

# Chemical Formula Writing Worksheet - Answers

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

Cations \ Anions	+	-	chloride Cl <sup>-</sup>	oxide O <sup>2-</sup>	iodide I <sup>-</sup>	hydride H <sup>-</sup>	sulfide S <sup>2-</sup>	nitride N <sup>3-</sup>
Sodium	Na <sup>+</sup>		NaCl	Na <sub>2</sub> O	NaI	NaH	Na <sub>2</sub> S	Na <sub>3</sub> N
Potassium	K <sup>+</sup>		KCl	K <sub>2</sub> O	KI	KH	K <sub>2</sub> S	K <sub>3</sub> N
Magnesium	Mg <sup>2+</sup>		MgCl <sub>2</sub>	MgO	MgI <sub>2</sub>	MgH <sub>2</sub>	MgS	Mg <sub>3</sub> N <sub>2</sub>
Calcium	Ca <sup>2+</sup>		CaCl <sub>2</sub>	CaO	CaI <sub>2</sub>	CaH <sub>2</sub>	CaS	Ca <sub>3</sub> N <sub>2</sub>
Copper(II)	Cu <sup>2+</sup>		CuCl <sub>2</sub>	CuO	CuI <sub>2</sub>	CuH <sub>2</sub>	CuS	Cu <sub>3</sub> N <sub>2</sub>
Iron(II)	Fe <sup>2+</sup>		FeCl <sub>2</sub>	FeO	FeI <sub>2</sub>	FeH <sub>2</sub>	FeS	Fe <sub>3</sub> N <sub>2</sub>
Iron(III)	Fe <sup>3+</sup>		FeCl <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	FeI <sub>3</sub>	FeH <sub>3</sub>	Fe <sub>2</sub> S <sub>3</sub>	FeN
Silver	Ag <sup>+</sup>		AgCl	Ag <sub>2</sub> O	AgI	AgH	Ag <sub>2</sub> S	Ag <sub>3</sub> N
Zinc	Zn <sup>2+</sup>		ZnCl <sub>2</sub>	ZnO	ZnI <sub>2</sub>	ZnH <sub>2</sub>	ZnS	Zn <sub>3</sub> N <sub>2</sub>
Aluminum	Al <sup>3+</sup>		AlCl <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	AlI <sub>3</sub>	AlH <sub>3</sub>	Al <sub>2</sub> S <sub>3</sub>	AlN

Set 2

Cations \ Anions	+	-	bromide Br <sup>-</sup>	oxide O <sup>2-</sup>	fluoride F <sup>-</sup>	astatide At <sup>-</sup>	selenide Se <sup>2-</sup>	phosphide P <sup>3-</sup>
Lithium	Li <sup>+</sup>		LiBr	Li <sub>2</sub> O	LiF	LiAt	Li <sub>2</sub> Se	Li <sub>3</sub> P
Barium	Ba <sup>2+</sup>		BaBr <sub>2</sub>	BaO	BaF <sub>2</sub>	BaAt <sub>2</sub>	BaSe	Ba <sub>3</sub> P <sub>2</sub>
Cesium	Cs <sup>+</sup>		CsBr	Cs <sub>2</sub> O	CsF	CsAt	Cs <sub>2</sub> Se	Cs <sub>3</sub> P
Strontium	Sr <sup>2+</sup>		SrBr <sub>2</sub>	SrO	SrF <sub>2</sub>	SrAt <sub>2</sub>	SrSe	Sr <sub>3</sub> P <sub>2</sub>
Copper(I)	Cu <sup>+</sup>		CuBr	Cu <sub>2</sub> O	CuF	CuAt	Cu <sub>2</sub> Se	Cu <sub>3</sub> P
Copper(II)	Cu <sup>2+</sup>		CuBr <sub>2</sub>	CuO	CuF <sub>2</sub>	CuAt <sub>2</sub>	CuSe	Cu <sub>3</sub> P <sub>2</sub>
Lead(II)	Pb <sup>2+</sup>		PbBr <sub>2</sub>	Pb <sub>2</sub> O <sub>3</sub>	PbF <sub>3</sub>	PbAt <sub>2</sub>	PbSe	Pb <sub>3</sub> P <sub>2</sub>
Lead(IV)	Pb <sup>4+</sup>		PbBr <sub>4</sub>	Pb <sub>2</sub> O	PbF <sub>4</sub>	PbAt <sub>4</sub>	PbSe <sub>2</sub>	Pb <sub>3</sub> P <sub>4</sub>
Gallium	Ga <sup>3+</sup>		GaBr <sub>3</sub>	Ga <sub>2</sub> O <sub>3</sub>	GaF <sub>3</sub>	GaAt <sub>3</sub>	Ga <sub>2</sub> Se <sub>3</sub>	GaP
Nickel(II)	Ni <sup>2+</sup>		NiBr <sub>2</sub>	NiO	NiF <sub>2</sub>	NiAt <sub>2</sub>	NiSe	Ni <sub>3</sub> P <sub>2</sub>

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Brackets are only needed when the polyatomic group is greater than 1. Eg. Strontium phosphate,  $\text{Sr}_3(\text{PO}_4)_2$

Set 3 (The combining power of silver is 1 and zinc is 2. The formula for the ammonium ion is  $\text{NH}_4^+$ )

		Anions -					
		nitrate $\text{NO}_3^-$	sulfate $\text{SO}_4^{2-}$	hydroxide $\text{OH}^-$	carbonate $\text{CO}_3^{2-}$	phosphate $\text{PO}_4^{3-}$	hydrogen carbonate $\text{HCO}_3^-$
Cations +							
Sodium	$\text{Na}^+$	$\text{LiNO}_3$	$\text{Li}_2\text{SO}_4$	$\text{LiOH}$	$\text{Li}_2\text{CO}_3$	$\text{Li}_3\text{PO}_4$	$\text{LiHCO}_3$
Potassium	$\text{K}^+$	$\text{KNO}_3$	$\text{K}_2\text{SO}_4$	$\text{KOH}$	$\text{K}_2\text{CO}_3$	$\text{K}_3\text{PO}_4$	$\text{KHCO}_3$
Magnesium	$\text{Mg}^{2+}$	$\text{Mg}(\text{NO}_3)_2$	$\text{MgSO}_4$	$\text{Mg}(\text{OH})_2$	$\text{MgCO}_3$	$\text{Mg}_3(\text{PO}_4)_2$	$\text{Mg}(\text{HCO}_3)_2$
Barium	$\text{Ba}^{2+}$	$\text{Ba}(\text{NO}_3)_2$	$\text{BaSO}_4$	$\text{Ba}(\text{OH})_2$	$\text{BaCO}_3$	$\text{Ba}_3(\text{PO}_4)_2$	$\text{Ba}(\text{HCO}_3)_2$
Iron(II)	$\text{Fe}^{2+}$	$\text{Fe}(\text{NO}_3)_2$	$\text{FeSO}_4$	$\text{Fe}(\text{OH})_2$	$\text{FeCO}_3$	$\text{Fe}_3(\text{PO}_4)_2$	$\text{Fe}(\text{HCO}_3)_2$
Iron(III)	$\text{Fe}^{3+}$	$\text{Fe}(\text{NO}_3)_3$	$\text{Fe}_2(\text{SO}_4)_3$	$\text{Fe}(\text{OH})_3$	$\text{Fe}_2(\text{CO}_3)_3$	$\text{FePO}_4$	$\text{Fe}(\text{HCO}_3)_3$
Silver	$\text{Ag}^+$	$\text{AgNO}_3$	$\text{Ag}_2\text{SO}_4$	$\text{AgOH}$	$\text{Ag}_2\text{CO}_3$	$\text{Ag}_3\text{PO}_4$	$\text{AgHCO}_3$
Zinc	$\text{Zn}^{2+}$	$\text{Zn}(\text{NO}_3)_2$	$\text{ZnSO}_4$	$\text{Zn}(\text{OH})_2$	$\text{ZnCO}_3$	$\text{Zn}_3(\text{PO}_4)_2$	$\text{Zn}(\text{HCO}_3)_2$
Aluminum	$\text{Al}^{3+}$	$\text{Al}(\text{NO}_3)_3$	$\text{Al}_2(\text{SO}_4)_3$	$\text{Al}(\text{OH})_3$	$\text{Al}_2(\text{CO}_3)_3$	$\text{AlPO}_4$	$\text{Al}(\text{HCO}_3)_3$
Ammonium	$\text{NH}_4^+$	$\text{NH}_4\text{NO}_3$	$(\text{NH}_4)_2\text{SO}_4$	$\text{NH}_4\text{OH}$	$(\text{NH}_4)_2\text{CO}_3$	$(\text{NH}_4)_3\text{PO}_4$	$\text{NH}_4\text{HCO}_3$

Set 4 (The combining power of silver is 1 and zinc is 2. The formula for the ammonium ion is  $\text{NH}_4^+$ )

		Anions -					
		nitrite $\text{NO}_2^-$	chromate $\text{CrO}_4^{2-}$	sulfite, $\text{SO}_3^{2-}$	dichromate $\text{Cr}_2\text{O}_7^{2-}$	chlorate $\text{ClO}_3^-$	acetate* $\text{CH}_3\text{COO}^-$
Cations +							
Lithium	$\text{Li}^+$	$\text{LiNO}_2$	$\text{Li}_2\text{CrO}_4$	$\text{Li}_2\text{SO}_3$	$\text{Li}_2\text{Cr}_2\text{O}_7$	$\text{LiClO}_3$	$\text{CH}_3\text{COOLi}$
Mercury(I)	$\text{Hg}^+$	$\text{HgNO}_2$	$\text{Hg}_2\text{CrO}_4$	$\text{Hg}_2\text{SO}_3$	$\text{Hg}_2\text{Cr}_2\text{O}_7$	$\text{HgClO}_3$	$\text{CH}_3\text{COOHg}$
Tin(II)	$\text{Sn}^{2+}$	$\text{Sn}(\text{NO}_2)_2$	$\text{SnCrO}_4$	$\text{Sn}(\text{SO}_3)_2$	$\text{SnCr}_2\text{O}_7$	$\text{Sn}(\text{ClO}_3)_2$	$(\text{CH}_3\text{COO})_2\text{Sn}$
Silver	$\text{Ag}^+$	$\text{AgNO}_2$	$\text{Ag}_2\text{CrO}_4$	$\text{AgSO}_3$	$\text{Ag}_2\text{Cr}_2\text{O}_7$	$\text{AgClO}_3$	$\text{CH}_3\text{COOAg}$
Iron(II)	$\text{Fe}^{2+}$	$\text{Fe}(\text{NO}_2)_2$	$\text{FeCrO}_4$	$\text{Fe}(\text{SO}_3)_2$	$\text{FeCr}_2\text{O}_7$	$\text{Fe}(\text{ClO}_3)_2$	$(\text{CH}_3\text{COO})_2\text{Fe}$
Iron(III)	$\text{Fe}^{3+}$	$\text{Fe}(\text{NO}_2)_3$	$\text{Fe}_2(\text{CrO}_4)_3$	$\text{Fe}_2(\text{SO}_3)_3$	$\text{Fe}_2(\text{Cr}_2\text{O}_7)_3$	$\text{Fe}(\text{ClO}_3)_3$	$(\text{CH}_3\text{COO})_3\text{Fe}$
Barium	$\text{Ba}^{2+}$	$\text{Ba}(\text{NO}_2)_2$	$\text{BaCrO}_4$	$\text{Ba}(\text{SO}_3)_2$	$\text{BaCr}_2\text{O}_7$	$\text{Ba}(\text{ClO}_3)_2$	$(\text{CH}_3\text{COO})_2\text{Ba}$
Zinc	$\text{Zn}^{2+}$	$\text{Zn}(\text{NO}_2)_2$	$\text{ZnCrO}_4$	$\text{Zn}(\text{SO}_3)_2$	$\text{ZnCr}_2\text{O}_7$	$\text{Zn}(\text{ClO}_3)_2$	$(\text{CH}_3\text{COO})_2\text{Zn}$
Aluminum	$\text{Al}^{3+}$	$\text{Al}(\text{NO}_2)_3$	$\text{Al}_2(\text{CrO}_4)_3$	$\text{Al}_2(\text{SO}_3)_3$	$\text{Al}_2(\text{Cr}_2\text{O}_7)_3$	$\text{Al}(\text{ClO}_3)_3$	$(\text{CH}_3\text{COO})_3\text{Al}$
Ammonium	$\text{NH}_4^+$	$\text{NH}_4\text{NO}_2$	$(\text{NH}_4)_2\text{CrO}_4$	$\text{NH}_4\text{SO}_3$	$(\text{NH}_4)_2\text{Cr}_2\text{O}_7$	$\text{NH}_4\text{ClO}_3$	$\text{CH}_3\text{COONH}_4$

\* The acetate group,  $\text{CH}_3\text{COO}^-$  is written first as this correctly shows the position of the ionic bond. Eg.  $\text{CH}_3\text{COONa}^+$