

Name: _____ Date: _____ Period: _____

Graded problems are worth 2 points each. This assignment is graded out of **20** points.

1) What is a polyatomic ion?

Write formulas and names for compounds formed from the following pairs of ions. Each portion marked "**Graded**" is worth 2 points.

Ions	Chemical Formula of Compound
2) NH_4^{1+} , Cl^{1-}	
3) Na^{1+} , OH^{1-}	
4) Al^{3+} , BrO_3^{-1}	
5) Graded. Ca^{2+} , CrO_4^{2-}	
6) Graded. Mg^{2+} , NO_3^{-1}	
7) Graded. Fe^{2+} , $\text{Cr}_2\text{O}_7^{2-}$	

Write the chemical formulas for each of the ionic compounds named. *Hint: first identify the chemical formulas for the ions individually, then figure out the compound.*

Note: the spelling differences between some polyatomic ions can be very small.

Compound Name	Compound Chemical Formula
8) Sodium Borate	
9) Lithium Permanganate	
10) Magnesium Hydroxide	
11) Zinc (II) Bromate	
12) Chromium (VII) Sulfate	
13) Ammonium Sulfide	
14) Graded. Magnesium Phosphate	
15) Graded. Ammonium Phosphate	
16) Graded. Copper(I) Sulfate	
17) Graded. Copper(II) Sulfite	

Write the names of the ionic compounds given.

Note: the rules for naming ionic compounds containing transition metals must be followed, too!

Compound Chemical Formula	Compound Name
18) $\text{Na}_2\text{C}_2\text{O}_4$	
19) CuCN	
20) $\text{V}(\text{IO}_3)_2$	
21) $\text{Mg}(\text{NO}_3)_2$	
22) Graded. $\text{Fe}_2(\text{Cr}_2\text{O}_7)_3$	
23) Graded. $(\text{NH}_4)_2\text{SO}_4$	
24) Graded. $\text{Ca}(\text{OH})_2$	

Selected Answers

1) What is a polyatomic ion?

A polyatomic ion is a group of atoms covalently bonded together that carry a charge and act as a single ion.

Ions	Chemical Formula of Compound
2) $\text{NH}_4^{1+}, \text{Cl}^{1-}$	NH_4Cl
3) $\text{Na}^{1+}, \text{OH}^{1-}$	NaOH
4) $\text{Al}^{3+}, \text{BrO}_3^{-1}$	$\text{Al}(\text{BrO}_3)_3$

Compound Name	Compound Chemical Formula
8) Sodium Borate	Na_3BO_3
9) Lithium Permanganate	LiMnO_4
10) Magnesium Hydroxide	$\text{Mg}(\text{OH})_2$
11) Zinc (II) Bromate	$\text{Zn}(\text{BrO}_3)_2$
12) Chromium (VII) Sulfate	$\text{Cr}_2(\text{SO}_4)_7$
13) Ammonium Sulfide	$(\text{NH}_4)_2\text{S}$

Compound Chemical Formula	Compound Name
18) $\text{Na}_2\text{C}_2\text{O}_4$	Sodium Oxalate
19) CuCN	Copper (I) Cyanide
20) $\text{V}(\text{IO}_3)_2$	Vanadium (II) Iodate
21) $\text{Mg}(\text{NO}_3)_2$	Magnesium Nitrate