

Give the formula mass for $\mathbf{H_2O}$:

$$\mathbf{2 H} = 2 \times 1.0 = 2.0 \text{ amu}$$

$$\mathbf{O} = 1 \times 16.0 = 16.0 \text{ amu}$$

$$\text{formula mass} = 18.0 \text{ amu}$$

Give the % composition for $\mathbf{H_2O}$:

$$\% \mathbf{H} = 100\% \times (2.0 \text{ amu}/18.0 \text{ amu}) = 11.1 \%$$

$$\% \mathbf{O} = 100\% \times (16.0 \text{ amu}/18.0 \text{ amu}) = 88.9 \%$$

$$\text{total} = 100 \%$$

Give the formula mass for $\mathbf{C_9H_8O_4}$ (aspirin):

$$\mathbf{9 C} = 9 \times 12.0 = 108.0 \text{ amu}$$

$$\mathbf{8 H} = 8 \times 1.0 = 8.0 \text{ amu}$$

$$\mathbf{4 O} = 4 \times 16.0 = 64.0 \text{ amu}$$

$$\text{formula mass} = 180.0 \text{ amu}$$

Give the % composition for $\mathbf{C_9H_8O_4}$:

$$\% \mathbf{C} = 100\% \times (108.0 \text{ amu}/180.0 \text{ amu}) = 60.0 \%$$

$$\% \mathbf{H} = 100\% \times (8.0 \text{ amu}/180.0 \text{ amu}) = 4.4 \%$$

$$\% \mathbf{O} = 100\% \times (64.0 \text{ amu}/180.0 \text{ amu}) = 35.6 \%$$

$$\text{total} = 100 \%$$