

Chemistry
Mole Conversions - 1-step

Name KEY
Date _____ Block _____

1. How many moles are in 25 grams of water?

$$\frac{25 \text{ g H}_2\text{O}}{1} \times \frac{1 \text{ mol H}_2\text{O}}{18.02 \text{ g H}_2\text{O}} = 1.4 \text{ mol H}_2\text{O}$$

2. How many grams are in 4.5 moles of lithium oxide?

$$4.5 \text{ mol Li}_2\text{O} \times \frac{29.88 \text{ g Li}_2\text{O}}{1 \text{ mol Li}_2\text{O}} = 134.46 \text{ g Li}_2\text{O}$$

3. How many molecules are in 23 moles of oxygen?

$$23 \text{ mol O}_2 \times \frac{6.02 \times 10^{23} \text{ molec. O}_2}{1 \text{ mol}} = 1.4 \times 10^{25} \text{ molec. O}_2$$

4. How many moles are in 3.4×10^{23} molecules of H_2SO_4 ?

$$3.4 \times 10^{23} \text{ molec.} \times \frac{1 \text{ mol}}{6.02 \times 10^{23}} = 0.56 \text{ mol H}_2\text{SO}_4$$

5. How many molecules are in 25 grams of nitrogen trihydride?

$$25 \text{ g NH}_3 \times \frac{1 \text{ mol}}{17.04 \text{ g}} = 1.5 \text{ mol NH}_3$$

6. What is the mass in grams of carbon in 5.0 moles of carbon?

$$5 \text{ mol C} \times \frac{12.01 \text{ g C}}{1 \text{ mol}} = 60.05 \text{ g C}$$

7. What is the mass of 4.00 moles of mercury?

$$4 \text{ mol Hg} \times \frac{200.59 \text{ g}}{1 \text{ mol}} = 802 \text{ g Hg}$$

8. How many moles of iron are in 280 g of iron?

$$280 \text{ g Fe} \times \frac{1 \text{ mol Fe}}{55.85 \text{ g}} = 5.0 \text{ mol Fe}$$

9. How many moles of aluminum chloride are in 355 grams of aluminum chloride?

$$355 \text{ g AlCl}_3 \times \frac{1 \text{ mol}}{133 \text{ g}} = 2.66 \text{ mol AlCl}_3$$

10. A reaction requires 0.054 moles of ammonium chloride to react. What mass (in grams) of ammonium chloride do you need to add to the reaction?

$$0.054 \text{ mol NH}_4\text{Cl} \times \frac{51.50 \text{ g}}{1 \text{ mol}} = 2.8 \text{ g NH}_4\text{Cl}$$