

2 past decimal!

Percent Composition
Chemistry

Name: Key! Period: _____ Date: _____

Calculate the percent of the element that is bold in the following compounds.



$$\frac{40.078 \text{ u}}{92.114 \text{ u}} \times 100 = 43.51\%$$

Ca(CN)₂



$$\frac{88.01 \text{ u}}{124.0952 \text{ u}} \times 100 = 70.93\%$$

C₂O₄ : **C₂O₄** : **(NH₄)₂C₂O₄**



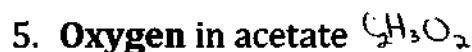
$$\frac{22.990 \text{ u}}{102.894 \text{ u}} \times 100 = 22.34\%$$

NaBr



$$\frac{65.38 \text{ u}}{97.445 \text{ u}} \times 100 = 67.09\%$$

ZnS



$$\frac{2(15.999) \text{ u}}{59.0437 \text{ u}} \times 100 = 54.19\%$$

O₂ in C₂H₃O₂

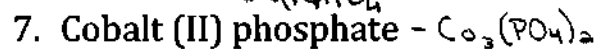
Calculate the percent of each element in the following compounds.



$$\text{Al} - \frac{26.982 \text{ u}}{121.952 \text{ u}} \times 100 = 22.13\%$$

$$\text{P} - \frac{30.974 \text{ u}}{121.952 \text{ u}} \times 100 = 25.40\%$$

$$\text{O}_4 - \frac{63.996 \text{ u}}{121.952 \text{ u}} \times 100 = 52.48\%$$



$$\text{Co}_3 - \frac{176.79 \text{ u}}{366.739 \text{ u}} \times 100 = 48.21\%$$

$$\text{P}_2 - \frac{61.948 \text{ u}}{366.739 \text{ u}} \times 100 = 16.89\%$$

$$\text{O}_8 - \frac{127.992 \text{ u}}{366.739 \text{ u}} \times 100 = 34.90\%$$

8. The compound mannitol, $C_6H_{14}(OH)_6$, is used as a sweetener in some dietetic foods. What is the percentage composition of each element in this compound?

$$C_6 - \frac{72.0664 \text{ g C}}{182.17022 \text{ g } C_6H_{14}(OH)_6} \times 100 = 39.56\%$$

$$H_{14} - \frac{14.110214 \text{ g H}}{182.17022 \text{ g } C_6H_{14}(OH)_6} \times 100 = 7.75\%$$

$$O_6 - \frac{95.99410 \text{ g O}}{182.17022 \text{ g } C_6H_{14}(OH)_6} \times 100 = 52.69\%$$

9. Caffeine, $C_8H_{10}N_4O_2$, and theophylline, $C_7H_8N_4O_2$, are both found in tea leaves, and both are used as medicines affecting hormone action in the human body. Compare the percentage of nitrogen found in the two compounds.

$$\text{Caffeine} - N_4 - \frac{56.0284 \text{ g N}}{194.1934 \text{ g } C_8H_{10}N_4O_2} \times 100 = 28.85\%$$

$$\text{Theophylline} - N_4 - \frac{56.0284 \text{ g N}}{180.16624 \text{ g } C_7H_8N_4O_2} \times 100 = 31.10\%$$

Caffeine has less nitrogen compared to atoms vs. theophylline.

10. Sodium Stearate ($C_{17}H_{35}COONa$) is a common compound found in bar soap. Determine the percent composition of each element in sodium stearate.

$$C_{18} - \frac{216.198 \text{ g C}}{306.4625 \text{ g } C_{17}H_{35}COONa} \times 100 = 70.55\%$$

$$H_{35} - \frac{35.2765 \text{ g H}}{306.4625 \text{ g } C_{17}H_{35}COONa} \times 100 = 11.51\%$$

$$O_2 - \frac{31.998 \text{ g O}}{306.4625 \text{ g } C_{17}H_{35}COONa} \times 100 = 10.44\%$$

$$Na - \frac{22.990 \text{ g Na}}{306.4625 \text{ g } C_{17}H_{35}COONa} \times 100 = 7.50\%$$