

1. Metals tend to \_\_\_\_\_ electrons and become \_\_\_\_\_ charged ions.
  2. Nonmetals tend to \_\_\_\_\_ electrons and become \_\_\_\_\_ charged ions.
  3. What is the typical charge (oxidation number) for the following families:
    - a. Alkali metals (Group 1)
    - b. Alkaline earth metals (Group II)
    - c. Halogens (Group 17)
    - d. Noble gases (group 18)
  4. \_\_\_\_\_ bonds form when ions are held together by electrostatic forces (opposites attract). Characteristics: High melting point, solid, conduct electricity if melted or aqueous, many are soluble in water.
  5. Which of the following pairs of families form ionic bonds: Group 1 and 3, Group 2 and 17.
  6. The oxidation numbers (charges) in a compound always add up to \_\_\_\_\_.
  7. Why are prefixes used in naming covalent compounds but not ionic compounds?
  8. Why are some compounds named with Roman numerals?
- $\text{Ga}^{3+}$     $\text{S}^{2-}$
9. According to this information, what is the chemical formula for gallium sulfide?
  10. Barium ( $\text{Ba}^{2+}$ ) + Bromide ( $\text{Br}^-$ )  $\rightarrow$  Barium bromide. The chemical formula for barium bromide is \_\_\_\_\_.

Name the following compounds.

- |                             |                                  |
|-----------------------------|----------------------------------|
| 11. $\text{NH}_4\text{Cl}$  | 12. $\text{Sr}_3(\text{PO}_4)_2$ |
| 13. $\text{BaO}$            | 14. $\text{CdSO}_3$              |
| 15. $\text{Fe}_2\text{O}_3$ | 16. $\text{Sn}(\text{NO}_3)_2$   |
| 17. $\text{Na}_3\text{N}$   | 18. $\text{Pb}(\text{ClO}_4)_4$  |

Write the formula for the following compounds

- |  |   |
|--|---|
| 19. $\text{Ca}^{2+}$ and $\text{P}^{3-}$ | 20. $\text{Fe}^{2+}$ and $\text{PO}_4^{3-}$ |
| 21. $\text{Al}^{3+}$ and $\text{O}^{2-}$ |   |

Write the formula for the following compounds

- |                         |                      |
|-------------------------|----------------------|
| 22. lead (IV) iodide    | 23. Tin (II) sulfate |
| 24. potassium phosphite | 25. aluminum sulfide |

26. \_\_\_\_\_ bonds are formed when atoms gain or lose electrons.

27. Name the diatomic elements:

28. What is the formula for hydrochloric acid?

29. What is the name of the compound  $\text{H}_2\text{SO}_4$  ?

Name each of these compounds:

30.  $\text{N}_2\text{O}_4$

32.  $\text{AsCl}_3$

31.  $\text{P}_5\text{O}_7$

33.  $\text{SI}_6$

34. What is the charge of tin in  $\text{SnF}_4$ ?

35. What is the difference between Co and CO when written in a formula?

36. Why is it necessary to use parentheses in writing the formula for calcium nitrate?

37. What are cations and anions?

38. What holds metallic bonds together?

39. Name three characteristics of ionic compounds?

40. Name three characteristics of covalent (molecular) compounds.