

1. Which side of the equation represents potential energy and which side kinetic energy?



2. Is this reaction exothermic or endothermic? What is the sign of ΔH ?

3. Draw a diagram of energy during an endothermic reaction. Label the energy of reactants and energy of products. Also label the activation energy and heat of reaction.

4. Two reactants are combined in a calorimeter containing 50.0g of water. The reaction increases the temperature of the water by 13.2 deg C. What is the ΔH of this reaction in cal? Is it endothermic or exothermic?

5. Water is placed in an icecube tray and the tray is inserted into a freezer. What happens to the temperature of the water as it cools and then freezes? Draw a chart if you desire.

6. What is the strongest type of attractive force in each of the following materials?

a) HCl

b) H₂O

c) Mg₂SO₄

d) NH₃

e) O₂

f) NCl₃

7. The heat of vaporization of water is 541 cal/g. How much heat in cal is required to heat 50.0g of water from 37 deg C to 100 deg C and then completely convert it to vapor?

8. Describe what happens at a molecular scale during a chemical reaction.

9. What is the difference between activation energy and heat of reaction? How can we observe the effects of both of these phenomenon in the lab?

10. Draw a cooling curve for benzene as it changes from a gas to a liquid to a solid. Benzene boils at 80.1°C and melts at 5.50°C .