

MOLE CALCULATION

WORKSHEET

Calculate the mass of the element in the amount of the compound provided.

a) Mass of Hydrogen in 350 g C_2H_6

b) Mass of Oxygen in 20.2 g of $NaHSO_4$

c) Mass of Nitrogen in 378 g HCN

d) Mass of Hydrogen in 124 g of $Ca(C_2H_3O_2)_2$

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Answers

a) Mass of Hydrogen in 350 g C_2H_6

Molar mass of $C_2H_6 = 30.06904$ g/mol

Mass of hydrogen in $C_2H_6 = 6 \times 1 \text{ g} = 6 \text{ g}$

Mass of hydrogen in 350 g $C_2H_6 = (6/30.06904) \times 350 \text{ g} = 69.83 \text{ g}$

b) Mass of Oxygen in 20.2 g of $NaHSO_4$

Molar mass of $NaHSO_4 = 120.06$ g/mol

Mass of oxygen in $NaHSO_4 = 4 \times 16 \text{ g} = 64 \text{ g}$

Mass of oxygen in 20.2 g $NaHSO_4 = (64/120.06) \times 20.2 \text{ g} = 10.76 \text{ g}$

c) Mass of Nitrogen in 378 g HCN

Molar mass of $HCN = 27.0253$ g/mol

Mass of nitrogen in $HCN = 14 \text{ g}$

Mass of nitrogen in 378 g $HCN = (14/27.0253) \times 378 \text{ g} = 195.81 \text{ g}$

d) Mass of Hydrogen in 124 g of $Ca(C_2H_3O_2)_2$

Molar mass of $Ca(C_2H_3O_2)_2 = 158.16$ g/mol

Mass of hydrogen in $Ca(C_2H_3O_2)_2 = 6 \times 1 \text{ g} = 6 \text{ g}$

Mass of Hydrogen in 124 g $Ca(C_2H_3O_2)_2 = (6/158.16) \times 124 \text{ g} = 4.7 \text{ g}$