

Moles within moles

We can interpret 1 mole of a compound or molecules in terms of moles of elements

For example: 1 mole of $(\text{NH}_4)_2\text{SO}_4$ = 2 moles of nitrogen

1 mole of $(\text{NH}_4)_2\text{SO}_4$ = 8 moles of hydrogen

1 mole of $(\text{NH}_4)_2\text{SO}_4$ = 1 mole of sulfur

1 mole of $(\text{NH}_4)_2\text{SO}_4$ = 4 moles of oxygen

We can use the analogy of an elephant.

We can say 1 mole of elephants contains 1 mole of trunks, two moles of ears and 4 moles of legs.

1. How many moles of oxygen atoms are there in 2 moles of KNO_3 ?
2. How many oxygen atoms are there in 2.50 moles of O_2 molecules?
3. A mole of H_2O and a mole of O_2
 - a. have the same mass
 - b. contain one molecule each
 - c. have a mass of 1 g each
 - d. contain the same number of molecules
4. One molecule of sulfur contains 8 sulfur atoms. Then one mole of sulfur molecules will contain
 - a. 8 g of sulfur
 - b. 8 moles of sulfur atoms
 - c. 6.02×10^{23} sulfur atoms
 - d. 8 sulfur atoms
5. How many oxygen atoms are there in 48.0 g of O and 48.0 g of O_2 ?