

MASTERING THE MOLE

Another look at a *tricky*...but **VERY IMPORTANT**...

Chemistry 11 concept

FOR EACH QUESTION, THOROUGHLY SHOW ALL WORK,
AND DEMONSTRATE CLEARLY HOW THE UNITS CANCEL IN YOUR SOLUTION.

1. If you have 48 cinnamon buns, how many dozen is that?
2. If you have 6 chocolate croissants, how many dozen is that?
3. If a ream of paper is 500 sheets of paper, and a shipment contains 226 reams of paper, then how many sheets of paper are in the shipment?
4. If 1.00 mole of atoms is equivalent to 6.02×10^{23} atoms, then how many atoms are in 3.25 moles?
5. A beaker contains 4.97×10^{35} molecules of water. How many moles is that?

6. What is the atomic mass of Sn? (sometimes we use the term MOLAR mass. This is just a generic way of saying atomic mass).

7. 118.71 g of Tin is equivalent to how many moles?

8. How many tin atoms are in 118.71 g of Tin?

9. What is the mass of a single Tin atom?

10. What is the molecular mass of ammonia gas (NH_3)? (sometimes we use the term MOLAR mass. This is just a generic way of saying molecular mass).

11. How many moles of Platinum are there in 315 g?

12. How many ATOMS are there in 315 g of Platinum?

13. How many molecules in 521 g of water?

14. If you have 10 donuts, and each donut has 8 chocolate chips on top, how many chocolate chips do you have in total?
15. How many carbon atoms are there in ONE molecule of aluminum oxalate?
16. If you have 1.00 moles of aluminum oxalate, how many molecules will there be?
17. If you have the number of molecules (**from #16**) of aluminum oxalate, how many carbon atoms will there be?
18. If you have this number of molecules (from #16) of aluminum oxalate, how many oxygen atoms will there be?
19. What is the mass of one molecule of magnesium sulphide?
20. If you have 8.62×10^{21} molecules of carbon dioxide, what would the mass of that sample be?

LET'S STEP IT UP A NOTCH:

21. If you have 4.13×10^{37} zinc atoms in a sample of zinc phosphate, how many molecules of zinc phosphate would you have?

22. If 42 g of NO_2 gas takes up 71 litres of space (at certain temperature and pressure conditions), then what is the density of the gas?

23. If a 63.42L sample, that contains 3.01×10^{23} molecules, has a density of 1.26 g / L, then what is the identity of the molecule?

