

Name _____ Period _____

College Prep Chemistry of the Earth

Assignment 4S – Writing Combination Reactions with Balancing (Part 2) 20 Points

For the following reactions, write the products of each reaction following the template provided. Balance each reaction. Show work for ionic compound

Reaction	_____ Ni ³⁺ + _____ KClO ₃ → _____ + _____			
General Form	A + BC → AC + B			

Formula	A	C	Reactants		Products	
Ion Charge			Ni		Ni	
Cross Method			K		K	
AC			ClO ₃		ClO ₃	

Reaction	<u>2</u> Ba + _____ Pd(SO ₄) ₂ → <u>2</u> BaSO ₄ + _____ Pd			
General Form	A + BC → AC + B			

Balancing Steps!

Formula	A	C	Reactants		Products	
Ion Charge	+2	-2	Ba	1 2	Ba	1 2
Cross Method	Ba (SO ₄)		Pd	1	Pd	1
AC	BaSO ₄ *		SO ₄	2	SO ₄	1 2

① 2:1
SO₄ 1-2
② 1:2
Ba 2-1

*Reduce!
Ba₂(SO₄)₂
2 2
Ba(SO₄)
BaSO₄

Reaction	_____ Cr ¹⁺ + _____ Mo ₃ (PO ₄) ₂ → _____ + _____			
General Form	A + BC → AC + B			

Formula	A	C	Reactants		Products	
Ion Charge			Cr		Cr	
Cross Method			Mo		Mo	
AC			PO ₄		PO ₄	

Reaction	<u>2</u> Sc(HCO ₃) ₃ + <u>3</u> RaF ₂ → <u>2</u> ScF ₃ + <u>3</u> Ra(HCO ₃) ₂ Sc = +3			
General Form	AB + CD → AD + CB			

Balancing Steps

Formula	A	D	C	B	Reactants		Products	
Ion Charge	+3	-1	+2	-1	Sc	12	Sc	12
Cross Method	Sc F		Ra (HCO ₃)		HCO ₃	36	HCO ₃	26
AD	ScF ₃		Ra(HCO ₃) ₂		Ra	13	Ra	13
CB					F	26	F	36

- ① 3:2
HCO₃ 2-3
② 1:3
Ra 3-1
③ 6:3
F 1-2

Reaction	___ H ₂ C ₂ O ₄ + ___ Bi(OH) ₄ → ___ + ___ Bi = +4			
General Form	AB + CD → AD + CB			

Formula	A	D	C	B	Reactants		Products	
Ion Charge					H		H	
Cross Method					C ₂ O ₄		C ₂ O ₄	
AD					Bi		Bi	
CB					OH		OH	

Reaction	___ Zn ₃ N + ___ Ca(OCN) ₂ → ___ + ___ Zn = +1			
General Form	AB + CD → AD + CB			

Formula	A	D	C	B	Reactants		Products	
Ion Charge					Zn		Zn	
Cross Method					N		N	
AD					Ca		Ca	
CB					OCN		OCN	