

Name: _____

Ionic Compounds—Multivalent Metal Ions

1. If the following pairs of elements were mixed and heated, they would combine into solid ionic compounds. In this worksheet, use the most common ionic form of the multivalent metal ion. The most common form is listed first in the periodic table. For example, iron exists as both 2+ and 3+ ions, with iron(III) being the most common.

	Name	Formula
a) iron and sulfur	iron(III) sulfide	$\text{Fe}_2\text{S}_{3(s)}$
b) copper and oxygen	_____	_____
c) manganese and fluorine	_____	_____
d) gold and nitrogen	_____	_____
e) chromium and chlorine	_____	_____
f) platinum and phosphorus	_____	_____
g) nickel and oxygen	_____	_____
h) cobalt and bromine	_____	_____
i) tungsten and iodine	_____	_____
j) manganese and sulfur	_____	_____

continued...

Unit A—Energy and Matter in Chemical Change

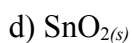
2. Write the correct name for each of the following compounds. The charge on the multivalent ion is not given by the periodic table. It is determined by the charge of the non-metal and the subscripts that appear in the formula.

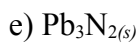


iron(II) chloride

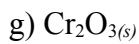




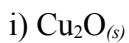














Unit A—Energy and Matter in Chemical Change

Answers for Line Master 9

Ionic Compounds—Multivalent Metal Ions

1.

	Name	Formula
a) iron and sulfur	iron(III) sulfide	$\text{Fe}_2\text{S}_3(s)$
b) copper and oxygen	copper(II) oxide	$\text{CuO}(s)$
c) manganese and fluorine	manganese(II) fluoride	$\text{MnF}_2(s)$
d) gold and nitrogen	gold(III) nitride	$\text{AuN}(s)$
e) chromium and chlorine	chromium(III) chloride	$\text{CrCl}_3(s)$
f) platinum and phosphorus	platinum(IV) phosphide	$\text{Pt}_3\text{P}_4(s)$
g) nickel and oxygen	nickel(II) oxide	$\text{NiO}(s)$
h) cobalt and bromine	cobalt(II) bromide	$\text{CoBr}_2(s)$
i) tungsten and iodine	tungsten(VI) iodide	$\text{WI}_6(s)$
j) manganese and sulfur	manganese(II) sulfide	$\text{MnS}(s)$

2.

a) $\text{FeCl}_2(s)$	iron(II) chloride
b) $\text{FeBr}_3(s)$	iron(III) bromide
c) $\text{CrS}(s)$	chromium(II) sulfide
d) $\text{SnO}_2(s)$	tin(IV) oxide
e) $\text{Pb}_3\text{N}_2(s)$	lead(II) nitride
f) $\text{HgI}_2(s)$	mercury(II) iodide
g) $\text{Cr}_2\text{O}_3(s)$	chromium(III) oxide
h) $\text{MnF}_4(s)$	manganese(IV) fluoride
i) $\text{Cu}_2\text{O}(s)$	copper(I) oxide
j) $\text{AuI}_3(s)$	gold(III) iodide