Examples:

1. How many particles are in 3 moles?

$n = 3$.

$N_A = 6.022 \times 10^{23}$

$\therefore N = 3 \times 6.022 \times 10^{23}$

2. How many moles are in 8.27×10^{23} particles?

$N_A = 6.022 \times 10^{23}$

$N = 8.27 \times 10^{23}$

$\therefore n =$

3. Complete the graphic organizer below to help you convert from moles to number of particles. Note that the arrow points towards the REQUIRED piece of information (what you are trying to figure out).

Amount (n) # of moles	⟶ ⟵	# of particles (N) (atoms, ions, molecules, formula units)

4. How many atoms does a 2.6 mol sample of silver have?

$2.6 \, mol \times \dfrac{6.022 \times 10^{23} \, atoms}{mol} = 1.56572 \times 10^{24}$

$\therefore 1.6 \times 10^{24} \, atoms$

5. A sample contains 1.25 mol of NO_2.

   a. How many molecules are there?

   $1.25 \, mol \times \dfrac{6.022 \times 10^{23} \, molecules}{mol} = 7.5275 \times 10^{23}$ molecules

   $\therefore 7.53 \times 10^{23}$ molecules

   b. How many atoms are there in the sample?

   $1 \, mol = 3 \, atoms$

   22.59×10^{23} or 2.26×10^{24} atoms

6. How many moles are there if a sample of NaCl contains 3.21×10^{23} formula units?

$\dfrac{3.21 \times 10^{23} \, f.u}{6.022 \times 10^{23} \, f.u} \times mol = 0.533 \, mol$

$5.33 \times 10^{-1} \, mol$. $2.2 \times 10^{21} \times 6 \cdot 10^{20}$

1.32×10