

Name _____

Chapter 12 Homework

1. Define each type of intermolecular force and explain when each type of intermolecular forces occurs.
 - a. dipole- dipole force

 - b. hydrogen bonding

 - c. dispersion forces

2. For each of the following compounds, determine the main intermolecular force. You will need to draw the Lewis Structure and determine if the molecule is polar or nonpolar overall first.

Molecule	Lewis Structure	Polar or nonpolar overall?	Strongest type of intermolecular force present
H ₂ S			
NCl ₃			
NH ₃			
H ₂ CO			
N ₂			
CCl ₄			

3. Based on the last question rank NH_3 , N_2 , and H_2CO in order of expected boiling point.
(1 = highest to 3 = lowest)

NH_3 _____ N_2 _____ H_2CO _____

4. Ethanol evaporates more quickly than water. Does water or ethanol have stronger intermolecular forces?

5. Explain why nonpolar molecules usually have much lower surface tension than polar ones.

6. How much heat is required to vaporize 23.4 g of water?

7. How much heat is required to melt 21.2 g of water?

8. How much energy is released when 76.2 grams of acetone condenses at its boiling point?

9. How much heat is required to melt 21.2 kg of isopropyl alcohol?