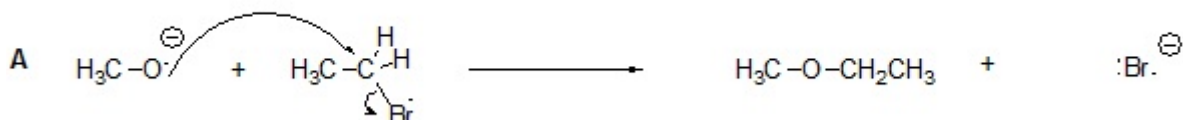


Name: _____

Arrow Pushing of Electrons

Model 1

Heterolytic Bond Cleavage: Bond is split unevenly, leading to ions



Homolytic Bond Cleavage: Bond is split symmetrically, resulting in radicals (unpaired electrons)



1. In a reaction mechanism two different types of arrows are used. First, linear arrows are used to indicate the path of the reaction, leading from reactants to products. In reactions **A** and **B** shown above, place a box around the arrows used to indicate the direction of a reaction.
2. Curved arrows are used to show the flow of electrons in a reaction. In reaction **A**, circle the electrons that are involved in either forming or breaking a bond in the reactants (chemicals on the left side of the equation). Also circle the electrons in the product that were involved in the reaction.
3. According to reaction **A**, where does the arrow begin and where does it end?
4. In reaction **B**, where does each arrow begin and where does each end?
5. What is the difference between the type of arrow used in reaction **A** compared to reaction **B**?
6. Use a complete sentence to describe the arrows used to push electrons in a reactions featuring a heterolytic bond cleavage.

7. Use a complete sentence to describe the arrows used to push electrons in a reaction featuring a homolytic bond cleavage.

8. Complete the following mechanisms for reactions **C** and **D** by a) circling all electrons involved in the bond forming and bond breaking, b) identifying the correct type of arrow to be used, and c) begin the arrow at the source of electrons and end the arrow at its destination.

