Chemical Formula Writing Worksheet

Determine the chemical formula for each cation and anion combination. Write your answers in each box.

Set 1 (The combining power of silver is 1 and zinc is 2)

Anions - / **Cations** +	chloride	oxide	iodide	hydride	sulfide	nitride
Sodium						
Potassium						
Magnesium						
Calcium						
Copper(II)						
Iron(II)						
Iron(III)						
Silver						
Zinc						
Aluminum						

Set 2

Anions - / **Cations** +	bromide	oxide	fluoride	astatide	selenide	phosphide
Lithium						
Barium						
Cesium						
Strontium						
Copper(I)						
Copper(II)						
Lead(II)						
Lead(IV)						
Gallium						
Nickel(II)						

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Determine the chemical formula for each cation and anion combination. Write your answers in each box.

Brackets are only needed when the polyatomic group is greater than 1. Eg. Strontium phosphate, $Sr_3(PO_4)_2$

Set 3 (The combining power of silver is 1 and zinc is 2. The formula for the ammonium ion is NH_4^+)

Anions - / **Cations** +	nitrate NO_3^-	sulfate SO_4^{2-}	hydroxide OH^-	carbonate CO_3^{2-}	phosphate PO_4^{3-}	hydrogen carbonate HCO_3^-
Sodium						
Potassium						
Magnesium						
Barium						
Iron(II)						
Iron(III)						
Silver						
Zinc						
Aluminum						
Ammonium						

Set 4 (The combining power of silver is 1 and zinc is 2. The formula for the ammonium ion is NH_4^+)

Anions - / **Cations** +	nitrite NO_2^-	chromate CrO_4^{2-}	sulfite, SO_3^{2-}	dichromate $Cr_2O_7^{2-}$	chlorate ClO_3^-	acetate* CH_3COO^-
Lithium						
Mercury(I)						
Tin(II)						
Silver						
Iron(II)						
Iron(III)						
Barium						
Zinc						
Aluminum						
Ammonium						

*The acetate group, CH_3COO^- is written first as this correctly shows the position of the ionic bond. Eg. $CH_3COO^-Na^+$

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Chemical Formula Writing Worksheet - Answers

Set 1 (The combining power of silver is 1 and zinc is 2)

Anions - / **Cations** +		chloride Cl^-	oxide O^{2-}	iodide I^-	hydride H^-	sulfide S^{2-}	nitride N^{3-}
Sodium	Na^+	NaCl	Na_2O	NaI	NaH	Na_2S	Na_3N
Potassium	K^+	KCl	K_2O	KI	KH	K_2S	K_3N
Magnesium	Mg^{2+}	$MgCl_2$	MgO	MgI_2	MgH_2	MgS	Mg_3N_2
Calcium	Ca^{2+}	$CaCl_2$	CaO	CaI_2	CaH_2	CaS	Ca_3N_2
Copper(II)	Cu^{2+}	$CuCl_2$	CuO	CuI_2	CuH_2	CuS	Cu_3N_2
Iron(II)	Fe^{2+}	$FeCl_2$	FeO	FeI_2	FeH_2	FeS	Fe_3N_2
Iron(III)	Fe^{3+}	$FeCl_3$	Fe_2O_3	FeI_3	FeH_3	Fe_2S_3	FeN
Silver	Ag^+	AgCl	Ag_2O	AgI	AgH	Ag_2S	Ag_3N
Zinc	Zn^{2+}	$ZnCl_2$	ZnO	ZnI_2	ZnH_2	ZnS	Zn_3N_2
Aluminum	Al^{3+}	$AlCl_3$	Al_2O_3	AlI_3	AlH_3	Al_2S_3	AlN

Set 2

Anions - / **Cations** +		bromide Br^-	oxide O^{2-}	fluoride F^-	astatide At^-	selenide Se^{2-}	phosphide P^{3-}
Lithium	Li^+	LiBr	Li_2O	LiF	LiAt	Li_2Se	Li_3P
Barium	Ba^{2+}	$BaBr_2$	BaO	BaF_2	$BaAt_2$	BaSe	Ba_3P_2
Cesium	Cs^+	CsBr	Cs_2O	CsF	CsAt	Cs_2Se	Cs_3P
Strontium	Sr^{2+}	$SrBr_2$	SrO	SrF_2	$SrAt_2$	SrSe	Sr_3P_2
Copper(I)	Cu^+	CuBr	Cu_2O	CuF	CuAt	Cu_2Se	Cu_3P
Copper(II)	Cu^{2+}	$CuBr_2$	CuO	CuF_2	$CuAt_2$	CuSe	Cu_3P_2
Lead(II)	Pb^{2+}	$PbBr_2$	Pb_2O_3	PbF_3	$PbAt_2$	PbSe	Pb_3P_2
Lead(IV)	Pb^{4+}	$PbBr_4$	Pb_2O	PbF_4	$PbAt_4$	$PbSe_2$	Pb_3P_4
Gallium	Ga^{3+}	$GaBr_3$	Ga_2O_3	GaF_3	$GaAt_3$	Ga_2Se_3	GaP
Nickel(II)	Ni^{2+}	$NiBr_2$	NiO	NiF_2	$NiAt_2$	NiSe	Ni_3P_2

Chemical Formula Writing Worksheet - Answers

Brackets are only needed when the polyatomic group is greater than 1. Eg. Strontium phosphate, $Sr_3(PO_4)_2$

Set 3 (The combining power of silver is 1 and zinc is 2. The formula for the ammonium ion is NH_4^+)

Anions - / **Cations** +		nitrate NO_3^-	sulfate SO_4^{2-}	hydroxide OH^-	carbonate CO_3^{2-}	phosphate PO_4^{3-}	hydrogen carbonate HCO_3^-
Sodium	Na^+	$LiNO_3$	Li_2SO_4	$LiOH$	Li_2CO_3	Li_3PO_4	$LiHCO_3$
Potassium	K^+	KNO_3	K_2SO_4	KOH	K_2CO_3	K_3PO_4	$KHCO_3$
Magnesium	Mg^{2+}	$Mg(NO_3)_2$	$MgSO_4$	$Mg(OH)_2$	$MgCO_3$	$Mg_3(PO_4)_2$	$Mg(HCO_3)_2$
Barium	Ba^{2+}	$Ba(NO_3)_2$	$BaSO_4$	$Ba(OH)_2$	$BaCO_3$	$Ba_3(PO_4)_2$	$Ba(HCO_3)_2$
Iron(II)	Fe^{2+}	$Fe(NO_3)_2$	$FeSO_4$	$Fe(OH)_2$	$FeCO_3$	$Fe_3(PO_4)_2$	$Fe(HCO_3)_2$
Iron(III)	Fe^{3+}	$Fe(NO_3)_3$	$Fe_2(SO_4)_3$	$Fe(OH)_3$	$Fe_2(CO_3)_3$	$FePO_4$	$Fe(HCO_3)_3$
Silver	Ag^+	$AgNO_3$	Ag_2SO_4	$AgOH$	Ag_2CO_3	Ag_3PO_4	$AgHCO_3$
Zinc	Zn^{2+}	$Zn(NO_3)_3$	$ZnSO_4$	$Zn(OH)_2$	$ZnCO_3$	$Zn_3(PO_4)_2$	$Zn(HCO_3)_2$
Aluminum	Al^{3+}	$Al(NO_3)_3$	$Al_2(SO_4)_3$	$Al(OH)_3$	$Al_2(CO_3)_3$	$AlPO_4$	$Al(HCO_3)_3$
Ammonium	NH_4^+	NH_4NO_3	$(NH_4)_2SO_4$	NH_4OH	$(NH_4)_2CO_3$	$(NH_4)_3PO_4$	NH_4HCO_3

Set 4 (The combining power of silver is 1 and zinc is 2. The formula for the ammonium ion is NH_4^+)

Anions - / **Cations** +		nitrite NO_2^-	chromate CrO_4^{2-}	sulfite, SO_3^{2-}	dichromate $Cr_2O_7^{2-}$	chlorate ClO_3^-	acetate* CH_3COO^-
Lithium	Li^+	$LiNO_2$	Li_2CrO_4	Li_2SO_3	$Li_2Cr_2O_7$	$LiClO_3$	CH_3COOLi
Mercury(I)	Hg^+	$HgNO_2$	Hg_2CrO_4	Hg_2SO_3	$Hg_2Cr_2O_7$	$HgClO_3$	CH_3COOHg
Tin(II)	Sn^{2+}	$Sn(NO_2)_2$	$SnCrO_4$	$Sn(SO_3)_2$	$SnCr_2O_7$	$Sn(ClO_3)_2$	$(CH_3COO)_2Sn$
Silver	Ag^+	$AgNO_2$	Ag_2CrO_4	$AgSO_3$	$Ag_2Cr_2O_7$	$AgClO_3$	CH_3COOAg
Iron(II)	Fe^{2+}	$Fe(NO_2)_2$	$FeCrO_4$	$Fe(SO_3)_2$	$FeCr_2O_7$	$Fe(ClO_3)_2$	$(CH_3COO)_2$ Fe
Iron(III)	Fe^{3+}	$Fe(NO_2)_3$	$Fe_2(CrO_4)_3$	$Fe_2(SO_3)_3$	$Fe_2(Cr_2O_7)_3$	$Fe(ClO_3)_3$	$(CH_3COO)_3$ Fe
Barium	Ba^{2+}	$Ba(NO_2)_2$	$BaCrO_4$	$Ba(SO_3)_2$	$BaCr_2O_7$	$Ba(ClO_3)_2$	$(CH_3COO)_2$ Ba
Zinc	Zn^{2+}	$Zn(NO_2)_2$	$ZnCrO_4$	$Zn(SO_3)_2$	$ZnCr_2O_7$	$Zn(ClO_3)_2$	$(CH_3COO)_2$ Zn
Aluminum	Al^{3+}	$Al(NO_2)_3$	$Al_2(CrO_4)_3$	$Al_2(SO_3)_3$	$Al_2(Cr_2O_7)_3$	$Al(ClO_3)_3$	$(CH_3COO)_3$ Al
Ammonium	NH_4^+	NH_4NO_2	$(NH_4)_2CrO_4$	NH_4SO_3	$(NH_4)_2Cr_2O_7$	NH_4ClO_3	CH_3COONH_4

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