Here is a review of the rules on how to name different compounds:

**Ionic Compounds:**
- Made of a Metal and a Non-metal
- Naming: name 1st element then 2nd element(ide). If a polyatomic ion is involved, do not change the endings. Remember to check for those names that need roman numbers (most group B elements)
- Formula Writing: Find charges. Add multiples of ions such that the net charge of the compound equals zero.

**Molecular Compounds:**
- Made of a Non-metal and a Non-metal.
- Naming: prefix (except mono) 1st element then prefix 2nd element(ide).
- Formula Writing: Look at the prefixes to find the subscript that goes after each element. There are no charges in molecular compounds.

**Acid Compounds:**
- Start with Hydrogen
- Naming:
  - If the anion ends in ide: hydro____________ic acid
  - If the anion ends in ate: ___________ous acid
  - If the anion ends in ate: ___________ic acid
- Formula Writing: Just like ionic compounds

Give the name of the following compounds:

1. Ca(OH)\(_2\) - Calcium Hydroxide
2. Ag\(_3\)PO\(_4\) - Silver Phosphate
3. AgSCN - Silver Thiocyanate
4. Mg(C\(_2\)H\(_3\)O\(_2\))\(_2\) - Magnesium Acetate
5. (NH\(_4\))\(_2\)SO\(_4\) - Ammonium Sulfate
6. P\(_2\)O\(_3\) - Diphosphorus Trioxides
7. PCl\(_3\) - Phosphorus Trichloride
8. NH\(_3\) - Nitrogen Trihydride
9. ZnS - Zinc Sulfide
10. Cd(CN)\(_2\) - Cadmium Cyanide
11. N\(_2\)O\(_4\) - Dinitrogen Tetroxide
12. S\(_2\)F\(_10\) - Difluoride Decafluoride
13. CuSO\(_3\) - Copper (II) Sulfite
14. CuI - Copper (I) Iodide
15. SnF\(_2\) - Tin (II) Fluoride
16. KNO\(_2\) - Potassium Nitrite
17. Fe(NO\(_3\))\(_3\) - Iron (III) Nitrate
18. FeC\(_2\)O\(_4\) - Iron (II) Oxalate
19. HgCl - Mercury (II) Chloride
20. MnCO\(_3\) - Manganese (II) Carbonate
21. FeCl\(_2\) - Iron (II) Chloride
22. SiS\(_2\) - Silicon Disulfide
23. NO\(_2\) - Nitrogen Dioxide
24. Mn(OH)\(_3\) - Manganese (III) Hydroxide
25. Ni(ClO\(_3\))\(_2\) - Nickel (II) Hypochlorite
26. HNO\(_2\) - Nitrous Acid

Write the Formulas for the following Compounds:

27. Aluminum Bromate - \(\text{Al}(\text{BrO}_3)\)_\(_2\)
28. Mercury (I) Phosphate - \(\text{Hg}_2\text{PO}_4\)
29. Bismuth (III) Oxide - \(\text{Bi}_2\text{O}_3\)
30. Strontium Bicarbonate - \(\text{Sr(\text{HCO}_3)}\)_\(_2\)
31. Gold (I) Iodide - \(\text{AuI}\)
32. Dinitrogen Trioxide - \(\text{N}_2\text{O}_3\)
33. Iodine Pentoxide - \(\text{I}_2\text{O}_5\)
34. Bromic Acid - \(\text{HBrO}_3\)
35. Hydrofluoric Acid - \(\text{HF}\)
36. Sulfurous Acid - \(\text{H}_2\text{SO}_3\)
37. Sodium Chloride - \(\text{NaCl}\)
38. Perchloric Acid - \(\text{HClO}_4\)
39. Lead (IV) Selenide - \(\text{PbSe}_2\)
40. Titanium (II) Nitrite - \(\text{Ti(NO}_2)\)_\(_2\)
19. Identify two differences between the names or formulas for ionic compounds versus those for binary molecular compounds. Also identify two similarities.

<table>
<thead>
<tr>
<th>Names and Formulas of Ionic Compounds</th>
<th>Names and Formula of Molecular (Covalent) Compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differences</td>
<td></td>
</tr>
<tr>
<td>made of ( m + nm )</td>
<td>made of ( nm + nm )</td>
</tr>
<tr>
<td>use charges to balance</td>
<td>no charges</td>
</tr>
<tr>
<td>Similarities</td>
<td></td>
</tr>
<tr>
<td>2nd element ends in -ide</td>
<td></td>
</tr>
</tbody>
</table>

20. In the table below, first identify the type of bonding present in each compound. Then fill in the missing name or formula for each compound using the appropriate set of rules.

<table>
<thead>
<tr>
<th>Chemical Formula</th>
<th>Type of Compound/Bonding</th>
<th>Compound Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS₂</td>
<td>molecular/covalent</td>
<td>Carbon disulfide</td>
</tr>
<tr>
<td>PbI₂</td>
<td>ionic/ionic</td>
<td>Lead(II) iodide</td>
</tr>
<tr>
<td>BaCl₂</td>
<td>ionic/ionic</td>
<td>Barium chloride</td>
</tr>
<tr>
<td>Se₂S₆</td>
<td>molecular/covalent</td>
<td>Diselenium hexasulfide</td>
</tr>
<tr>
<td>XeF₄</td>
<td>molecular/covalent</td>
<td>Xenon tetrafluoride</td>
</tr>
<tr>
<td>Na₃P</td>
<td>ionic/ionic</td>
<td>Sodium phosphide</td>
</tr>
<tr>
<td>N₂O₅</td>
<td>molecular/covalent</td>
<td>Dinitrogen pentoxide</td>
</tr>
<tr>
<td>CoBr₃</td>
<td>ionic/ionic</td>
<td>Cobalt(III) bromide</td>
</tr>
</tbody>
</table>