

## Oxidation & Nomenclature Worksheet

Which of the following elements will exhibit a negative oxidation state when combined with phosphorus?

- (a) Mg      (b) F      (c) Al      (d) O      (e) Na      (f) Cl  
(g) Fe      (h) S      (i) N

ANSWER: b, d, f, h, & i

Determine the oxidation states of the elements in the following compounds.

- (a) NaI      (b) GdCl<sub>3</sub>      (c) LiNO<sub>3</sub>      (d) H<sub>2</sub>Se      (e) Mg<sub>2</sub>Si      (f) HF  
Na<sup>+</sup> & I<sup>-</sup>      Gd<sup>+3</sup> & Cl<sup>-</sup>      Li<sup>+</sup>, N<sup>+5</sup> & O<sup>-2</sup>      H<sup>+</sup> & Se<sup>-2</sup>      Mg<sup>+2</sup> & Si<sup>-4</sup>      H<sup>+</sup> & F<sup>-</sup>
- (g) CaSO<sub>4</sub>      (h) Nd<sub>2</sub>O<sub>3</sub>      (i) MgSe      (j) H<sub>3</sub>As      (k) Li<sub>3</sub>N      (l) HI  
Ca<sup>+2</sup>, S<sup>+6</sup> & O<sup>-2</sup>      Nd<sup>+3</sup> & O<sup>-2</sup>      Mg<sup>+2</sup> & Se<sup>-2</sup>      H<sup>+</sup> & As<sup>-3</sup>      Li<sup>+</sup> & N<sup>-3</sup>      H<sup>+</sup> & I<sup>-</sup>
- (m) SeO<sub>2</sub>      (n) Al(OH)<sub>3</sub>      (o) P<sub>4</sub>O<sub>6</sub>      (p) TiCl<sub>4</sub>      (q) SF<sub>6</sub>      (r) Ca(OH)<sub>2</sub>  
Se<sup>+4</sup> & O<sup>-2</sup>      Al<sup>+3</sup>, O<sup>-2</sup> & H<sup>+</sup>      P<sup>+3</sup>, O<sup>-2</sup>      Ti<sup>+4</sup> & Cl<sup>-</sup>      S<sup>+6</sup> & F<sup>-</sup>      Ca<sup>+2</sup>, O<sup>-2</sup> & H<sup>+</sup>

Name the following compounds.

- (a) CsCl      (b) BaO      (c) K<sub>2</sub>S      (d) BeCl<sub>2</sub>      (e) AlF<sub>3</sub>      (f) HF  
(g) NaF      (h) Rb<sub>2</sub>O      (i) BCl<sub>3</sub>      (j) H<sub>2</sub>Se      (k) P<sub>4</sub>O<sub>6</sub> (l) ICl<sub>3</sub>
- (a) Cesium Chloride      (b) Barium Oxide      (c) Potassium Sulfide  
(d) Beryllium Chloride      (e) Aluminum Fluoride      (f) Hydrogen Fluoride  
(g) Sodium Fluoride      (h) Rubidium Oxide      (i) Boron Trichloride  
(j) Hydrogen Selenide      (k) tetraphosphorous hexoxide (l) Iodine Trichloride

Each of the following compounds contains a metal that can exhibit more than one ionic charge. Name these compounds.

- (a)  $\text{Cr}_2\text{O}_3$       (b)  $\text{FeCl}_2$       (c)  $\text{CrO}_3$       (d)  $\text{TiCl}_4$       (e)  $\text{CoO}$       (f)  $\text{MoS}_2$   
(g)  $\text{NiCO}_3$       (h)  $\text{MoO}_3$       (i)  $\text{Co}(\text{NO}_3)_2$       (j)  $\text{V}_2\text{O}_5$       (k)  $\text{MnO}_2$       (l)  $\text{Fe}_2\text{O}_3$
- (a) Chromium (III) oxide      (b) Iron (II) chloride      (c) Chromium (VI) oxide  
(d) Titanium (IV) chloride      (e) Cobalt (II) oxide      (f) Molybdenum (IV) sulfide  
(g) Nickel (II) carbonate      (h) Molybdenum (VI) Oxide      (i) Cobalt (II) nitrate  
(j) vanadium (V) oxide      (k) Manganese (IV) oxide      (l) Iron (III) oxide

Give the formula for each of the following compounds.

- (a) chlorine dioxide      (b) dinitrogen tetroxide      (c) potassium phosphide      (d) silver(I) sulfide  
 $\text{ClO}_2$        $\text{N}_2\text{O}_4$        $\text{K}_3\text{P}$        $\text{Ag}_2\text{S}$
- (e) aluminum nitride      (f) silicon dioxide      (g) barium chloride      (h) Magnesium nitride  
 $\text{AlN}$        $\text{SiO}_2$        $\text{BaCl}_2$        $\text{Mg}_3\text{N}_2$
- (i) sulfur dioxide      (j) nitrogen trichloride      (k) dinitrogen trioxide      (l) tin (IV) chloride  
 $\text{SO}_2$        $\text{NCl}_3$        $\text{N}_2\text{O}_3$        $\text{SnCl}_4$
- (m) copper (II) sulfate      (n) calcium chloride      (o) titanium (IV) oxide      (p) ammonium nitrate  
 $\text{CuSO}_4$        $\text{CaCl}_2$        $\text{TiO}_2$        $\text{NH}_4\text{NO}_3$
- (q) sodium bisulfate (the common name for sodium hydrogen sulfate)  $\text{NaHSO}_4$   
(r) potassium phosphate  $\text{K}_3\text{PO}_4$