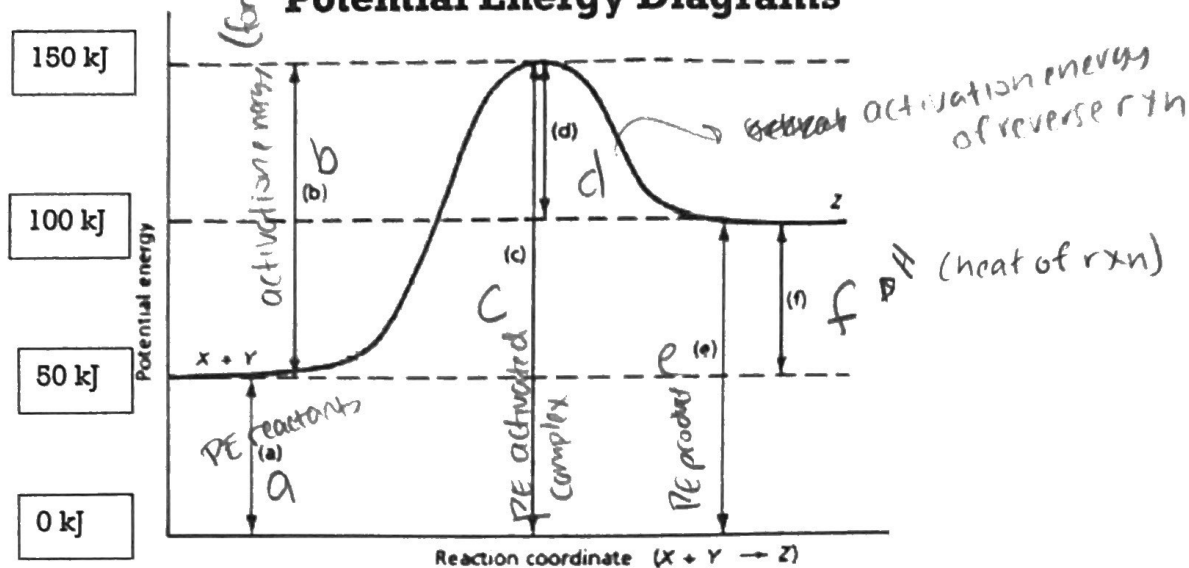


Potential Energy Diagrams

*-reverse rxn means
 move backwards - start
 @ end.



- Which of the letters a-f in the diagram represents the potential energy of the products? e
- Which letter indicates the potential energy of the activated complex? c
- Which letter indicates the potential energy of the reactants? a
- Which letter indicates the activation energy? b
- Which letter indicates the heat of reaction? f
- Is the reaction exothermic or endothermic? endothermic (always ends higher)
- Which letter indicates the activation energy of the reverse reaction? d
- Which letter indicates the heat of reaction of the reverse reaction? f
- Is the reverse reaction exothermic or endothermic? exothermic (always ends lower)
- The PE of the reactants of the forward reaction is about 50 kilojoules
- The PE of the products of the forward reaction is about 100 kilojoules
- The PE of the activated complex of the forward reaction is about 150 kilojoules
- The activation energy of the forward reaction is about 100 kilojoules. $150 - 50$
- The heat of reaction (ΔH) of the forward reaction is about 50 kilojoules. $100 - 50$
- The forward reaction is endothermic (endothermic or exothermic).
- The PE of the reactants of the reverse reaction is about 100 kilojoules.
- The PE of the products of the reverse reaction is about 50 kilojoules.
- The PE of the activated complex of the reverse reaction is about 150 kilojoules.
- The activation energy of the reverse reaction is about 50 kilojoules. $150 - 100$
- The heat of reaction (ΔH) of the reverse reaction is about -50 kilojoules. $50 - 100 = -50$
- The reverse reaction is exothermic (endothermic or exothermic)
- What is the activation energy of a reaction, and how is this energy related to the activated complex of the reaction?

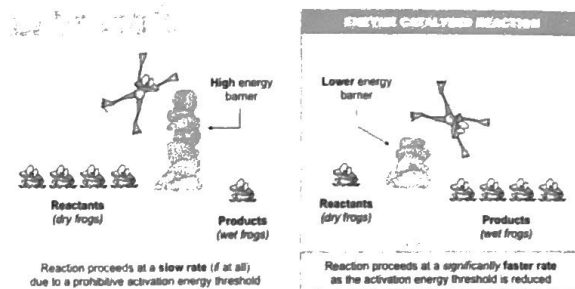
E_a is the energy needed to start a rxn.

When E_a is lowered - PE of ~~activation~~ activated complex is also lowered.

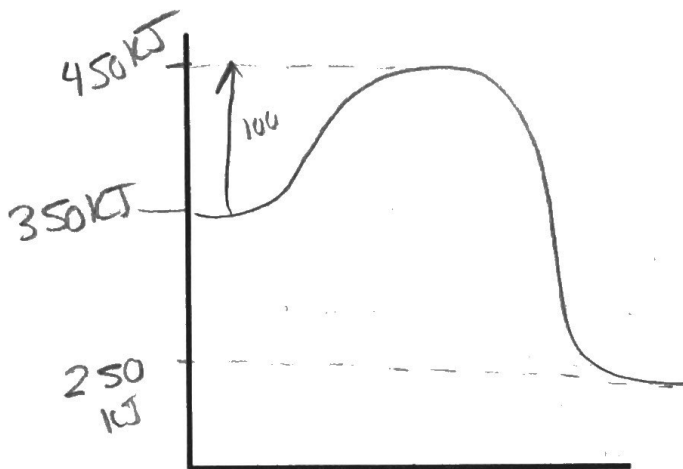
Name: KEY Official Class: _____ Date: _____
 Teacher: _____ Period: _____ Class: _____

23. What happens when a catalyst is used in a reaction?

the activation energy is lowered.



24. 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



25. Is the reaction in # ²⁴ ~~21~~ exothermic or endothermic? Explain.

exothermic - heat is released - you end lower than where you start

26. How could you lower the activation energy for the reaction in # ²⁴ ~~21~~?

add a catalyst