**Potential Energy Diagrams**

150 kJ

100 kJ

50 kJ

0 kJ

1. Which of the letters a–f in the diagram represents the potential energy of the products? \_\_\_\_\_
2. Which letter indicates the potential energy of the activated complex? \_\_\_\_\_\_\_\_
3. Which letter indicates the potential energy of the reactants? \_\_\_\_\_\_\_\_
4. Which letter indicates the activation energy? \_\_\_\_\_
5. Which letter indicates the heat of reaction? \_\_\_\_\_\_
6. Is the reaction exothermic or endothermic? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Which letter indicates the activation energy of the reverse reaction? \_\_\_\_\_\_\_\_
8. Which letter indicates the heat of reaction of the reverse reaction? \_\_\_\_\_\_\_\_\_
9. Is the reverse reaction exothermic or endothermic? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. The PE of the reactants of the forward reaction is about \_\_\_\_\_\_\_\_\_\_\_ kilojoules
11. The PE of the products of the forward reaction is about \_\_\_\_\_\_\_\_\_\_\_ kilojoules
12. The PE of the activated complex of the forward reaction is about \_\_\_\_\_\_\_\_\_\_\_ kilojoules
13. The activation energy of the forward reaction is about \_\_\_\_\_\_\_\_\_\_\_ kilojoules.
14. The heat of reaction (∆H) of the forward reaction is about \_\_\_\_\_\_\_\_\_ kilojoules.
15. The forward reaction is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (endothermic or exothermic).
16. The PE of the reactants of the reverse reaction is about \_\_\_\_\_\_\_\_\_\_\_kilojoules.
17. The PE of the products of the reverse reaction is about \_\_\_\_\_\_\_\_\_\_\_ kilojoules.
18. The PE of the activated complex of the reverse reaction is about \_\_\_\_\_\_\_\_\_\_\_kilojoules.
19. The activation energy of the reverse reaction is about \_\_\_\_\_\_\_\_\_\_\_\_kilojoules.
20. The heat of reaction (∆H) of the reverse reaction is about \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ kilojoules.

21. The reverse reaction is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (endothermic or exothermic)

1. What is the activation energy of a reaction, and how is this energy related to the activated complex of the reaction?
2. What happens when a catalyst is used in a reaction?
3. Draw an energy diagram for a reaction. (label the axis) Potential energy of reactants = 350 KJ/mole Activation energy = 100 KJ/mole Potential energy of products = 250 KJ/mole



1. Is the reaction in # 27 exothermic or endothermic? Explain.
2. How could you lower the activation energy for the reaction in #27?