

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 0 .	Ne, O ₂ ▷ 0
2. The oxidation number of a monatomic ion equals the charge on the ion.	Fe ⁺³ ▷ +3
3. The oxidation number of halogens in a compound is mostly -1 .	F ⁻¹ ▷ -1
4. Oxygen has an oxidation number of -2 unless it's a peroxide is -1	H ₂ O ⁻² ▷ -2 Na ₂ O ₂ ⁺² ▷ -1
5. The oxidation number of a metal is +1 in Group 1 and +2 in Group 2.	K ⁺¹ ▷ +1
6. Hydrogen works with +1 with nonmetals and -1 with metals.	H ⁺¹ Cl ⁻¹ ▷ +1 Na ⁺¹ H ⁻¹ ▷ -1
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. Cs₂O	Cs:	O:	i. N₂	N:		
b. N₂O₃	N:	O:	j. Kr	Kr:		
c. Na₄SiO₄	Na:	Si:	O:	k. H₂O	H:	O:
d. K₂Cr₂O₇	K:	Cr:	O:	l. FeO	Fe:	O:
e. H₂O₂	H:	O:	(This is a peroxide)	m. CaS	Ca:	S:
f. Al(OH)₃	Al:	O	H:	n. H₂	H:	
g. HPO₃	H:	P:	O:	o. He	He:	
h. H₂SeO₃	H:	Se:	O:	p. H₂SO₄	S:	H:

2. Give the oxidation numbers for the following ions

a. Cu⁺¹	Cu:	b. Co²⁺	Co:	c. Cl⁻¹	Cl:
d. IO₂⁻¹	I:	O:	e. SbF₆⁻¹	Sb:	F:
f. OH⁻¹	O:	H:			