

Name: _____
Hour: _____ Date: _____

Chemistry: *Oxidation Numbers and Ionic Compounds*

Write the correct formula for the compound formed by each of the following pairs of ions.

- | | |
|---|-----------|
| 1. Na^{1+} F^{1-} | 1. _____ |
| 2. K^{1+} S^{2-} | 2. _____ |
| 3. Ni^{2+} SO_4^{2-} | 3. _____ |
| 4. Al^{3+} O^{2-} | 4. _____ |
| 5. Ca^{2+} ClO_3^{1-} | 5. _____ |
| 6. NH_4^{1+} P^{3-} | 6. _____ |
| 7. Cu^{1+} NO_3^{1-} | 7. _____ |
| 8. Cu^{2+} NO_3^{1-} | 8. _____ |
| 9. Pb^{4+} O^{2-} | 9. _____ |
| 10. Li^{1+} CO_3^{2-} | 10. _____ |

For each of the following compounds, write the symbols of the ions in the compound and how many of each ion in one molecule of that compound.

- | | |
|--|-----------|
| 11. CaI_2 | 11. _____ |
| 12. Na_2CO_3 | 12. _____ |
| 13. $\text{Ga}(\text{ClO}_3)_3$ | 13. _____ |
| 14. CuF_2 | 14. _____ |
| 15. $(\text{NH}_4)_3\text{PO}_4$ | 15. _____ |
| 16. FeSO_4 | 16. _____ |
| 17. $\text{Mg}(\text{NO}_3)_2$ | 17. _____ |
| 18. NH_4NO_2 | 18. _____ |
| 19. $\text{KC}_2\text{H}_3\text{O}_2$ | 19. _____ |
| 20. $\text{Na}_2\text{Cr}_2\text{O}_7$ | 20. _____ |

Name: _____
Hour: _____ Date: _____

Chemistry: *Binary Compounds*

List the oxidation numbers (charges) for each of the following elements.

Ca	N	Br
Be	Ba	Fr
K	P	Al
Group 1	Group 2	Group 13
Group 15	Group 16	Group 17
Sr	Ag	Fe (III)

Write the formulas for the following binary compounds.

calcium oxide	beryllium chloride
sodium fluoride	potassium iodide
copper (II) chloride	aluminum chloride
iron (III) oxide	strontium oxide

Write the names of the following binary compounds.

Cr ₂ O ₃	NaBr
NaCl	KCl
Al ₂ O ₃	BN
RbI	BaF ₂
H ₂ S	PbI ₂

Name: _____
Hour: _____ Date: _____

Chemistry: *Empirical and Molecular Formulas*

Write the empirical formula for each of the following molecular formulas.

- | | |
|--|-----------|
| 1. N_2O_4 | 1. _____ |
| 2. NO_2 | 2. _____ |
| 3. C_2H_6 | 3. _____ |
| 4. CH_4 | 4. _____ |
| 5. $\text{C}_6\text{H}_{12}\text{O}_6$ | 5. _____ |
| 6. H_2SO_4 | 6. _____ |
| 7. $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ | 7. _____ |
| 8. C_2H_2 | 8. _____ |
| 9. $\text{C}_2\text{H}_4\text{O}_2$ | 9. _____ |
| 10. $\text{Hg}_2(\text{NO}_3)_2$ | 10. _____ |

Write two molecular formulas that reduce to each of the given empirical formulas. Do not include the given empirical formulas as answers.

- | | |
|---------------------------------------|-----------|
| 11. HO | 11. _____ |
| 12. CS_2 | 12. _____ |
| 13. Na_3N | 13. _____ |
| 14. $\text{Al}_2(\text{SO}_4)_3$ | 14. _____ |
| 15. CH_2O | 15. _____ |
| 16. $\text{Cr}(\text{CN})_3$ | 16. _____ |
| 17. CsCl | 17. _____ |
| 18. UF_6 | 18. _____ |
| 19. $\text{K}_2\text{Cr}_2\text{O}_7$ | 19. _____ |
| 20. KMnO_4 | 20. _____ |

Name: _____
Hour: _____ Date: _____

Chemistry: *Errors in Chemical Formulas and Nomenclature*

Each of the following formulas or chemical names contains an error. Correct each example. There may be more than one correct answer; you need only put one of them.

- | | |
|---------------------------------|-----------|
| 1. aluminum (III) iodide | 1. _____ |
| 2. Al_3O_2 | 2. _____ |
| 3. $(\text{NH}_4)_3\text{Cl}_2$ | 3. _____ |
| 4. lead (III) oxide | 4. _____ |
| 5. leadic oxide | 5. _____ |
| 6. stannous (II) bromide | 6. _____ |
| 7. monocalcium dioxide | 7. _____ |
| 8. sulfur fluoride | 8. _____ |
| 9. $(\text{OH})_3\text{Al}$ | 9. _____ |
| 10. $\text{Cr}_4(\text{CN})_3$ | 10. _____ |
| 11. $\text{Pb}(\text{NO}_3)_3$ | 11. _____ |
| 12. copper (I) chloric | 12. _____ |
| 13. ferric (III) oxide | 13. _____ |
| 14. NiNO_{32} | 14. _____ |
| 15. Mg_2F | 15. _____ |
| 16. ironic oxide | 16. _____ |
| 17. ClK | 17. _____ |
| 18. Ca_2O_2 | 18. _____ |
| 19. sodium (I) fluoride | 19. _____ |
| 20. dititanium tetroxide | 20. _____ |
| 21. dihydrogen oxide | 21. _____ |
| 22. magnesium dihydroxide | 22. _____ |
| 23. cuprous (I) sulfate | 23. _____ |
| 24. strontium difluoride | 24. _____ |
| 25. NO_3Na | 25. _____ |

Name: _____
Hour: _____ Date: _____

Chemistry: *Ionic Formulas (Binary, Polyatomic, Transition Metals)*

Write the formula for each of the following compounds.

- | | |
|---------------------------|-----------|
| 1. sodium hydroxide | 1. _____ |
| 2. mercury (II) sulfate | 2. _____ |
| 3. lead (II) phosphate | 3. _____ |
| 4. ammonium sulfide | 4. _____ |
| 5. aluminum chlorate | 5. _____ |
| 6. copper (I) carbonate | 6. _____ |
| 7. manganese (IV) oxide | 7. _____ |
| 8. manganese (II) sulfate | 8. _____ |
| 9. iron (III) oxide | 9. _____ |
| 10. magnesium nitrate | 10. _____ |
| 11. calcium sulfide | 11. _____ |
| 12. potassium oxide | 12. _____ |
| 13. magnesium chloride | 13. _____ |
| 14. chromium (III) oxide | 14. _____ |
| 15. gold (III) bromide | 15. _____ |
| 16. beryllium fluoride | 16. _____ |
| 17. yttrium (III) sulfide | 17. _____ |
| 18. rubidium oxide | 18. _____ |
| 19. aluminum nitrate | 19. _____ |
| 20. iron (II) phosphide | 20. _____ |
| 21. ferric nitrate | 21. _____ |
| 22. ferrous nitrate | 22. _____ |
| 23. plumbous chloride | 23. _____ |
| 24. stannic hydroxide | 24. _____ |
| 25. niobium (V) oxide | 25. _____ |

Name: _____
Hour: _____ Date: _____

Chemistry: *Names and Formulas of Compounds*

Write either the traditional or Stock System name for each of the following compounds.

- | | |
|-------------------------------|-----------|
| 1. Na_2S | 1. _____ |
| 2. NH_4Cl | 2. _____ |
| 3. CuF | 3. _____ |
| 4. CuF_2 | 4. _____ |
| 5. PbSO_4 | 5. _____ |
| 6. $\text{Hg}(\text{NO}_3)_2$ | 6. _____ |
| 7. Al_2O_3 | 7. _____ |
| 8. N_2O_4 | 8. _____ |
| 9. H_2S | 9. _____ |
| 10. HClO_2 | 10. _____ |

Write the chemical formula for each of the following compounds.

- | | |
|----------------------------|-----------|
| 11. nickel (II) chloride | 11. _____ |
| 12. cuprous nitrate | 12. _____ |
| 13. ammonium sulfate | 13. _____ |
| 14. magnesium nitride | 14. _____ |
| 15. mercury (I) sulfide | 15. _____ |
| 16. carbon monoxide | 16. _____ |
| 17. iron (II) oxide | 17. _____ |
| 18. diphosphorus pentoxide | 18. _____ |
| 19. hydrogen sulfate | 19. _____ |
| 20. sulfur dioxide | 20. _____ |