

## Mole Conversion Practice Worksheet

Answer the following questions.

[1] How many moles are present in 72.9 grams of HCl?

[2] How many moles of nitrogen are there in  $4.3 \times 10^{23}$  molecules?

[3] How many moles are present in 24.2 grams of Li?

[4] How many moles are present in 89.4 grams of  $\text{UOCl}_2$ ?

[5] How many atoms are represented by  $6.57 \times 10^3$  moles of Cd?

[6] How many moles represent 8.045 grams of  $\text{H}_2\text{CO}_3$ ?

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## Answers

[1] How many moles are present in 72.9 grams of HCl?

Molar mass of HCl = 36.5 g/mol

1 mole of HCl weighs 36.5 grams

So, 72.9 grams of HCl are represented by  $72.9/36.5 = 1.997$  moles  $\sim 2$  moles

[2] How many moles of nitrogen are there in  $4.3 \times 10^{23}$  molecules?

1 mole of  $N_2$  has  $6.023 \times 10^{23}$  molecules

Number of moles present in  $4.3 \times 10^{23}$  molecules =  $(4.3/6.023) = 0.71$  moles

[3] How many moles are present in 24.2 grams of Li?

1 mole of Li weighs 7 grams

Number of moles present in 24.2 grams of Li = 3.45 moles

[4] How many moles are present in 89.4 grams of  $UOCl_2$ ?

Molar mass of  $UOCl_2$  = 340.90 g/mol

Number of moles present in 89.4 grams of  $UOCl_2$  =  $(89.4/340.9)$  moles  
= 0.262 moles

[5] How many atoms are represented by  $6.57 \times 10^3$  moles of Cd?

1 mole of Cd consists of  $6.023 \times 10^{23}$  atoms

$6.57 \times 10^3$  moles consist of  $(6.023 \times 10^{23} \times 6.57 \times 10^3)$  atoms =  $39.57 \times 10^{26}$  atoms  
=  $3.957 \times 10^{27}$  atoms

[6] How many moles represent 8.045 grams of  $H_2CO_3$ ?

1 mole of  $H_2CO_3$  weighs 62.03 grams

8.045 grams of  $H_2CO_3$  represent  $(8.045/62.03) = 0.129$  moles