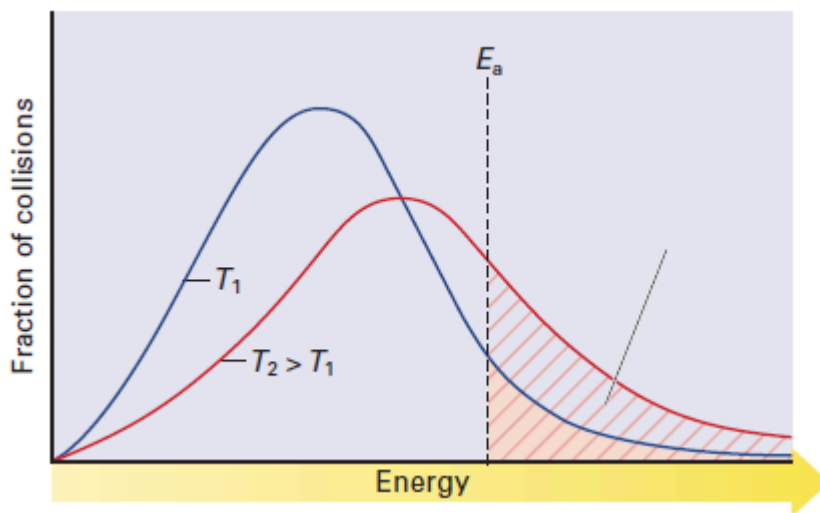


4. How does collision theory fit into KMT?

5. How does the rate of reaction compare between reactants that involve ionic compounds to those reactants that are molecular?

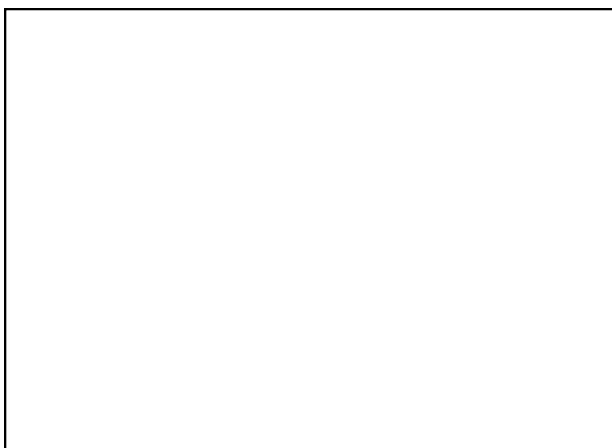
6. What is **activation energy, E_A** ?

7. Explain the following diagram:



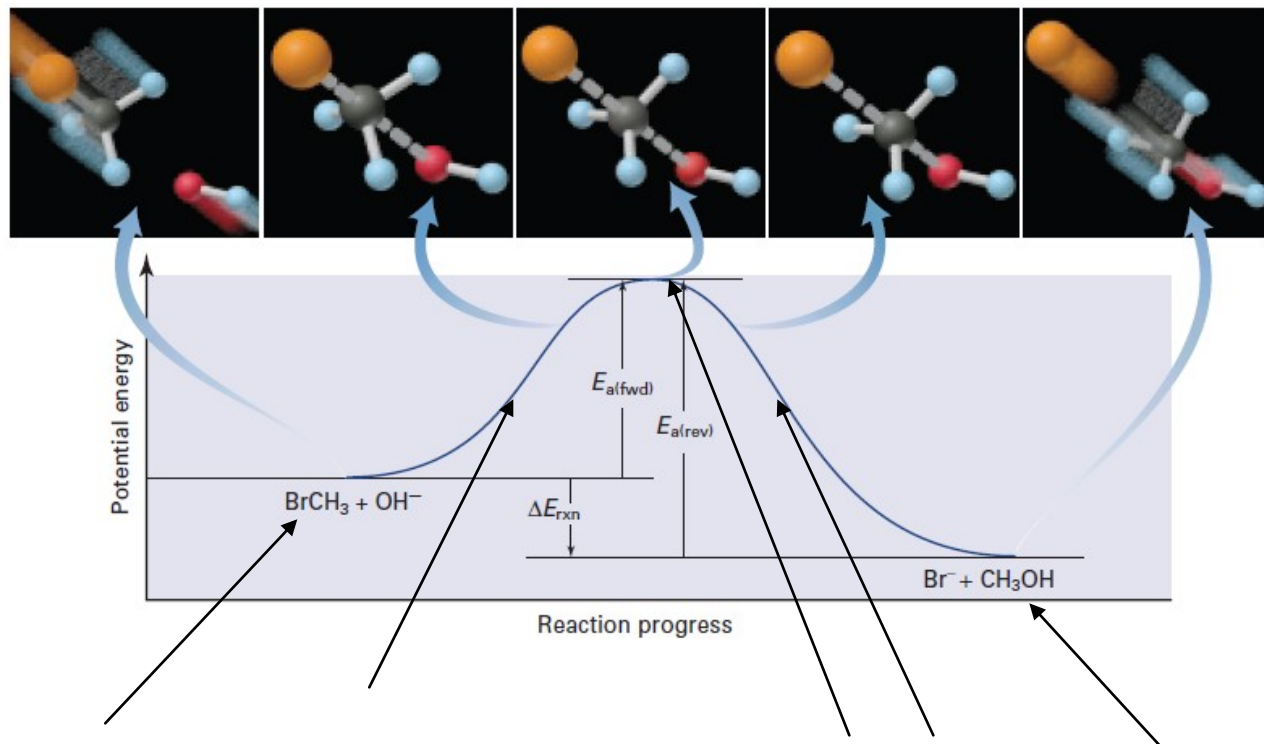
8. Explain **transition state theory** with respect to Collision theory.

9. What is a **potential energy diagram**? Draw a sample of one and explain each term that is present. *Make sure you explain the difference between a transition state and activated complex*



10.

Using this diagram, label each part of the reaction using the terms, product, transition state, reactants, before and after transition state.



11. What is a reaction mechanism? *Include elementary reaction in your definition.*

12. What is a reaction intermediate?

13. What does the term **molecularity** mean?

14. How do chemists determine the reaction mechanism?

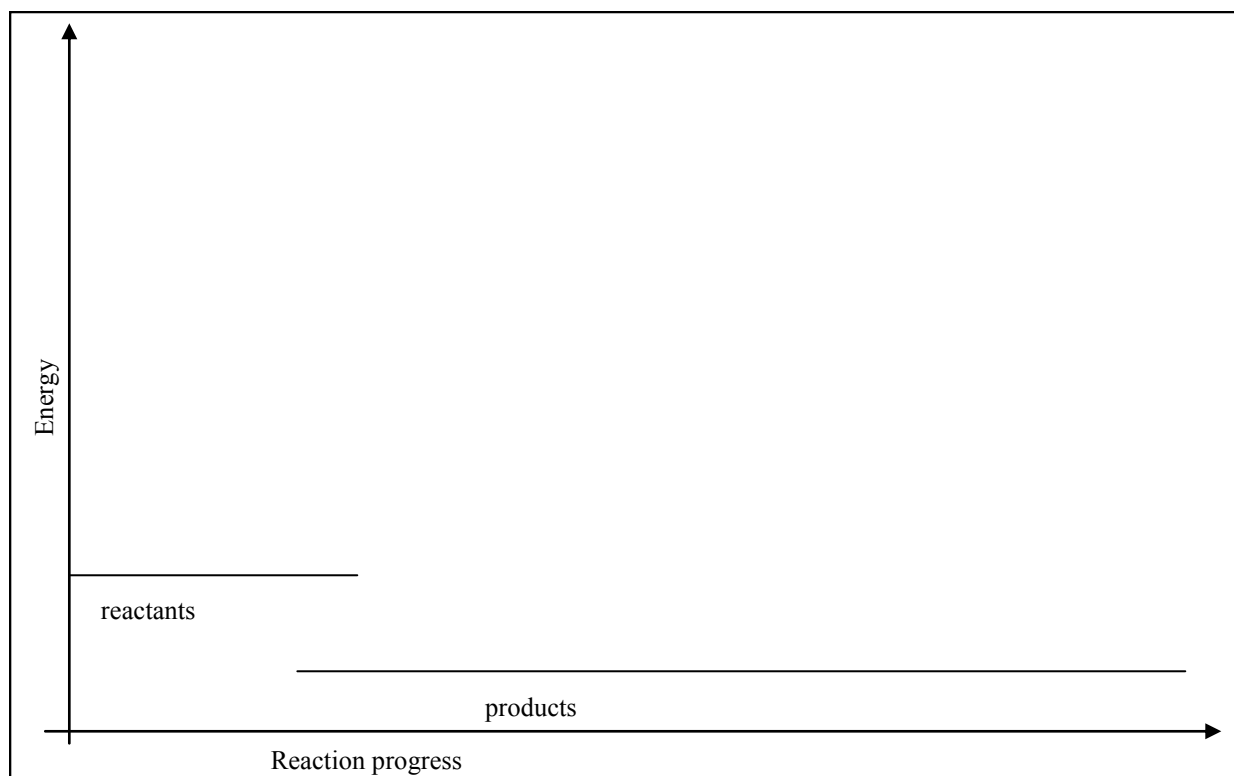
15. What is the **rate determining step**?

16. Give an example of a rate determining step within a reaction mechanism.

17. Define the word **catalyst**.

18. How does a catalyst work?

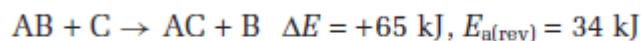
19. Complete a diagram similar to the one that is in figure 12.15



20. What is the difference between a homogenous and a heterogeneous catalyst?

21. Complete these problems:

(a) Consider the following reaction.

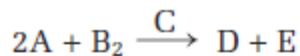


Draw and label a potential energy diagram for this reaction.

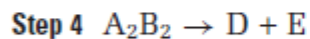
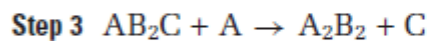
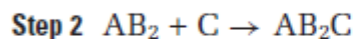
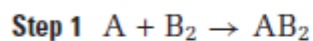
Calculate and label $E_{a(\text{fwd})}$. Include a possible structure for the activated complex.



(b) Consider the reaction below.



A chemist proposes the following reaction mechanism.



(a) What is the role of AB_2C and AB_2 ?

(b) What is the role of C ?

(c) Given a proposed reaction mechanism, how can you differentiate, in general, between a reaction intermediate and a catalyst?