

Naming Ionic Compounds Practice Worksheet

Name the following ionic compounds:

- 1) $\overset{+}{\text{N}}\overset{-}{\text{H}_4}\overset{-}{\text{Cl}}$ ammonium chloride
- 2) $\overset{+3}{\text{Fe}}\overset{-1}{\text{NO}_3}_3$ iron (III) nitrate
- 3) $\overset{+3}{\text{Ti}}\overset{-1}{\text{Br}}_3$ titanium (III) bromide
- 4) $\overset{+1}{\text{Cu}}_3\overset{-3}{\text{P}}$ copper (I) phosphide
- 5) $\overset{+4}{\text{Sn}}\overset{-2}{\text{Se}}_2$ tin (IV) selenide
- 6) $\overset{+3}{\text{Ga}}\overset{-3}{\text{As}}$ gallium (III) arsenide
- 7) $\overset{+4}{\text{Pb}}(\overset{-2}{\text{SO}_4})_2$ lead (IV) sulfate
- 8) $\overset{+2}{\text{Be}}(\overset{-1}{\text{HCO}_3})_2$ beryllium hydrogen carbonate
- 9) $\overset{+3}{\text{Mn}}_2(\overset{-2}{\text{SO}_3})_3$ manganese (III) sulfite
- 10) $\overset{+3}{\text{Al}}(\overset{-1}{\text{CN}})_3$ aluminum cyanide

Write the formulas for the following compounds:

- 11) chromium (VI) phosphate $\overset{+6}{\text{Cr}}\overset{-3}{\text{PO}_4}_2$
- 12) vanadium (IV) carbonate $\overset{+4}{\text{V}}\overset{-2}{\text{CO}_3}_2$
- 13) tin (II) nitrite $\overset{+2}{\text{Sn}}\overset{-1}{\text{NO}_2}_2$
- 14) cobalt (III) oxide $\overset{+3}{\text{Co}}_2\overset{-2}{\text{O}}_3$
- 15) titanium (II) acetate $\overset{+2}{\text{Ti}}(\overset{-1}{\text{C}_2\text{H}_3\text{O}_2})_2$
- 16) vanadium (V) sulfide $\overset{+5}{\text{V}}_2\overset{-2}{\text{S}}_5$
- 17) chromium (III) hydroxide $\overset{+3}{\text{Cr}}(\overset{-1}{\text{OH}})_3$
- 18) lithium iodide $\overset{+1}{\text{Li}}\overset{-1}{\text{I}}$
- 19) lead (II) nitride $\overset{+2}{\text{Pb}}\overset{-3}{\text{N}}_2$
- 20) silver bromide $\overset{+1}{\text{Ag}}\overset{-1}{\text{Br}}$

H.W. 1-10
21-30

Scoring { (1) all attempted
(-0) Missed 0-2
(-1) Missed 3-5
(-2) Missed 6-8

Lots of Ionic Naming Practice Problems (-3) Missed > 8

Name the following ionic compounds:

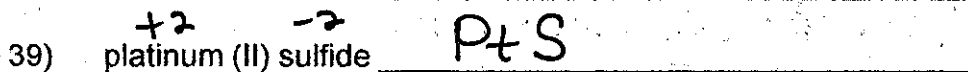
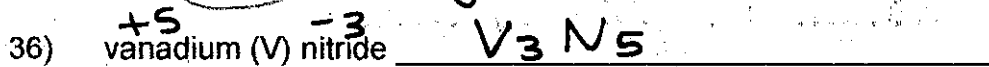
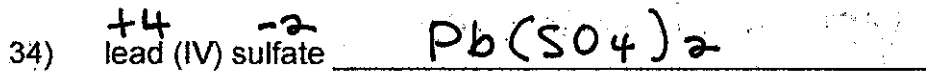
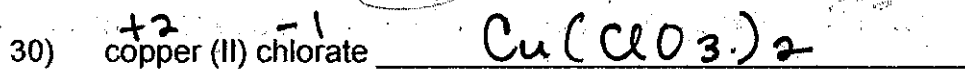
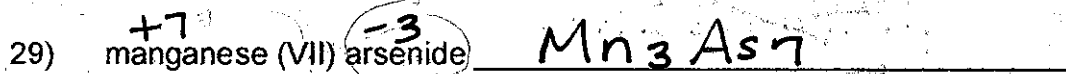
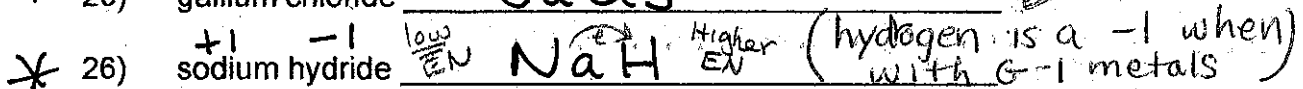
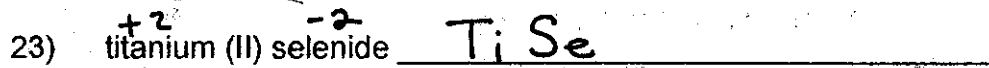
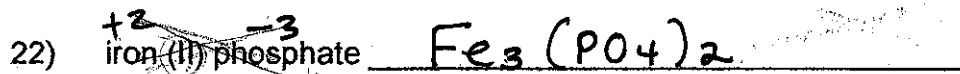
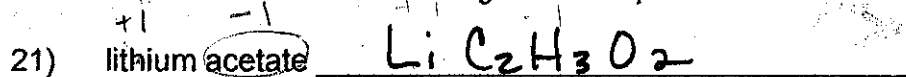
- 1) NaBr sodium bromide
- 2) $\overset{+3}{\text{Sc}}\overset{-1}{(\text{OH})}_3$ scandium (III) hydroxide
- 3) $\overset{+3}{\text{V}}_2\overset{-2}{(\text{SO}_4)}_3$ vanadium (III) sulfate
- 4) NH_4F ammonium fluoride
- 5) CaCO_3 calcium carbonate
- 6) NiPO_4 nickel (III) phosphate
- 7) Li_2SO_3 lithium sulfite
- 8) $\overset{+2}{\text{Zn}}_3\text{P}_2$ zinc phosphide (Remember: Zinc is always 2+)
- 9) $\overset{+2}{\text{Sr}}(\text{C}_2\text{H}_3\text{O}_2)_2$ strontium acetate
- 10) Cu_2O copper (I) oxide
- 11) $\overset{+1}{\text{Ag}}_3\text{PO}_4$ silver phosphate (Silver is always 1+)
- 12) $\overset{+1}{\text{Y}}\overset{-1}{\text{ClO}_3}$ yttrium (I) chlorate
- 13) $\overset{+4}{\text{Sn}}\overset{-2}{\text{S}_2}$ tin (IV) sulfide
- 14) $\overset{+4}{\text{Ti}}(\overset{-1}{\text{CN}})_4$ titanium (IV) cyanide
- 15) $\overset{+1}{\text{K}}\overset{-1}{\text{MnO}_4}$ potassium permanganate MnO_4^-
- 16) $\overset{+2}{\text{Pb}}_3\overset{-3}{\text{N}_2}$ lead (II) nitride
- 17) CoCO_3 cobalt (II) carbonate
- 18) $\overset{-2}{\text{Cd}}\overset{-2}{(\text{SO}_3)}$ cadmium (II) sulfite
- 19) $\overset{+1}{\text{Cu}}(\overset{-1}{\text{NO}_2})_2$ copper (I) nitrite
- 20) $\overset{+2}{\text{Fe}}(\overset{-1}{\text{HCO}_3})_2$ iron (II) bicarbonate

Iron (II) hydrogen carbonate

$\text{C}_2\text{H}_3\text{O}_2^-$
acetate

Formula unit
 $\checkmark \overset{+3}{\text{Sc}}\overset{-2}{\text{SO}_4}$
 $\checkmark \overset{+3}{\text{V}}\overset{-2}{\text{SO}_4}$
 SO_4^{2-}

Write the formulas for the following ionic compounds:



will not ask this on quiz

Naming Covalent Compounds Solutions

Write the formulas for the following covalent compounds:

- 1) antimony tribromide **SbBr₃**
- 2) hexaboron silicide **B₆Si**
- 3) chlorine dioxide **ClO₂**
- 4) hydrogen iodide **HI**
- 5) iodine pentafluoride **IF₅**
- 6) dinitrogen trioxide **N₂O₃**
- 7) ammonia **NH₃**
- 8) phosphorus triiodide **PI₃**

Write the names for the following covalent compounds:

- 9) **P₄S₅ tetraphosphorus pentasulfide**
- 10) **O₂ oxygen**
- 11) **SeF₆ selenium hexafluoride**
- 12) **Si₂Br₆ disilicon hexabromide**
- 13) **SCl₄ sulfur tetrachloride**
- 14) **CH₄ methane** carbon tetrahydride
→ organic chemistry
- 15) **B₂Si diboron silicide**
- 16) **NF₃ nitrogen trifluoride**

KEY

Hydrate Practice

Write formulas for the following hydrates

- nickel (II) phosphate heptahydrate $\overset{+2}{\text{Ni}} \overset{-3}{\text{PO}_4} \cdot 7\text{H}_2\text{O}$
- copper (I) sulfate monohydrate $\overset{+1}{\text{Cu}} \overset{-2}{\text{SO}_4} \cdot \text{H}_2\text{O}$
- cobalt (II) fluoride tetrahydrate $\overset{+2}{\text{Co}} \overset{-1}{\text{F}} \cdot 4\text{H}_2\text{O}$
- barium chloride dihydrate $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$
- aluminum hydroxide trihydrate $\text{Al}(\text{OH})_3 \cdot 3\text{H}_2\text{O}$
- strontium nitrate trihydrate $\text{Sr}(\text{NO}_3)_2 \cdot 3\text{H}_2\text{O}$
- * calcium sulfate hexahydrate $\text{CaSO}_4 \cdot 6\text{H}_2\text{O}$
- aluminum sulfite tetrahydrate $\text{Al}_2(\text{SO}_3)_3 \cdot 4\text{H}_2\text{O}$
- aluminum hypochlorite octahydrate $\text{Al}(\text{ClO})_3 \cdot 8\text{H}_2\text{O}$
- iron (III) chloride hexahydrate $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$

Name the following hydrates:

- $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$ sodium sulfate decahydrate
- $\text{LiNO}_3 \cdot 3\text{H}_2\text{O}$ lithium nitrate trihydrate
- $\text{Cu}_2\text{SO}_3 \cdot 3\text{H}_2\text{O}$ copper (I) sulfite trihydrate
- $\text{Ca}(\text{NO}_3)_2 \cdot 2\text{H}_2\text{O}$ calcium nitrate dihydrate
- $\text{NaClO}_4 \cdot \text{H}_2\text{O}$ sodium perchlorate monohydrate
- $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ magnesium sulfate heptahydrate
- $\text{Cs}_2\text{CO}_3 \cdot 2\text{H}_2\text{O}$ cesium carbonate dihydrate
- $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ zinc sulfate heptahydrate
- $\text{Na}_3\text{PO}_3 \cdot 4\text{H}_2\text{O}$ sodium phosphite tetrahydrate
- $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$ nickel (II) nitrate hexahydrate

Practice Worksheet: Names & Formulas of Acids

Review:

- When the anion does NOT contain Oxygen, & is a BINARY acid:
Use the prefix *hydro* + root of the anion's name - *ic* + the word acid
Examples: HCl = *hydrochloric acid*; HBr = *hydrobromic acid*
- When the anion contains Oxygen, & is a TERNARY acid:
The name depends on the name of the polyatomic anion. DON'T use the prefix '*hydro-*'! Examples: H₂SO₄ has the sulfate anion, so the acid name will end in *-ic*: **Sulfuric acid**. H₂SO₃ has the sulfite anion, so the name of the acid will end in *-ous*: **Sulfurous acid**.

ATE → IC

ITE → OUS

Write FORMULAS for the following: NAME the following :

Nitric acid	HNO ₃	HClO	hypochlorous acid
Chloric acid	HClO ₃	H ₃ PO ₄	phosphoric acid
Acetic acid	HC ₂ H ₃ O ₂	HCl	hydrochloric acid
Hydrobromic acid	HBr	H ₃ BO ₃	boric acid
Sulfurous acid	H ₂ SO ₃	H ₂ SO ₄	sulfuric acid
Chlorous acid	HClO ₂	HNO ₂	nitrous acid
Hydrochloric acid	HCl	HI	hydroiodic acid
Phosphoric acid	H ₃ PO ₄	HC ₂ H ₃ O ₂	acetic acid
1 Nitrous acid	HNO ₂	HF	hydrofluoric acid
2 Hydrofluoric acid	HF	H ₃ PO ₃	phosphite → phosphorous acid
3 Hypochlorous acid	HClO	HCN	hydrocyanic acid
4 Hydroiodic acid	HI	HClO ₃	chloric acid
5 Phosphorous acid	H ₃ PO ₃	H ₂ CO ₃	carbonic acid
Carbonic acid	H ₂ CO ₃	H ₂ SO ₃	sulfurous acid
Perchloric acid	HClO ₄	HClO ₂	chlorous acid
* Permanganic acid	HMnO ₄	HNO ₃	nitric acid
Sulfuric acid	SO ₄ ²⁻ → H ₂ SO ₄	HBr	hydrobromic acid
* Hydrocyanic acid	HCN		

→ does not follow "rules"

CN⁻ → polyatomic ion
 cyanide but NO oxygen.

Br⁻ bromide