

Moles to grams and Grams to moles

Sample Problems

mole \rightarrow gram

The molar mass of $\text{Al}_2(\text{SO}_4)_3$ is 342.14 g/mol .
How many grams are in 2.75 moles of $\text{Al}_2(\text{SO}_4)_3$

$$(2.75 \text{ moles}) \left(\frac{342.14 \text{ g}}{\text{mol}} \right) = 940.89 \text{ g } \text{Al}_2(\text{SO}_4)_3$$

How many grams are in 1.86 moles of HCl ?

$$1 \times \text{H} = 1 \times 1.01 \text{ g/mol} = 1.01 \text{ g/mol}$$

$$1 \times \text{Cl} = 1 \times 35.45 \text{ g/mol} = \underline{35.45 \text{ g/mol}}$$
$$36.46 \text{ g/mol}$$

$$(1.86 \text{ mol}) \left(\frac{36.46 \text{ g}}{\text{mol}} \right) = 67.82 \text{ g } \text{HCl}$$

gram \rightarrow mol

How many moles are in 237.4 g of HI ?

$$1 \times \text{H} = 1 \times 1.01 \text{ g/mol} = 1.01 \text{ g/mol}$$

$$1 \times \text{I} = 1 \times 126.90 \text{ g/mol} = \underline{126.90 \text{ g/mol}}$$
$$127.91 \text{ g/mol}$$

$$\frac{237.4 \text{ g}}{127.91 \text{ g/mol}} = 1.86 \text{ mol } \text{HI}$$

This can also be written as:

$$237.4 \text{ g} \times \frac{1 \text{ mol}}{127.91 \text{ g}} = 1.86 \text{ mol } \text{HI}$$