

EXTRA PRACTICE: 3-Step Mole Conversions

Name: _____

Solve the following mole conversion problems. Be sure to show your work & include correct units.

Part I: Particles → Mass

1. How many grams of silver are in 6.55×10^{24} atoms of silver?
2. How many grams of rubidium chloride are in 8.66×10^{26} formula units (f.u.) of rubidium chloride?
3. How many grams of dinitrogen tetrahydride are in 5.00×10^{32} molecules of dinitrogen tetrahydride?
4. How many grams of potassium bromide are in 5.30×10^{29} formula units (f.u.) of potassium bromide?
5. How many grams of butane (C_4H_{10}) are in 25.3×10^{28} molecules of butane?
6. How many grams of silver are in 1.33×10^{25} atoms of silver?
7. How many grams of sodium chloride are in 1.55×10^{16} formula units (f.u.) of sodium chloride?
8. How many grams of ammonia (NH_3) are in 2.55×10^{27} molecules of ammonia?
9. How many grams of magnesium nitride are in 2.50×10^{24} formula units (f.u.) of magnesium nitride?
10. How many grams of lithium fluoride are in 6.80×10^{25} formula units (f.u.) of lithium fluoride?

Part II: Mass → Particles

11. How many molecules of hydrogen peroxide (H_2O_2) are in 100. grams of hydrogen peroxide?
12. **(CHALLENGE)** - How many hydrogen atoms (H) are in 5.02 grams of methane (CH_4)?
13. How many formula units (f.u.) of magnesium fluoride are in 2.60 grams of magnesium fluoride?
14. **(CHALLENGE)** - How many oxygen atoms (O) are in 200. grams of aluminum sulfate?
15. How many molecules of pentane (C_5H_{12}) are in 0.211 grams of pentane?
16. **(CHALLENGE)** - How many aluminum atoms (Al) are in 500. grams of aluminum sulfate?
17. How many atoms of iron are in 3.33×10^{-2} grams of iron?
18. How many formula units (f.u.) of strontium carbonate are in 6.30×10^6 grams of strontium carbonate?
19. How many atoms of cobalt are in 0.126 grams of cobalt?
20. How many formula units (f.u.) of strontium oxide are in 1.49×10^5 grams of strontium oxide?