

**DIRECTIONS**

- Solve each problem using dimensional analysis (grid suggested).
- For each problem, **SHOW YOUR WORK** in the space provided and **PLACE YOUR ANSWER IN THE BOX**.
- Use proper sig figs (based on what you are given in the problem), and don't forget units.

1. Calculate the number of grams in  $6.02 \times 10^{21}$  atoms of gold.

2. What volume of  $\text{CO}_2$  is occupied by 0.0600 grams of the gas?

3. How many atoms are in 1.155 grams of sulfur?

4. Calculate the moles in 67.5 grams of aluminum nitrate.

5. Calculate the volume of  $2.13 \times 10^{27}$  atoms of  $\text{CH}_4$ .

6. Calculate the moles in 45.3 grams of iron (II) phosphate.

7. Calculate the mass, in kilograms, of 34.5 liters of hydrogen gas.

8. What volume of  $\text{SF}_2$  is occupied by 0.260 grams of  $\text{SF}_2$  gas?

9. Calculate the number of moles in  $8.23 \times 10^{20}$  formula units of  $\text{Cu}_2\text{O}$ .

10. Calculate the number of grams in  $9.05 \times 10^{32}$  ions of  $(\text{NH}_4)_2\text{SO}_4$ .

11. What volume of  $\text{CCl}_4$  is occupied by 75.00 grams of the gas?

12. Calculate the number of chloride ions in 2.65 moles of  $\text{CaCl}_2$ .