

## The Mole - Pretest

1. A sample of carbon dioxide contains 5.13 grams of  $\text{CO}_2$ . How many molecules of the gas are present in the sample?
2. A crystal of magnesium bromide has 3.44 moles of  $\text{MgBr}_2$ . How many grams of the sample are present?
3. How many moles are present in 3.21 g of  $\text{NH}_3$  gas?
4. What is the mass percent of each element in lithium acetate,  $\text{LiC}_2\text{H}_3\text{O}_2$ ?
5. Determine the molar mass of ammonium phosphate,  $(\text{NH}_4)_3\text{PO}_4$ .
6. A sample contains 38.8% calcium, 20.0% phosphorous, and 41.3% oxygen by mass. What is the empirical formula for the compound?
7. A chemical formula has an empirical formula of  $\text{CH}$  but the actual molecule has a mass of 78 g/mol. What is the molecular formula of the compound?
7. A 30.0 gram sample of hydrated copper II sulfate contains 10.83 grams of water. How many water molecules would be found in a crystal for each formula unit? Write the hydrate in its proper form.