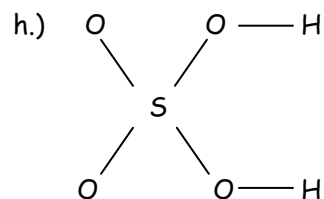
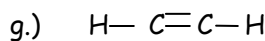
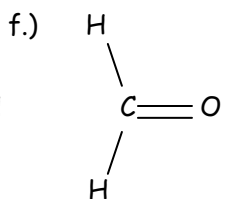
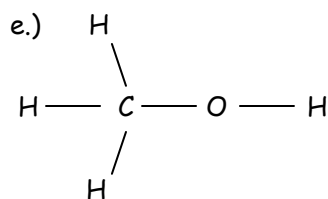
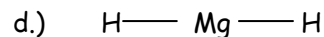
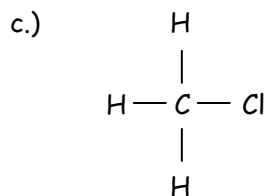
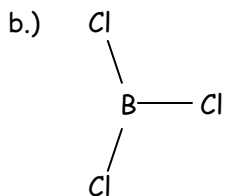
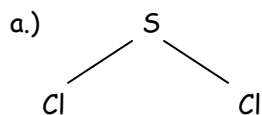


## Polarity

Name - \_\_\_\_\_

1.) Which of the following molecules will be polar and which will be nonpolar?



2.) Examine the following melting temperatures. All the molecules are polar.

$$\text{NH}_3 = -78^\circ\text{C}$$

$$\text{PH}_3 = -133^\circ\text{C}$$

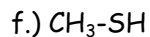
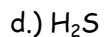
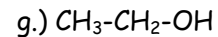
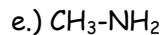
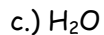
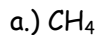
$$\text{AsH}_3 = -116^\circ\text{C}$$

$$\text{SbH}_3 = -88^\circ\text{C}$$

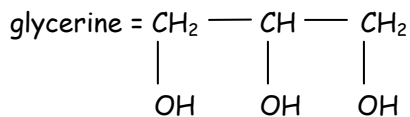
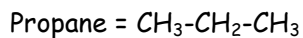
a.) Why do the melting temperatures of  $\text{SbH}_3$ ,  $\text{AsH}_3$  and  $\text{PH}_3$  steadily decrease?

b.) Why does the melting temperature of  $\text{NH}_3$  suddenly increase going from  $\text{PH}_3$  up to  $\text{NH}_3$ ?

3.) Which of the following substances would you expect to involve hydrogen bonds?



4.) Suggest a reason why liquid propane has a very low viscosity, whereas liquid glycerine has a very high viscosity.



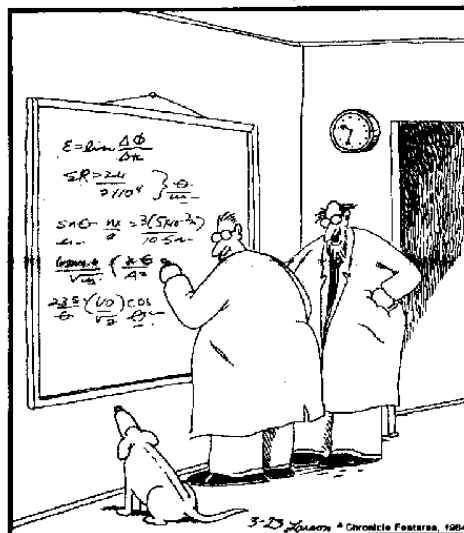
5.) Classify each of the following with respect to the **most important** type(s) of bonding or forces(s) existing **between** the particles.

- a.) 2 molecules of  $\text{O}_2$  in  $\text{O}_2$  (s)
- b.) 2 atoms of Xe in Xe (s)
- c.) An atom of C and an atom of Cl in  $\text{CCl}_4$
- d.) 2 molecules of  $\text{CH}_3\text{F}$  in  $\text{CH}_3\text{F}$  (l)
- e.) F and Cs in CsF (s)
- f.) atoms of He and Kr

6.) Which should melt at a higher temperature and why?

- a.) He or Xe
- b.) HBr and Kr
- c.)  $\text{CH}_3\text{-CH}_3$  or  $\text{HO-CH}_2\text{-CH}_2\text{-OH}$
- d.)  $\text{F}_2$  or  $\text{Br}_2$

**THE FAR SIDE** By GARY LARSON



"Ohhhhhh ... Look at that, Schuster ... Dogs are so cute when they try to comprehend quantum mechanics."