

Moles Quiz

1. a) $15.5 = \text{mol}(56)$
 $\boxed{.277 \text{ mol}}$

b) $4.7 \times 10^{24} = \text{mol}(6.02 \times 10^{23})$
 $\boxed{7.81 \text{ mol}}$

c) $7.7 \times 10^{22} = \text{mol}(6.02 \times 10^{23})$
 $\boxed{.128 \text{ mol}}$

2. a) $\# = (1.215)(6.02 \times 10^{23})$
 $\boxed{7.31 \times 10^{23} \text{ atoms}}$

b) $6.22 = \text{mol}(4)$
 1.556 mol
 $\# = 1.556(6.02 \times 10^{23})$
 $\boxed{9.36 \times 10^{23} \text{ atoms}}$

3. a) $1.5 \times 10^{24} \text{ molecules } \text{Ca}(\text{NO}_3)_2$
 $\times 2$
 $\boxed{3.0 \times 10^{24} \text{ atoms N}}$

b) $7.5 \text{ g } \text{N}_2\text{O}_4$
 $7.5 = \text{mol}(92)$
 $.0815 \text{ mol } \text{N}_2\text{O}_4$
 $\# = .0815(6.02 \times 10^{23})$
 $4.91 \times 10^{22} \text{ molecules } \text{N}_2\text{O}_4$
 $\times 2$
 $\boxed{9.82 \times 10^{22} \text{ atoms N}}$

4. a) $1 \text{ mol } \text{SO}_2$
 2 mol O
 $g = 2(16) = \boxed{32 \text{ g O}}$

b) $12 \text{ g } \text{Na}_2\text{CO}_3$

$$\frac{x}{12} = \frac{48}{106}$$

$$\boxed{5.43 \text{ g O}}$$

c) $4.5 \times 10^{22} \text{ molecules } \text{CO}_2$
 $4.5 \times 10^{22} = \text{mol}(6.02 \times 10^{23})$

$$.0748 \text{ mol } \text{CO}_2$$

$$.1495 \text{ mol O}$$

$$g = (.1495)(16)$$

$$\boxed{2.39 \text{ g O}}$$

5. $18 \text{ g } \text{H}_2\text{SO}_4$
 $18 = \text{mol}(98)$
 $.1837 \text{ mol } \text{H}_2\text{SO}_4$

a) $.184 \times 2 = \boxed{.367 \text{ mol H}}$

b) $\frac{x}{18} = \frac{64}{98} \quad \boxed{11.76 \text{ g O}}$

c) $\# = .184(6.02 \times 10^{23})$
 $1.11 \times 10^{23} \text{ molecules } \text{H}_2\text{SO}_4$
 $\boxed{1.11 \times 10^{23} \text{ atoms S}}$

d) $1.11 \times 10^{23} \times 4$
 $\boxed{4.43 \times 10^{23} \text{ atoms O}}$