

Name key (print name) Name _____ (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. Give the nomenclature term or number prefix or give the molecular formula which matches for the following. (4 pts, 2pts each)

prefix for 5 penta hydroxide OH^-

2. Give the name for the compound SF_6 (4 pts) sulfur hexafluoride
covalent - # prefix
sulfur fluor~~ide~~ + ide = fluoride 6 = hexa

3. For the molecule given, what is the formula mass? 164.1 amu (2 pts)

What is the molar mass? 164.1 grams (show work). (2 pts) $Ca(NO_3)_2$
 $1Ca + 2N + 6O$ $Ca = 40.08, N = 14.01, O = 16.00$

$$40.08 + 2(14.01) + 6(16.00) = 164.1$$

Ca N O

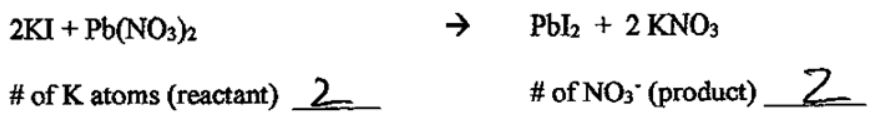
4. For the molecule shown below (molar mass $(NH_4)_2S = 68.17 \text{ g/mol}$), if you have 7.92 grams of the compound $(NH_4)_2S$ what is the number of atoms of H in that number of grams of the compound (8 pts) Show work to receive full credit.

$$7.92 \text{ g } (NH_4)_2S \times \frac{1 \text{ mol } (NH_4)_2S}{68.17 \text{ g } (NH_4)_2S} \times \frac{8 \text{ mol H}}{1 \text{ mol } (NH_4)_2S} \times \frac{6.022 \times 10^{23} \text{ atoms H}}{1 \text{ mol H}}$$

$$= 5.60 \times 10^{23} \text{ atoms H}$$

1 molecule $(NH_4)_2S$ has $4 \times 2 = 8$ atoms H

Extra Credit: Given the following balanced reaction, give the number of each type of atom or polyatomic ion on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)



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Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. Give the nomenclature term or number prefix or give the molecular formula which matches for the following. (4 pts, 2pts each)

NO_3^- Nitrate octa is the number prefix for 8

2. Give the name for the compound MgBr_2 (4 pts) magnesium bromide
 Cation Anion
magnesium bromide
 ionic - no # prefix

3. For the molecule given, what is the formula mass? 142.07 amu (2 pts)

What is the molar mass? 142.07 grams (show work). (2 pts) Na_2SO_4

$$\begin{array}{ccc} 2\text{Na} + 1\text{S} + 4\text{O} \\ | \quad | \quad | \\ 23.00 \quad 32.07 \quad 16.00 \end{array}$$

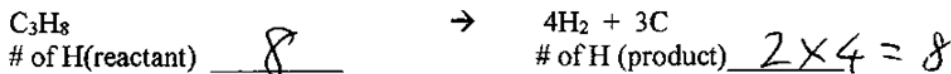
$$2(23.00) + 32.07 + 4(16.00) = 142.07$$

4. For the molecule shown below (molar mass of $\text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2 = 142.41 \text{ g/mole}$), if you have 1.99 grams of the compound $\text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2$, what is the number of atoms of C in that number of grams of the compound (8 pts) Show work to receive full credit.

$$1.99 \text{ g Mg}(\text{C}_2\text{H}_3\text{O}_2)_2 \times \frac{1 \text{ mol Mg}(\text{C}_2\text{H}_3\text{O}_2)_2}{142.41 \text{ g Mg}(\text{C}_2\text{H}_3\text{O}_2)_2} \times \frac{4 \text{ mol C}}{1 \text{ mol Mg}(\text{C}_2\text{H}_3\text{O}_2)_2} \times \frac{6.022 \times 10^{23} \text{ atoms C}}{1 \text{ mol C}} = 3.37 \times 10^{22} \text{ atoms C}$$

1 molecule $\text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2$ has $2 * 2$ atoms C

Extra Credit: Given the following balanced reaction, give the number of each type of atom on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)



Name Key Name _____
 (print name) (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. Give the nomenclature term or number prefix for the following or give the molecular formula which matches. (4 pts, 2pts each)

Carbonate CO_3^{2-} di is the # prefix for 2

2. Give the name for the compound $Ca_3(PO_4)_2$ (4 pts) Calcium phosphate
 cation - calcium
 anion - polyatomic ion phosphate ionic no # prefix
3. For the molecule given, what is the formula mass? 52.10 amu (2 pts)

What is the molar mass? 52.10 grams (show work). (2 pts) $(NH_4)_2O$

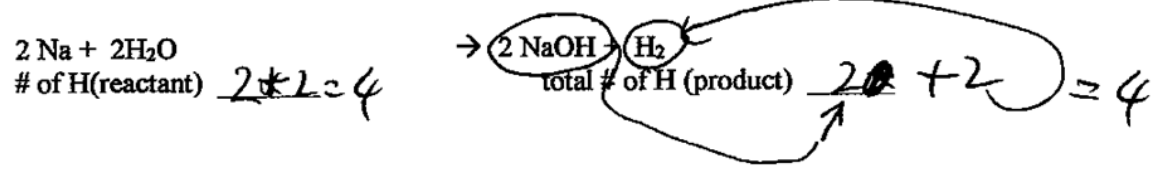
$2N, 8H, 1O - N \rightarrow 14.01, H \rightarrow 1.01, O \rightarrow 16.00$
 $2(14.01) + 8(1.01) + 16.00 = 52.10$
 N H O

4. For the molecule shown below (molar mass of $Ba(NO_3)_2 = 261.35$ g/mole), if you have 78.2 grams of the compound $Ba(NO_3)_2$, what is the number of atoms of O in the grams of the compound (8 pts) Show work to receive full credit.

$78.2 \text{ g } Ba(NO_3)_2 \times \frac{1 \text{ mol } Ba(NO_3)_2}{261.35 \text{ g } Ba(NO_3)_2} \times \frac{6 \text{ mol O}}{1 \text{ mol } Ba(NO_3)_2}$
 $\frac{6.022 \times 10^{23} \text{ atoms O}}{1 \text{ mol O}} = 1.08 \times 10^{24} \text{ atoms O}$

1 molecule $Ba(NO_3)_2$ has $3 \times 2 = 6$ atoms O

Extra Credit: Given the following balanced reaction, give the number of each type of atom on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)



Name Key Name _____
 (print name) (sign name)

Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. Give the nomenclature term or number prefix or give the molecular formula which matches for the following. (4 pts, 2pts each)

SO_4^{2-} sulfate # prefix for 3 is tri

2. Give the name for the compound **HBr** (4 pts) hydrobromic acid
hydro ic acid

3. For the molecule given, what is the formula mass? 255.43 amu (2 pts)

What is the molar mass? 255.43 grams (show work). (2 pts) **Ba(C₂H₃O₂)₂**

1 Ba, 4 C, 6 H, 4 O Ba = 137.33, C = 12.01
 H = 1.01, O = 16.00

$$\begin{array}{ccccccc} 137.33 & + & 4(12.01) & + & 6(1.01) & + & 4(16.00) & = & 255.43 \text{ g} \\ \text{Ba} & & \text{C} & & \text{H} & & \text{O} & & \text{mol} \end{array}$$

4. For the molecule shown below (molar mass **Li₂SO₄** = 109.95 g/mole), if you have 0.892 grams of the compound **Li₂SO₄**, what is the number of atoms of **O** in the given # of grams of the compound. (8 pts) Show work to receive full credit.

$$\begin{array}{l} 0.892 \text{ g} \\ \text{Li}_2\text{SO}_4 \end{array} * \frac{\text{mol Li}_2\text{SO}_4}{109.95 \text{ g Li}_2\text{SO}_4} * \frac{4 \text{ mol O}}{1 \text{ mol Li}_2\text{SO}_4} * \frac{6.022 \times 10^{23} \text{ atoms O}}{1 \text{ mol O}}$$

$$= 1.95 \times 10^{22} \text{ atoms O}$$

Extra Credit: Given the following balanced reaction, give the number of each type of atom or polyatomic ions on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)



of OH⁻ (reactant) 2 # of NO₃⁻ (product) 2

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Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. Give the nomenclature term or number prefix or give the molecular formula which matches for the following. (4 pts, 2pts each)

prefix for 5 _____ hydroxide _____

2. Give the name for the compound SF_6 (4 pts) _____

3. For the molecule given, what is the formula mass? _____ amu (2 pts)

What is the molar mass? _____ grams (show work). (2 pts) **Ca (NO₃)₂**

4. For the molecule shown below (molar mass $(NH_4)_2 S = 68.17 \text{ g/mol}$), if you have 7.92 grams of the compound $(NH_4)_2 S$ what is the number of atoms of **H** in that number of grams of the compound (8 pts) Show work to receive full credit.

Extra Credit: Given the following balanced reaction, give the number of each type of atom or polyatomic ion on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)



of K atoms (reactant) _____ # of NO_3^- (product) _____

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Please show all work for full credit and to get partial credit. $N_A = 6.022 \times 10^{23}$

1. Give the nomenclature term or number prefix or give the molecular formula which matches for the following. (4 pts, 2pts each)

NO_3^- _____ **octa** is the number prefix for _____

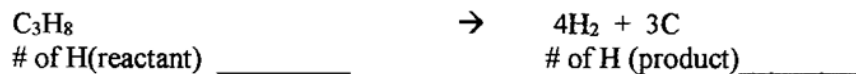
2. Give the name for the compound **MgBr₂** (4 pts) _____

3. For the molecule given, what is the formula mass ? _____ amu (2 pts)

What is the molar mass ? _____ grams (show work). (2 pts) **Na₂SO₄**

4. For the molecule shown below (molar mass of **Mg(C₂H₃O₂)₂** = 142.41 g/mole), if you have 1.99 grams of the compound **Mg(C₂H₃O₂)₂**, what is the number of atoms of **C** in that number of grams of the compound (8 pts) Show work to receive full credit.

Extra Credit: Given the following balanced reaction, give the number of each type of atom on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)



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1. Give the nomenclature term or number prefix for the following or give the molecular formula which matches. (4 pts, 2pts each)

Carbonate _____ di is the # prefix for _____

2. Give the name for the compound $\text{Ca}_3(\text{PO}_4)_2$ (4 pts) _____

3. For the molecule given, what is the formula mass? _____ amu (2 pts)

What is the molar mass? _____ grams (show work). (2 pts) $(\text{NH}_4)_2\text{O}$

4. For the molecule shown below (molar mass of $\text{Ba}(\text{NO}_3)_2 = 261.35 \text{ g/mole}$), if you have 78.2 grams of the compound $\text{Ba}(\text{NO}_3)_2$, what is the number of atoms of **O** in the grams of the compound (8 pts) Show work to receive full credit.

Extra Credit: Given the following balanced reaction, give the number of each type of atom on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)

$2 \text{Na} + 2\text{H}_2\text{O} \rightarrow 2 \text{NaOH} + \text{H}_2$
of H(reactant) _____ total # of H (product) _____

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1. Give the nomenclature term or number prefix or give the molecular formula which matches for the following. (4 pts, 2pts each)

SO_4^{2-} _____ # prefix for 3 is _____

2. Give the name for the compound **HBr** (4 pts) _____

3. For the molecule given, what is the formula mass ? _____ amu (2 pts)

What is the molar mass ? _____ grams (show work). (2 pts) **Ba(C₂H₃O₂)₂**

4. For the molecule shown below (molar mass **Li₂SO₄** = 109.95 g / mole), if you have 0.892 grams of the compound **Li₂SO₄** , what is the number of atoms of **O** in the given # of grams of the compound (8 pts) Show work to receive full credit.

Extra Credit: Given the following balanced reaction, give the number of each type of atom or polyatomic ions on each side of the reaction by filling in the blanks. Show work for partial credit. (3 pts)



of OH⁻ (reactant) _____ # of NO₃⁻ (product) _____