



Chemistry

Name: _____

Section _____ OXIDATION NUMBERS WS Date: _____

Directions (1-10): For each statement or question, choose the word or expression that, of those given, best completes the statement or answers the question. Some questions may require the use of the 2011 Edition Reference Tables for Physical Setting/Chemistry.

- 1 The oxidation number of nitrogen in N_2 is
(1) +1 (3) +3
 (2) 0 (4) -3
- 2 What is the oxidation number of Pt in K_2PtCl_6 ?
(1) -2 (3) -4
(2) +2 (4) +4
- 3 In which substance does phosphorus have a +3 oxidation state?
(1) P_4O_{10} (3) $Ca_3(PO_4)_2$
(2) PCl_5 (4) KH_2PO_3
- 4 What is the oxidation state of sulfur in H_2SO_4 ?
(1) 0 (3) +6
(2) -2 (4) +4
- 5 In which substance does sulfur have a negative oxidation number?
 (1) Na_2S (3) S_8
(2) $CaSO_4$ (4) SO_2
- 6 In which compound is the oxidation number of oxygen -1?
(1) CO (3) H_2O
(2) CO_2 (4) H_2O_2
- 7 Oxygen has an oxidation number of -2 in
(1) O_2 (3) Na_2O_2
 (2) NO_2 (4) OF_2
- 8 Oxygen will have a positive oxidation number when combined with
 (1) fluorine (3) bromine
(2) chlorine (4) iodine
- 9 In which compound does hydrogen have an oxidation number of -1?
(1) NH_3 (3) HCl
 (2) KH (4) H_2O
- 10 Which equation represents an oxidation-reduction reaction?
(1) $HCl + KOH \rightarrow KCl + H_2O$
 (2) $4 HCl + MnO_2 \rightarrow MnCl_2 + H_2O + Cl_2$
(3) $2 HCl + CaCO_3 \rightarrow CaCl_2 + H_2O + CO_2$
(4) $2 HCl + FeS \rightarrow FeCl_2 + H_2S$
- 11 Which equation represents an oxidation-reduction reaction?
 (1) $Zn + 2 HCl \rightarrow ZnCl_2 + H_2$
(2) $Zn(OH)_2 + 2 HCl \rightarrow ZnCl_2 + 2 H_2O$
(3) $H_2O + NH_3 \rightarrow NH_4^+ + OH^-$
(4) $H_2O + H_2O \rightarrow H_3O^+ + OH^-$
- 12 Which statement correctly describes a redox reaction?
 (1) Oxidation and reduction occur simultaneously.
(2) Oxidation occurs before reduction.
(3) Oxidation occurs after reduction.
(4) Oxidation occurs, but reduction does not.

Assign oxidation numbers to all the elements in each of the following.

- | | |
|---|---|
| 1 $\overset{0}{\text{O}}_2$ | 11 $\overset{+4}{\text{Pb}}\overset{-2}{\text{O}}_2$ |
| 2 $\overset{+1}{\text{Na}}\overset{+3}{\text{N}}\overset{-2}{\text{O}}_2$ | 12 $\overset{+2}{\text{Pb}}\overset{-1}{\text{Cl}}_2$ |
| 3 $\overset{+1}{\text{K}}\overset{+5}{\text{N}}\overset{-2}{\text{O}}_3$ | 13 $\overset{+2}{\text{O}}\overset{-1}{\text{F}}_2$ |
| 4 $\overset{+2}{\text{Mg}}_3\overset{-3}{\text{N}}_2$ | 14 $\overset{+1}{\text{Li}}\overset{+3}{\text{Al}}\overset{-1}{\text{H}}_4$ |
| 5 $\overset{+1}{\text{K}}_2\overset{+6}{\text{Cr}}\overset{-2}{\text{O}}_4$ | 15 $\overset{+1}{\text{H}}_2\overset{+4}{\text{S}}\overset{-2}{\text{O}}_3$ |
| 6 $\overset{+1}{\text{K}}\overset{+5}{\text{Cl}}\overset{-2}{\text{O}}_3$ | 16 $\overset{+1}{\text{H}}_2\overset{+6}{\text{S}}\overset{-2}{\text{O}}_4$ |
| 7 $\overset{+2}{\text{Cu}}\overset{+6}{\text{S}}\overset{-2}{\text{O}}_4$ | 17 $\overset{+4}{\text{Mn}}\overset{-2}{\text{O}}_2$ |
| 8 $\overset{0}{\text{P}}_4$ | 18 $\overset{+1}{\text{K}}\overset{+7}{\text{Mn}}\overset{-2}{\text{O}}_4$ |
| 9 $\overset{+1}{\text{H}}_2\overset{-1}{\text{O}}_2$ | 19 $\overset{+6}{\text{S}}\overset{-2}{\text{O}}_3$ |
| 10 $\overset{+1}{\text{H}}_2\overset{-2}{\text{O}}$ | 20 $\overset{+4}{\text{S}}\overset{-2}{\text{O}}_2$ |