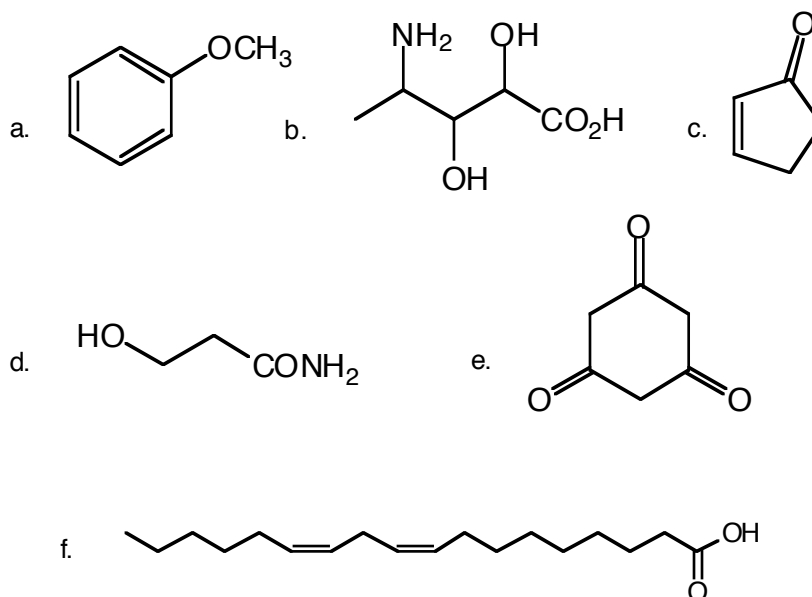
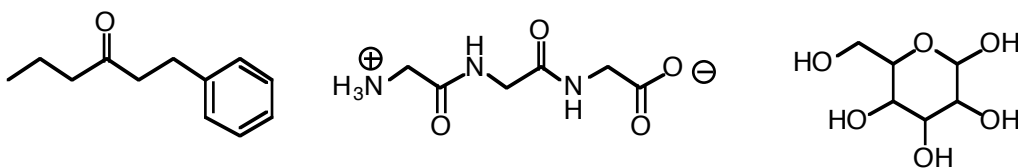


Polarity Practice Problems

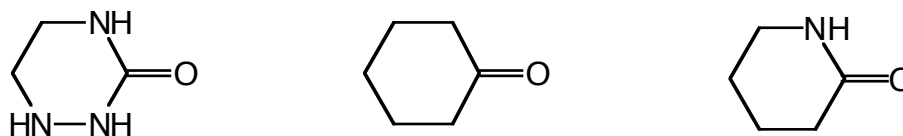
1. Which of the following molecules would be considered polar? Non-polar?



2. Rank the following molecules from most polar to least polar. Label the most polar #1 and the least #3.



3. Using the "Like Dissolves Like" rule of thumb, rank these molecules from most water soluble to least water soluble. Label the most soluble #1 and the least #3.



4. Soaps are molecules that will overcome the normal “oil and water don’t mix” behavior (provided we are talking about small amounts of oil in large amounts of water or *vice versa*). Soap as traditionally prepared on the American frontier from animal fat and lye is composed of fatty acids (see Figure 4.4 in *UMP*) present in their carboxylate form (RCO_2^-). Write the structure of palmitic acid in its carboxylate form and explain how it can dissolve in both water and “oil.” A simple illustration would probably be helpful (OK, vital!).

5. Saponins are plant molecules that act in a soap-like fashion (see *UMP* pgs 114-116). In *UMP* Figure 4.37 you can see the structure of glycyrrhizin, a saponin from licorice root. Copy the structure here and circle the regions of the molecule which would be expected to dissolve in water.