

Name _____ Period _____

College Prep Chemistry of the Earth

Assignment 4P – Balancing Equations (Part 2)

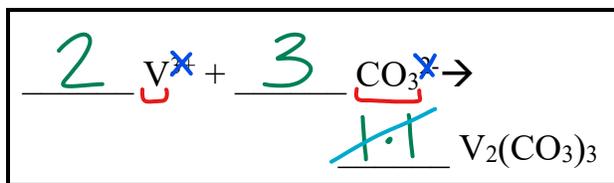
20 Points

Balance the following chemical reactions, showing complete balancing chart.

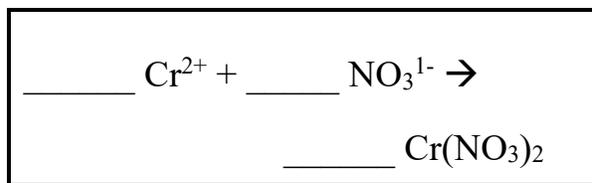
Atom Ratio	1:1	2:2	1:2	1:3	2:4	2:3	4:3	2:6	3:6
Coefficients	1-1	1-1	2-1	3-1	2-1	3-2	3-4	3-1	2-1

Atom Ratio	3:3	4:4	2:1	3:1	4:2	3:2	3:4	6:2	6:3
Coefficients	1-1	1-1	1-2	1-3	1-2	2-3	4-3	1-3	3-1

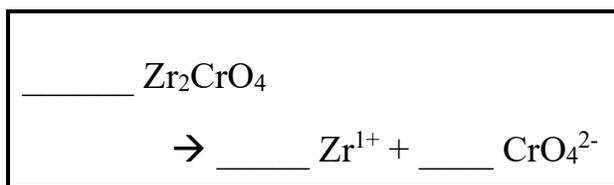
$V^{3+} = V$
 (ion) (atom)
 $CO_3^{2-} =$
 (ion) $(CO_3)_1$
 (formula)
 ① 1:2
 V 2-1
 ② 1:3
 CO₃ 3-1



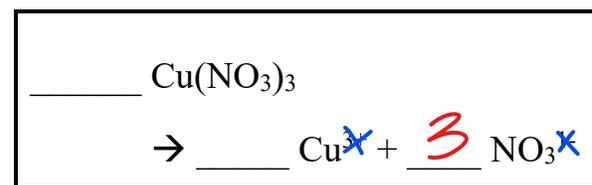
Reactants		Products	
V	2	V	2
CO ₃	3	CO ₃	3



Reactants		Products	
Cr		Cr	
NO ₃		NO ₃	

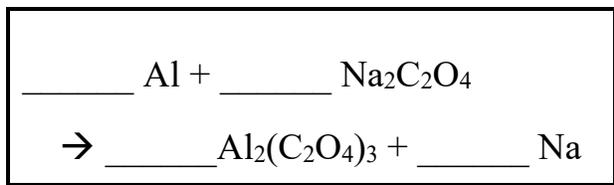


Reactants		Products	
Zr		Zr	
CrO ₄		CrO ₄	

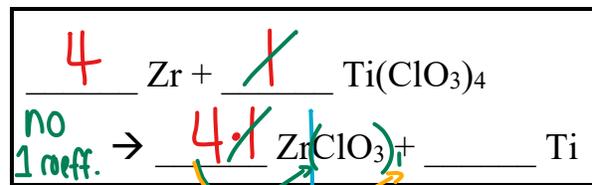


Reactants		Products	
Cu	1	Cu	1
NO ₃	3	NO ₃	3

$Cu^{3+} = Cu$
 (ion) (atom)
 $NO_3^{1-} =$
 (ion) $(NO_3)_1$
 (formula)
 ① 3:1
 NO₃ 1-3

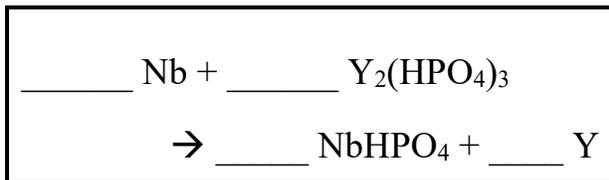


Reactants		Products	
Al		Al	
Na		Na	
C ₂ O ₄		C ₂ O ₄	

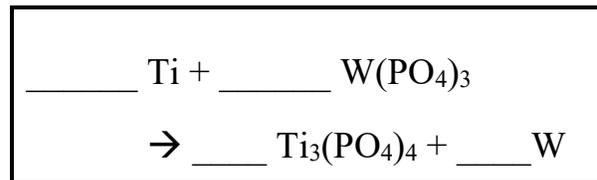


Reactants		Products	
Zr	4	Zr	4
Ti	1	Ti	1
ClO ₃	4	ClO ₃	4

$Ti(ClO_3)_4$
 Ti | ClO₃
 Zr | ClO₃
 Zr | ClO₃
 ① 4:1
 ClO₃ 1-4
 ② 1:4
 Zr 4-1



Reactants		Products	
Nb		Nb	
Y		Y	
HPO ₄		HPO ₄	

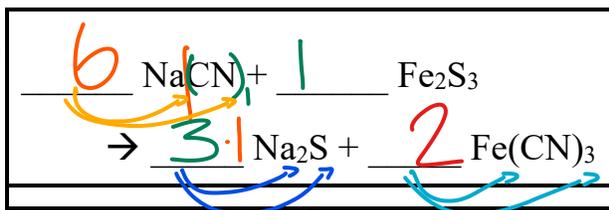


Reactants		Products	
Ti		Ti	
W		W	
PO ₄		PO ₄	

Three Steps

Start w/s (affects Na)

① 3:1
S 1-3



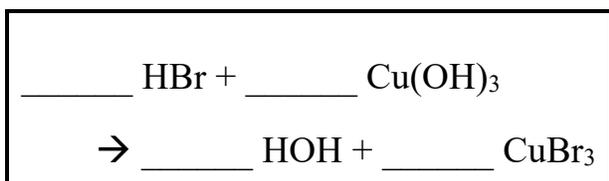
Reactants		Products	
Na	6	Na	6
CN	6	CN	6
Fe	2	Fe	2
S	3	S	3

Na changed w/s

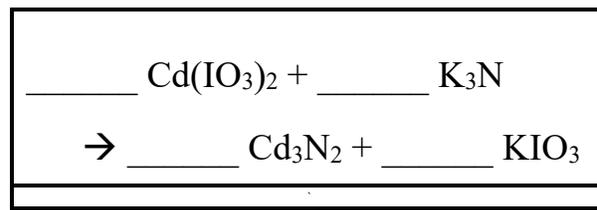
② ~~1:6~~
Na ~~6-1~~

CN changed w/Na

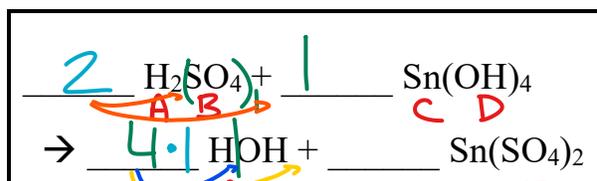
③ ~~6:3~~
CN ~~1-2~~



Reactants		Products	
H		H	
Br		Br	
Cu		Cu	
OH		OH	



Reactants		Products	
Cd		Cd	
IO ₃		IO ₃	
K		K	
N		N	



Reactants		Products (bottom)	
H	4	H	4
SO ₄	2	SO ₄	2
Sn	1	Sn	1
OH	4	OH	4



Start w/ larger # atoms

① 4:1
OH 1-4
② 2:4
H 2-1