

Name: _____

Class: _____

OXIDATION NUMBERS WORKSHEET

The *oxidation number* of an atom is the apparent charge assigned to it in a particular molecule, ion or compound. Certain rules are followed in assigning oxidation numbers.

Use rules at the right to assign oxidation numbers to each element in each of the given formulas.

Example

OXIDATION NO. RULES USED

H₂O H=+1, O=-2 6 & 7

N₂ N=0 1

Rules The oxidation number of:

1. A free element in the uncombined state is 0.
2. A monatomic ion equals the charge on the ion.
3. Oxygen in a compound is generally -2
4. Hydrogen in a compound is +1 when bonded to a nonmetal
5. In a neutral compound the sum of the oxidation numbers for all the atoms is 0.
6. In a polyatomic ion the sum of the oxidation numbers for all the atoms is equal to the charge on the ion.
7. Group 1 metals is +1.
8. Group 2 metals is +2.

RULES USED

- | | | | |
|-----|--|-----------|-------|
| 1. | Cl ₂ | 1. _____ | _____ |
| 2. | Cl ⁻ | 2. _____ | _____ |
| 3. | Na | 3. _____ | _____ |
| 4. | Na ⁺ | 4. _____ | _____ |
| 5. | KCl | 5. _____ | _____ |
| 6. | H ₂ S | 6. _____ | _____ |
| 7. | CaO | 7. _____ | _____ |
| 8. | H ₂ SO ₄ | 8. _____ | _____ |
| 9. | NO ₃ ⁻ | 9. _____ | _____ |
| 10. | Cr ₂ O ₇ ²⁻ | 10. _____ | _____ |
| 11. | NH ₄ Cl | 11. _____ | _____ |
| 12. | NH ₃ | 12. _____ | _____ |
| 13. | NO ₂ | 13. _____ | _____ |
| 14. | CaH ₂ (calcium hydride) | 14. _____ | _____ |
| 15. | Na ₂ O ₂ (sodium peroxide) | 15. _____ | _____ |

Name: _____

Class: _____

Key

OXIDATION NUMBERS WORKSHEET

The *oxidation number* of an atom is the apparent charge assigned to it in a particular molecule, ion or compound. Certain rules are followed in assigning oxidation numbers.

Use rules at the right to assign oxidation numbers to each element in each of the given formulas.

Example

OXIDATION NO.	RULES USED
H ₂ O	H=+1, O=-2 <u>4,5</u>
N ₂	<u>N=0</u> <u>1</u>

Rules The oxidation number of:

1. A free element in the uncombined state is 0.
2. A monatomic ion equals the charge on the ion.
3. Oxygen in a compound is generally -2
4. Hydrogen in a compound is +1 when bonded to a nonmetal
5. In a neutral compound the sum of the oxidation numbers for all the atoms is 0.
6. In a polyatomic ion the sum of the oxidation numbers for all the atoms is equal to the charge on the ion.
7. Group 1 metals is +1.
8. Group 2 metals is +2.

		RULES USED
1.	Cl ₂	<u>Cl = 0</u> <u>1</u>
2.	Cl ⁻	<u>Cl = -1</u> <u>2</u>
3.	Na	<u>Na = 0</u> <u>1</u>
4.	Na ⁺	<u>Na = +1</u> <u>2</u>
5.	KCl	<u>K = +1 Cl = -1</u> <u>7, 5</u>
6.	H ₂ S	<u>H = +1 S = -2</u> <u>4, 5</u>
7.	CaO	<u>Ca = +2 O = -2</u> <u>8, 5</u>
8.	H ₂ SO ₄	<u>H = +1 S = +6 O = -2</u> <u>3, 4, 5</u>
9.	NO ₃ ⁻	<u>N = +5 O = -2</u> <u>3, 6</u>
10.	Cr ₂ O ₇ ²⁻	<u>Cr = +6 O = -2</u> <u>3, 6</u>
11.	NH ₄ Cl	<u>N = -3 H = +1 Cl = -1</u> <u>4, 5, 6</u>
12.	NH ₃	<u>N = -3 H = +1</u> <u>4, 5</u>
13.	NO ₂	<u>N = +4 O = -2</u> <u>3, 5</u>
14.	CaH ₂ (calcium hydride)	<u>Ca = +2 H = -1</u> <u>8, 5</u>
15.	Na ₂ O ₂ (sodium peroxide)	<u>Na = +1 O = -1</u> <u>7, 5</u>