

# Oxidation Numbers Worksheet

Directions: Use the *Rules for Assigning Oxidation Numbers* to determine the oxidation number assigned to each element in each of the given chemical formulas.

Rules for Assigning Oxidation Numbers	Example:
1. The oxidation number of any uncombined element is <b>0</b> .	Ne, O <sub>2</sub> ▷ <b>0</b>
2. The oxidation number of a monatomic ion equals the charge on the ion.	Fe <sup>+3</sup> ▷ <b>+3</b>
3. The oxidation number of halogens in a compound is mostly <b>-1</b> .	F <sup>-1</sup> ▷ <b>-1</b>
4. Oxygen has an oxidation number of <b>-2</b> unless it's a peroxide is <b>+2</b>	H <sub>2</sub> O <sup>-2</sup> ▷ <b>-2</b> Na <sub>2</sub> O <sub>2</sub> <sup>+2</sup> ▷ <b>+2</b>
5. The oxidation number of a metal is <b>+1</b> in Group 1 and <b>+2</b> in Group 2.	K <sup>+1</sup> ▷ <b>+1</b>
6. Hydrogen works with <b>+1</b> with nonmetals and <b>-1</b> with metals.	H <sup>+1</sup> Cl <sup>-1</sup> ▷ <b>+1</b> Na <sup>+1</sup> H <sup>-1</sup> ▷ <b>-1</b>
7. The sum of the oxidation numbers of all atoms in a neutral compound is 0.	
8. The sum of the oxidation numbers of all atoms in a polyatomic ion = the charge of the ion.	

## 1. Give oxidation numbers for the underlined atoms in these molecules:

a. <b>Cs<sub>2</sub>O</b>	Cs:	O:	i. <b>N<sub>2</sub></b>	N:		
b. <b>N<sub>2</sub>O<sub>3</sub></b>	N:	O:	j. <b>Kr</b>	Kr:		
c. <b>Na<sub>4</sub>SiO<sub>4</sub></b>	Na:	Si:	o. <b>H<sub>2</sub>O</b>	H:	O:	
d. <b>K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub></b>	K:	Cr:	p. <b>FeO</b>	Fe:	O:	
e. <b>H<sub>2</sub>O<sub>2</sub></b>	H:	O:	(This is a peroxide)	m. <b>CaS</b>	Ca:	S:
f. <b>Al(OH)<sub>3</sub></b>	Al:	O	n. <b>H<sub>2</sub></b>	H:		
g. <b>HPO<sub>3</sub></b>	H:	P:	o. <b>He</b>	He:		
h. <b>H<sub>2</sub>SeO<sub>3</sub></b>	H:	Se:	q. <b>OF<sub>2</sub></b>	O:	F:	

## 2. Give the oxidation numbers for the following ions

a. <b>Cu<sup>+1</sup></b>	Cu:	b. <b>Co<sup>2+</sup></b>	Co:	c. <b>Cl<sup>-1</sup></b>	Cl:
d. <b>IO<sub>2</sub><sup>-1</sup></b>	I:	O:	e. <b>SbF<sub>6</sub><sup>-1</sup></b>	Sb:	F:
f. <b>OH<sup>-1</sup></b>	O:	H:			