

Name: ANSWERS

Oxidation States Worksheet

Define the term oxidation state:

Using your textbook page 97-98 or your periodic table identify the oxidation states for the following elements. Note: some elements may have more than one oxidation state.

Element	Symbol	Oxidation State
Sodium	Na	+1
Cesium	Cs	+1
Bromine	Br	-1
Nitrogen	N	-3
Oxygen	O	-2
Calcium	Ca	+2
Beryllium	Be	+2
Aluminum	Al	+3
Sulfur	S	-2
Phosphorus	P	-3
Silver	Ag	+1
Mercury	Hg	+1
Gold	Au	+1
Cobalt	Co	+2, +3
Rubidium	Rb	+1
Potassium	K	+1
Gallium	Ga	+3
Ca-Poor	Cu	+1, +2
Nickel	Ni	+1, +3
Iron	Fe	+2, +3
Chromium	Cr	+6, +3, +2

*Elements in the first group have an oxidation number of +1. These

elements give up 1 electron. Similarly elements in the Second group have an oxidation number of +2 and give up two electrons.

*Elements in the seventeenth group have an oxidation number of -1. These

elements gain 1 electron during bonding. Elements in the VI group have an oxidation number of negative 2. These elements gain 2 electrons.

*The Transition metals often have more than one oxidation state. The element with three oxidation states is V, Cr, Mn, W

Writing Chemical Formulas

Read pages 99-100 and complete practice problems 18 and 19.

***If you are having difficulties write out the steps 1-4 in your notebook on page 99 and follow them. ***

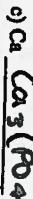
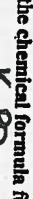
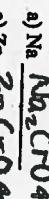
In your own words, what is the zero sum rule? Using CaCl_2 show how to determine this chemical formula from the oxidation states of each element using the zero sum rule.

Charges in neutral molecules must cancel.
 $1 \text{ Ca atom} + 2 + 2 \text{ Cl} - 1 = 0$

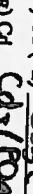
What is an alternative method to determining the chemical formula for CaCl_2 ?

CRISS CROSS

Write the chemical formula for the following elements bonded to chromate.



Write the chemical formula for the following elements bonded to phosphate.



Write the chemical formula for the following elements bonded to nitrate.



Write the chemical formula for the following elements bonded to hydroxide.



*If you are really stuck see problem tip on page 99****

not reduced

$$= \text{NaCl}$$

not reduced

$$= \text{Na}_3\text{PO}_4$$

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Date: _____

BCI SCIENCE

SCH 3U

Chemical Compounds and Bonding: Nomenclature Review

GASES - monatomic and diatomic

Write Formulas		Write Names	
1.	hydrogen gas	$H_2(g)$	He
2.	oxygen gas	$O_2(g)$	Ne
3.	nitrogen gas	$N_2(g)$	Ar
4.	fluorine gas	$F_2(g)$	Kr
5.	chlorine gas	$Cl_2(g)$	Xe
6.	bromine vapour	$Br_2(g)$	Rn
7.	iodine vapour	$I_2(g)$	

BINARY COMPOUNDS - REGULAR

Write Formulas		Write Names	
1.	sodium chloride	$NaCl$	calcium oxide
2.	calcium fluoride	CaF_2	silver chloride
3.	barium bromide	$BaBr_2$	calcium nitride
4.	lithium carbide	Li_4C	water
5.	silver iodide	AgI	silicon tetrabromide
6.	potassium oxide	K_2O	aluminum sulphide
7.	aluminum bromide	$AlBr_3$	silver chloride
8.	calcium nitride	Ca_3N_2	aluminum fluoride
9.	radium oxide	RaO	sodium chloride
10.	boron fluoride	BF_3	potassium bromide
11.	hydrogen sulfide	H_2S	barium sulphide
12.	rubidium hydride	RbH	aluminum nitride
13.	cesium oxide	Cs_2O	boron arsenide
14.	magnesium sulfide	MgS	hydrogen bromide
15.	calcium carbide	Ca_2C	zinc chloride
16.	zinc oxide	ZnO	magnesium iodide

woops