

## EXTRA PRACTICE: 2-Step Mole Conversions

Name: \_\_\_\_\_

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

### Part I: Particles $\leftrightarrow$ Mole

1. How many moles of cobalt are present in  $5.44 \times 10^{26}$  atoms of cobalt?
2. How many molecules of carbon dioxide are in 2.40 moles of carbon dioxide?
3. How many moles of sulfur trioxide are in  $4.56 \times 10^{24}$  molecules of sulfur trioxide?
4. How many formula units (f.u.) are in 10.9 moles of copper (II) sulfate?
5. How many moles of sodium chloride are in  $5.33 \times 10^{25}$  formula units (f.u.) of sodium chloride?
6. How many atoms of carbon are present in 2.40 moles of carbon?
7. How many moles of carbon tetrachloride are in  $9.11 \times 10^{25}$  molecules of carbon tetrachloride?
8. How many formula units (f.u.) of calcium sulfate are in 2.90 moles of calcium sulfate?
9. How many moles of potassium fluoride are in  $5.55 \times 10^{24}$  formula units (f.u.) of potassium fluoride?
10. How many molecules of bromine are in 4.65 moles of bromine?

## Part II: Mass $\leftrightarrow$ Mole

11. How many moles of water are present in 100. grams of water?
12. How many grams of water are in 27.7 moles of water?
13. How many moles of magnesium chloride are in 250. grams of magnesium chloride?
14. How many grams of diphosphorus pentoxide are in  $1.89 \times 10^{-3}$  moles of diphosphorus pentoxide?
15. How many moles of butane ( $C_4H_{10}$ ) are in 0.266 grams of butane?
16. How many grams of calcium sulfate are in 0.993 moles of calcium sulfate?
17. How many moles of iron are present in  $1.20 \times 10^{-4}$  grams of iron?
18. How many grams of methane gas ( $CH_4$ ) are in 13.4 moles of methane gas?
19. How many moles of aluminum iodide are present in 275 grams of aluminum iodide?
20. How many grams of glucose ( $C_6H_{12}O_6$ ) are in 0.141 moles of glucose?