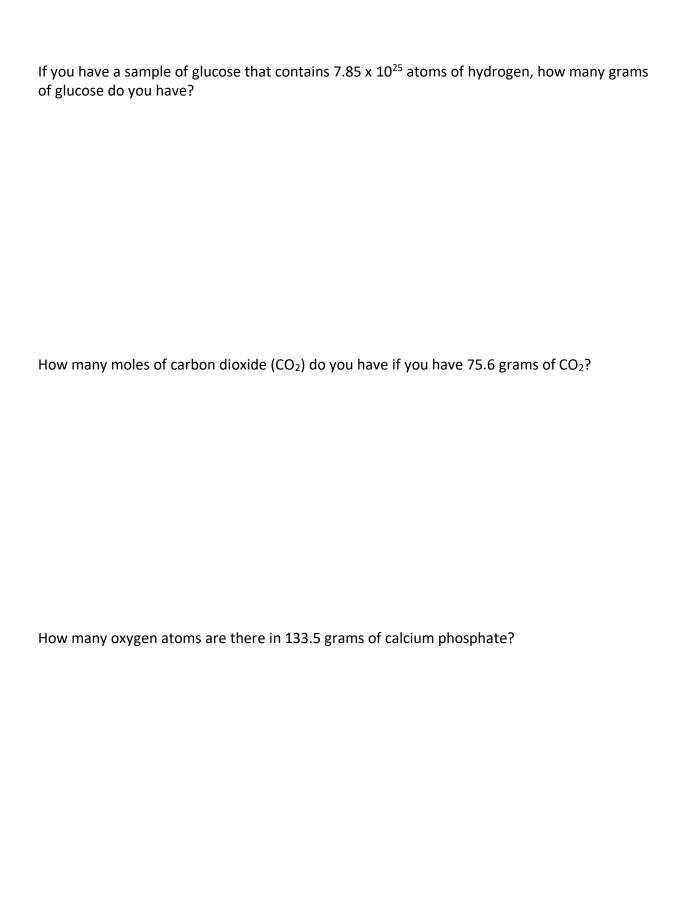
How many lithium (Li) atoms are there in 23.55 grams of Li?
How many grams of silicon (Si) do you have if you have 11.54 moles of Si?
How many moles of chlorine gas ( $\text{Cl}_2$ ) are there in 83.4 grams of chlorine gas?
What is the molar mass of glucose ( $C_6H_{12}O_6$ )?



What is the mass percentage of carbon in benzene ( $C_6H_6$ )?
What is the empirical formula of a substance that is 75.91% C, 6.38% H and 17.72% N by mass?
Combustion is when your burn a material in the presence of oxygen.  •If there is carbon in the material you will get CO <sub>2</sub> as a product of the combustion – and all of the carbon in the CO <sub>2</sub> will have come from the material that was combusted.

- $\bullet$  If there is hydrogen in the material you will get water as a product of the combustion and all of the hydrogen in the  $H_2O$
- $\bullet$ Oxygen atoms in the CO<sub>2</sub> and in the H<sub>2</sub>O may have come from the original material **or** from the oxygen involved in the combustion process.

You have 50.0 grams of a material that contains carbon, hydrogen and **maybe** oxygen. You combust the material and collect the water and the carbon dioxide that results. You collect 95.6 grams of  $CO_2$  and 59.1 grams of  $H_2O$ . Did the original material contain oxygen atoms? Prove your answer. Then determine the empirical formula of the material.