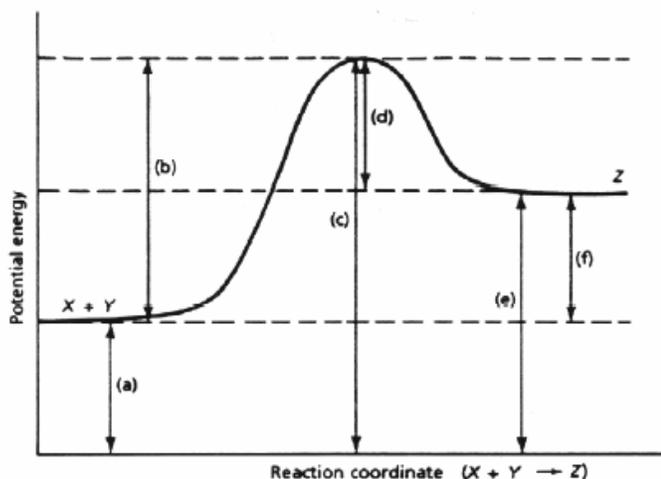


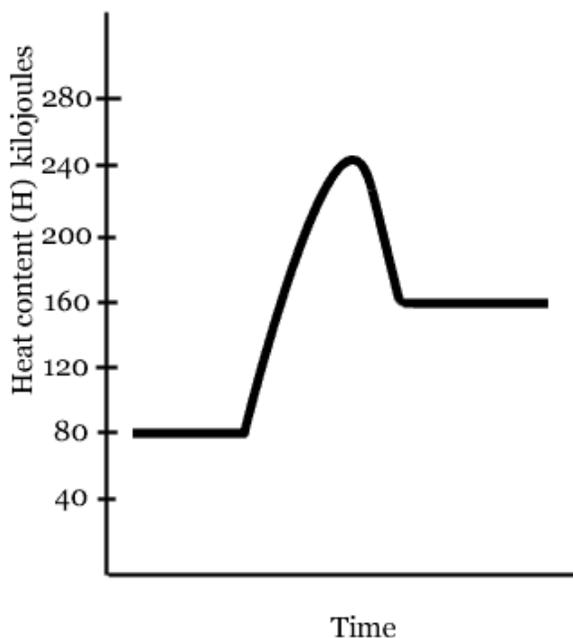
Potential Energy Diagrams Practice

Name: _____



1. Which letter (a-f) represents potential energy (ΔH) of the products? _____
2. Which letter (a-f) represents potential energy (ΔH) of the activated complex? _____
3. Which letter (a-f) represents potential energy (ΔH) of the reactants? _____
4. Which letter (a-f) represents activation energy (E_a) of the forward reaction (reactants)? _____
5. Which letter (a-f) represents heat of reaction (ΔH_{Rxn}) of the forward reaction? _____
6. Is the forward reaction endothermic or exothermic?

7. Which letter (a-f) represents activation energy (E_a) of the reverse reaction (products)? _____
8. Which letter (a-f) represents heat of reaction (ΔH_{Rxn}) of the reverse reaction? _____
9. Is the reverse reaction endothermic or exothermic?



10. The potential energy (ΔH) of the reactants in the forward reaction is about _____ kilojoules (kJ).
11. The potential energy (ΔH) of the products in the forward reaction is about _____ kilojoules (kJ).
12. The potential energy (ΔH) of the activated complex in the forward reaction is about _____ kilojoules (kJ).
13. The activation energy (E_a) of the forward reaction (reactants) is about _____ kilojoules (kJ).
14. The forward reaction is _____ (endothermic or exothermic).
15. The potential energy (ΔH) of the reactants in the reverse reaction is about _____ kilojoules (kJ).
16. The potential energy (ΔH) of the products in the reverse reaction is about _____ kilojoules (kJ).
17. The potential energy (ΔH) of the activated complex in the reverse reaction is about _____ kilojoules (kJ).
18. The activation energy (E_a) of the reverse reaction (products) is about _____ kilojoules (kJ).
19. The reverse reaction is _____ (endothermic or exothermic).

PART C – REACTION RATES (KINETICS)

Place an “X” next to each action that would most likely INCREASE the reaction rate.

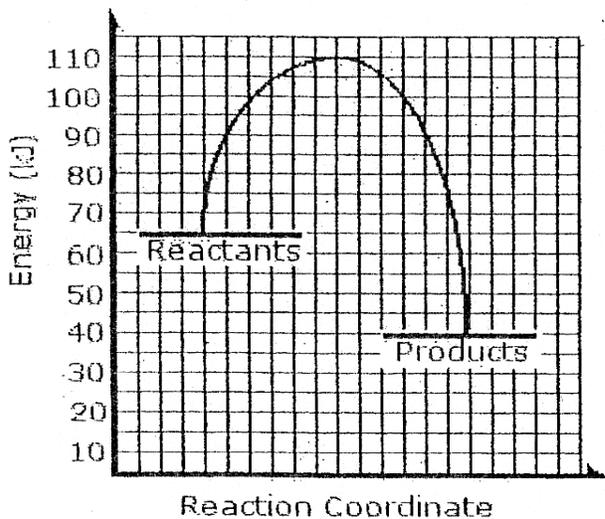
- _____ Lowering the temperature of the reactants.
- _____ Dissolving two solids in water before mixing them together.
- _____ Diluting an aqueous solution of HCl with water before adding a piece of magnesium.
- _____ Grinding a solid into fine particles.
- _____ Adding an enzyme catalyst.

PART D – CREATING A POTENTIAL ENERGY DIAGRAM

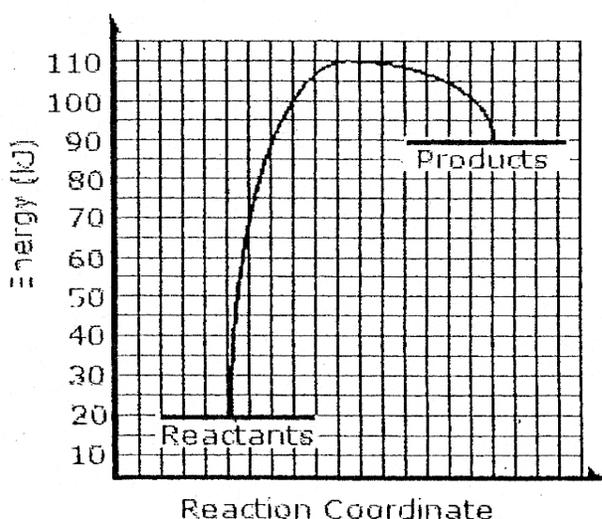
NOTE: For each example, Activation Energy (E_a) is for the **forward** reaction, and will always drop down to the reactants.

NOTE: For each reaction, ΔH is the enthalpy of the reaction (ΔH_{Rxn}) of the **forward** reaction.

For the following graphs, draw arrows and calculate the values of ΔH and E_a .

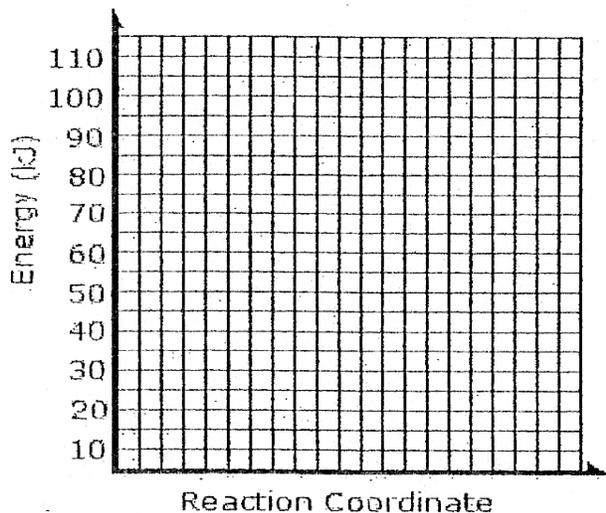


1) $\Delta H =$ $E_a =$

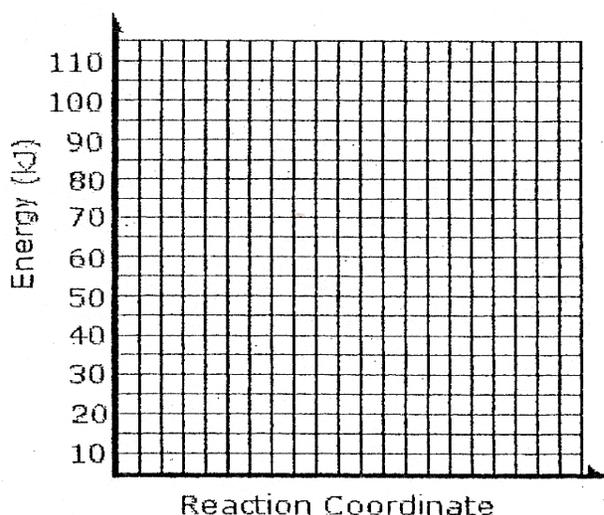


2) $\Delta H =$ $E_a =$

On the following graphs draw a reaction coordinate for a reaction that fits the given descriptions



3) $\Delta H = -50 \text{ kJ}$, $E_a = 20 \text{ kJ}$



4) $\Delta H = 20 \text{ kJ}$, $E_a = 80 \text{ kJ}$