. $556 \text{ kJ} + \text{CaCO}_3(\text{s}) \rightleftharpoons \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$ Which of the following will cause a shift toward the right?

- a. Add $\text{CO}_2(\text{g})$
- b. Increase pressure on the system
- c. Cool the reaction
- d. Remove $\text{CO}_2(\text{g})$

2. $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) + 92 \text{ kJ}$ Which of the following will cause a shift toward the right?

- a. Add heat
- b. Increase pressure on the reaction
- c. Add $\text{N}_2(\text{g})$
- d. Add $\text{NH}_3(\text{g})$

3. $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) + 92 \text{ kJ}$
Which of the following will increase production of $\text{N}_2(\text{g})$?

- a. heat the reaction
- b. cool the reaction
- c. remove $\text{H}_2(\text{g})$
- d. remove NH_3
- e. increase the pressure
- f. decrease the pressure

4. Some water is placed in a flask and the flask is sealed with a stopper. The water in the flask begins to evaporate to form water gas. As the water gas begins to build up above the water, some of the gas condenses back into liquid water. What is true of this system when it reaches dynamic equilibrium?

- a. The molecules of water gas equal the molecules of liquid water
- b. The moles of liquid water equal the moles of water gas
- c. Water has stopped evaporating to become a gas and water has stopped condensing back to a liquid
- d. The rate at which water becomes a gas equals the rate at which gas condenses back to water
- e. The number of water molecules in the gas phase stays constant and the number of water molecules in the liquid phase stays constant.

5. Some salt (NaCl) is poured into a beaker of water. What is true of this system when it finally reaches dynamic equilibrium?

- a. The mass of salt dissolved in the water will equal the mass of solid salt sitting on the bottom.
- b. There will be more salt dissolved in the water than there is solid salt sitting on the bottom.
- c. There will be more salt sitting on the bottom than there is salt dissolved in the water.
- d. Solid salt is no longer dissolving into the water and dissolved salt has stopped recrystallizing into a solid
- e. The concentration of salt dissolved in the water stays constant.
- f. The rate at which salt crystals are dissolving equals the rate at which dissolved salt is recrystallizing.

