Polarity Practice Worksheet

For each of the following pairs of compounds, determine which is most polar based on their Lewis structures.

1) methyl chloride (CHCl₃) or methyl bromide (CHBr₃)

2) water or hydrogen sulfide (H₂S)

3) hydrochloric acid (HCl) or hydroiodic acid (HI)

4) bromoacetylene (C₂HBr) or chloroacetylene (C₂HCl)

5) methanol (CH₃OH) or diethyl ether [(CH₃)₂O]

6) acetone [(CH₃)₂CO] or propanol (C₃H₈O)
Polarity Practice Worksheet - Solutions

For each of the following pairs of compounds, determine which is most polar based on their Lewis structures.

1) **methyl chloride** (CHCl₃) or methyl bromide (CHBr₃)
   
   *Since chlorine is more electronegative than bromine, the molecule has a higher polarity.*

2) **water** or hydrogen sulfide (H₂S)
   
   *Since oxygen is more electronegative than sulfur, the molecule has a higher polarity.*

3) **hydrochloric acid** (HCl) or hydroiodic acid (HI)
   
   *Chlorine is more electronegative than iodine, making HCl more polar.*

4) bromoacetylene (C₂HBr) or **chloroacetylene** (C₂HCl)
   
   *Chlorine is more electronegative than bromine, making chloroacetylene more polar.*

5) **methanol** (CH₃OH) or diethyl ether [(CH₃)₂O]
   
   *Since diethyl ether has the oxygen at the middle of the molecule rather than on the end, it is far less polar than methanol.*

6) **acetone** [(CH₃)₂CO] or propanol (C₃H₈O)
   
   *A quick look at the Lewis structures of this molecule should convince you that acetone is far more polar, as the molecule appears more unbalanced.*