Work each of the following problems. SHOW ALL WORK.

1. What is the molecular formula of the molecule that has an empirical formula of CH\textsubscript{2}O and a molar mass of 120.1 g/mol?

2. What is the molecular formula of the molecule that has an empirical formula of CH\textsubscript{2}Cl and a molar mass of 247.5 g/mol?

3. Determine the formula for the hydrate from the given information:
   a. 0.391 g Li\textsubscript{2}SiF\textsubscript{6}, 0.0903 g H\textsubscript{2}O