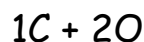


## How to go from GRAMS to MOLES

*If you have 12.3 grams of CO<sub>2</sub>,  
how many moles are there?*

### 1) Find MOLAR MASS of compound

$$C = 12.0 \text{ g/mol} \quad O = 16.0 \text{ g/mol}$$



$$(1 \times 12.0) + (2 \times 16.0) = 44.0 \text{ g/mol}$$

### 2) Divide $\frac{\text{MASS GIVEN}}{\text{MOLAR MASS}}$

*Set up a dimensional analysis problem*

grams  $\rightarrow$  moles

Starting with 12.3 grams

1 mole = 44.0 grams

$$\frac{12.3 \text{ grams}}{44.0 \text{ grams}} \times 1 \text{ mole} = 0.28 \text{ moles}$$

### 3) Check to make sure your units cancel!

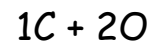
$$\frac{12.3 \cancel{\text{ grams}}}{44.0 \cancel{\text{ grams}}} \times 1 \text{ (mole)} = 0.28 \text{ (moles)}$$

## How to go from MOLES to Grams

*If you have 1.7 moles of CO<sub>2</sub>,  
how many grams are there?*

### 1) Find MOLAR MASS of compound

$$C = 12.0 \text{ g/mol} \quad O = 16.0 \text{ g/mol}$$



$$(1 \times 12.0) + (2 \times 16.0) = 44.0 \text{ g/mol}$$

### 2) MULTIPLY

**# of MOLES  $\times$  MOLAR MASS**

*Set up a dimensional analysis problem*

moles  $\rightarrow$  grams

Starting with 1.7 moles

1 mole = 44.0 grams

$$\frac{1.7 \text{ moles}}{1 \text{ mole}} \times 44.0 \text{ grams} = 74.8 \text{ grams}$$

### 3) Check to make sure your units cancel!

$$\frac{1.7 \cancel{\text{ moles}}}{1 \cancel{\text{ mole}}} \times 44.0 \text{ (grams)} = 74.8 \text{ (grams)}$$