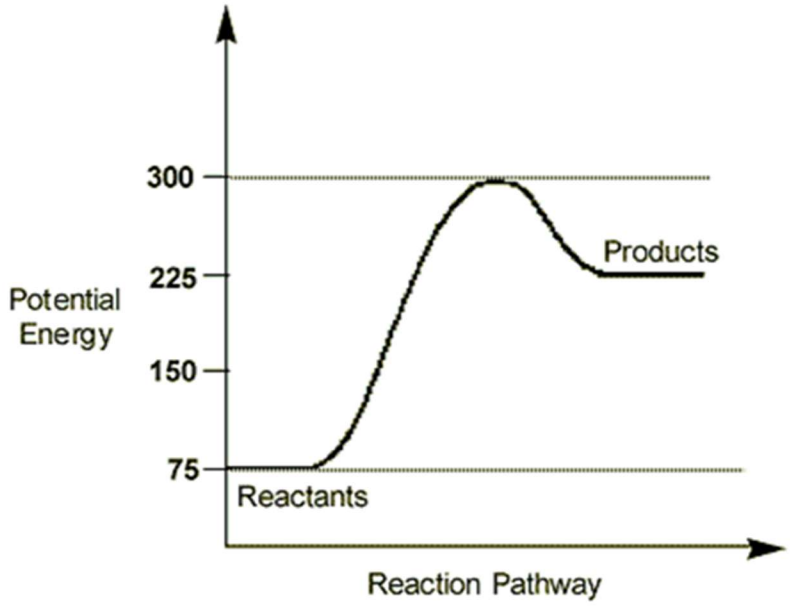
Practice Celebration for Kinetics & Equilibrium

Use the diagram at right for questions 1-8.



1. What is the correct unit for the Y axis of this graph?

2. What is the ΔH?

3. What is the activation energy of this reaction?

4. What is the activation energy with a catalyst?

5. What is the potential energy of the reactants?

6. Is this an exothermic or endothermic reaction?

7. What is the potential energy of the products?

8. State a reason for your answer in #7 in a complete sentence starting with: This reaction is ___ because...

9. Define entropy.

10. Which has the MOST entropy? circle one $HCl_{(S)}$ $HCl_{(AQ)}$ $HCl_{(G)}$ $H_2O_{(L)}$

11. Which as the LEAST entropy? circle one water vapor liquid water ice

12. Put the three phases of matter in order of highest entropy to lowest entropy.

13. skip

In this reaction: $HCl_{(AQ)} + NaOH_{(AQ)} \rightleftharpoons NaCl_{(AQ)} + HOH_{(L)}$ + energy

14. Is the forward reaction endothermic?

15. Is the reverse reaction endothermic?

In this reaction: $2Al_{(S)} + 6HCl_{(AQ)} \rightleftharpoons 2AlCl_{3(AQ)} + 3H_{2(G)} + \text{energy}$

16. Does the forward reaction lead to more entropy or less entropy?

17. What is the ΔH of this reaction?

18. As the pressure decreases on this equilibrium, does the amount of hydrogen increase or decrease?

19. As the pressure increases, does the amount of hydrogen increase or decrease?

20. As the temperature increases, does the amount of $AlCl_3$ increase or decrease?
The forward reaction is exothermic, more heat favors the reverse reaction. Less aluminum chloride would be present.

21. A reaction that you did in the lab time took 11.5 seconds exactly to complete. The reaction rate is:
A. 11.5 seconds B. 1/11.5 seconds C. 11.5/1 seconds D. 11.5^{-2} seconds

22. As concentration of the reactants increases, the rate of reaction will

23. Explain why the rate of reaction increases as the concentration of reactants increases or decreases, because…

24. As the temperature decreases, the rate of reaction will increase or decrease, because…