

Polyatomic Ions

Name Key Period _____ Date _____

Instructions: complete this table by writing each formula and naming each compound!

	Carbonate CO_3^{-2}	Phosphate PO_4^{-3}	Hydroxide OH^{-1}	Sulfate SO_4^{-2}	Nitrate NO_3^{-1}	Acetate $\text{C}_2\text{H}_3\text{O}_2^{-1}$
Ammonium NH_4^{+1}	$(\text{NH}_4)_2\text{CO}_3$ ammonium carbonate	$(\text{NH}_4)_3\text{PO}_4$ ammonium phosphate	NH_4OH ammonium hydroxide	$(\text{NH}_4)_2\text{SO}_4$ ammonium sulfate	NH_4NO_3 ammonium nitrate	$\text{NH}_4\text{C}_2\text{H}_3\text{O}_2$ ammonium acetate
Barium Ba^{+2}	BaCO_3 barium carbonate	$\text{Ba}_3(\text{PO}_4)_2$ barium phosphate	$\text{Ba}(\text{OH})_2$ barium hydroxide	BaSO_4 barium sulfate	$\text{Ba}(\text{NO}_3)_2$ barium nitrate	$\text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2$ barium acetate
Lithium Li^{+1}	Li_2CO_3 lithium carbonate	Li_3PO_4 lithium phosphate	LiOH lithium hydroxide	Li_2SO_4 lithium sulfate	LiNO_3 lithium nitrate	$\text{LiC}_2\text{H}_3\text{O}_2$ lithium acetate
Aluminum Al^{+3}	$\text{Al}_2(\text{CO}_3)_3$ aluminum carbonate	AlPO_4 aluminum phosphate	$\text{Al}(\text{OH})_3$ aluminum hydroxide	$\text{Al}_2(\text{SO}_4)_3$ aluminum sulfate	$\text{Al}(\text{NO}_3)_3$ aluminum nitrate	$\text{Al}(\text{C}_2\text{H}_3\text{O}_2)_3$ aluminum acetate
Iron (II) Fe^{+2}	FeCO_3 Iron(II) carbonate	$\text{Fe}_3(\text{PO}_4)_2$ Iron(II) phosphate	$\text{Fe}(\text{OH})_2$ Iron(II) hydroxide	FeSO_4 Iron(II) sulfate	$\text{Fe}(\text{NO}_3)_2$ Iron(II) nitrate	$\text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_2$ Iron(II) acetate
Cobalt (III) Co^{+3}	$\text{Co}_2(\text{CO}_3)_3$ Cobalt(III) carbonate	Co_3PO_4 Cobalt(III) phosphate	$\text{Co}(\text{OH})_3$ Cobalt(III) hydroxide	$\text{Co}_2(\text{SO}_4)_3$ Cobalt(III) sulfate	$\text{Co}(\text{NO}_3)_3$ Cobalt(III) nitrate	$\text{Co}(\text{C}_2\text{H}_3\text{O}_2)_3$ Cobalt(III) acetate
Copper (I) Cu^{+1}	$\text{Cu}_2(\text{CO}_3)$ Copper(I) carbonate	Cu_3PO_4 Copper(I) phosphate	CuOH Copper(I) hydroxide	Cu_2SO_4 Copper(I) sulfate	CuNO_3 Copper(I) nitrate	$\text{CuC}_2\text{H}_3\text{O}_2$ Copper(I) acetate
Lead (IV) Pb^{+4}	$\text{Pb}(\text{CO}_3)_2$ Lead(IV) carbonate	$\text{Pb}_3(\text{PO}_4)_4$ Lead(IV) phosphate	$\text{Pb}(\text{OH})_4$ Lead(IV) hydroxide	$\text{Pb}(\text{SO}_4)_2$ Lead(IV) sulfate	$\text{Pb}(\text{NO}_3)_4$ Lead(IV) nitrate	$\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_4$ Lead(IV) acetate

1. Write the formula for each of the following compounds that contain polyatomic ions. Be sure to enclose the polyatomic ion in parentheses if more than one such ion is needed.

Name	Formula	Name	Formula
Calcium phosphate	$\text{Ca}_3(\text{PO}_4)_2$	Iron (III) acetate	$\text{Fe}(\text{C}_2\text{H}_3\text{O}_2)_3$
Ammonium nitrate	NH_4NO_3	Barium sulfate	BaSO_4
Aluminum carbonate	$\text{Al}_2(\text{CO}_3)_3$	Copper (I) hydroxide	CuOH

2. Name each of the following compounds, which contain polyatomic ions.

Formula	Name	Formula	Name
$\text{Fe}(\text{NO}_3)_3$	Iron (III) nitrate	$\text{Al}_2(\text{SO}_4)_3$	Aluminum sulfate
$\text{Co}_3(\text{PO}_4)_2$	Cobalt (II) phosphate	$\text{Cr}(\text{C}_2\text{H}_3\text{O}_2)_2$	Chromium (III) acetate
$\text{Cr}(\text{OH})_3$	Chromium (III) hydroxide	$(\text{NH}_4)_2\text{SO}_4$	Ammonium sulfate