MOLE PRACTICE QUIZ

Name Key
Period

Show all of your work and units when solving the following problems.

Calculate the mass in grams of each of the following.

a. 3.35mol of Na

$3.35\ mol \cdot \frac{23.0\ g}{1\ mol} = 77.1\ g$

b. .0105 mol of $MgCl_2$

$.0105\ mol \cdot \frac{95.3\ g}{1\ mol} = 1.00\ g$

b. 5.25×10^4mol of CO_2

$5.25 \times 10^4\ mol \cdot \frac{44.0\ g}{1\ mol} = 2.31 \times 10^6\ g$

Calculate the number of moles in each of the following.

a. 13.25 g of copper

$13.25\ g \cdot \frac{1\ mol}{63.5\ g} = .2087\ mol$

b. 24.00 g of carbon tetrahydride

$24.00\ g \cdot \frac{1\ mol}{16.0\ g} = 1.500\ mol$

c. 1.05×10^{-3} g of ozone, O_3

$1.05 \times 10^{-3}\ g \cdot \frac{1\ mol}{48.0\ g} = 2.19 \times 10^{-5}\ mol$

Calculate the number of atoms or molecules in each of the following.

a. 2.5 moles of silver

$2.5\ mol \cdot \frac{6.02 \times 10^{23}\ atoms}{1\ mol} = 1.51 \times 10^{24}\ atoms$

b. 32.00 g of sucrose, $C_{12}H_{22}O_{11}$

$32.00\ g \cdot \frac{1\ mol}{342\ g} \cdot \frac{6.02 \times 10^{23}\ culos}{1\ mol} = 5.633 \times 10^{22}\ culos$

c. 3.00×10^{-4} g of caffeine, $C_8H_{10}N_4O_2$

$3.00 \times 10^{-4}\ g \cdot \frac{1\ mol}{194\ g} \cdot \frac{6.02 \times 10^{23}\ culos}{1\ mol} = 9.31 \times 10^{17}\ culos$

Calculate both moles and grams in each of the following.

a. 3.02×10^{23} atoms of carbon

$3.02 \times 10^{23}\ atoms \cdot \frac{1\ mol}{6.02 \times 10^{23}\ atoms} = .502\ mol \cdot \frac{12.0\ g}{1\ mol} = 6.02\ g$

b. 2.10×10^{24} atoms of Cl_2

$2.10 \times 10^{24}\ atoms \cdot \frac{1\ mol}{6.02 \times 10^{23}\ atoms} = 3.49\ mol \cdot \frac{71\ g}{1\ mol} = 248\ g$

Calculate the number of nitrogen atoms in 16.85 g of lead (II) nitrate.

$16.85\ g \cdot \frac{1\ mol}{331.2\ g} \cdot \frac{6.02 \times 10^{23}\ culos}{1\ mol} \cdot \frac{6\ atoms\ of\ O}{1\ culo} \quad Pb(NO_3)_2$

$= 1.838 \times 10^{23}\ atoms$