

Nomenclature Worksheet #6

Naming of Acids- Acids are compounds which produce H^+ ions when they are dissolved in water. H^+ ion concentrations are the basis for the pH scale. How do you recognize acids? They will usually begin with one or more H's in their formulas.

HCl- Hydrochloric acid

 H_2SO_4 - Sulfuric acid H_3PO_4 - Phosphoric acid

Acids are not that hard to name, however, you MUST know the polyatomic ions from memory!

1. Make sure the formula does not contain a metal.
2. Make sure the formula begins with one or more hydrogen atoms.
3. Does the formula contain any oxygens?
4. If yes, then it is an oxyacid. Name this way:

What is the polyatomic ion present, i.e. when the H's are removed?

If the name of the polyatomic ion ends in **-ite**, then the acid will end in **-ous acid**

If the name of the polyatomic ion ends in **-ate**, then the acid will end in **-ic acid**.

Examples:	<u>Acid Formula</u>	<u>Polyatomic anion</u>	<u>Name</u>
	HNO_2	NO_2^{-1} (<u>nitrite</u>)	<u>Nitrous acid</u>
	HNO_3	NO_3^{-1} (<u>nitrate</u>)	<u>Nitric acid</u>

5. If no, it is a binary acid. Name it this way:

Use the prefix "hydro-" and add it to the root word of the anion plus "-ic acid"

Examples:	<u>Acid Formula</u>	<u>Monatomic anion</u>	<u>Name</u>
	HBr	Br^{-1} (bromide ion)	Hydrobromic acid
	H_2S	S^{-2} (sulfide ion)	Hydrosulfuric acid

Name the following compounds:

1. H_2SO_3 sulfurous acid
2. H_2SO_4 sulfuric acid
3. HI hydroiodic acid
4. H_2CO_3 carbonic acid

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| 5. $\text{HC}_2\text{H}_3\text{O}_2$ | <u>acetic acid</u> |
| 6. HClO_4 | <u>perchloric acid</u> |
| 7. HF | <u>hydrofluoric acid</u> |
| 8. $\text{H}_2\text{C}_2\text{O}_4$ | <u>oxalic acid</u> |
| 9. HCN | <u>hydrocyanic acid</u> aka. 'hydrogen cyanide' |
| 10. HClO | <u>hypochlorous acid</u> |
| 11. H_3PO_3 | <u>phosphorous acid</u> |
| 12. HClO_4 | <u>perchloric acid (again!)</u> |
| 13. HCl | <u>hydrochloric acid</u> |
| 14. HNO_3 | <u>nitric acid</u> |

Write formulas for the following acids, which are considered strong acids:

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| 15. hydrochloric acid | <u>HCl</u> |
| 16. hydrobromic acid | <u>HBr</u> |
| 17. hydroiodic acid | <u>HI</u> |
| 18. sulfuric acid | <u>H_2SO_4</u> |
| 19. nitric acid | <u>HNO_3</u> |
| 20. perchloric acid | <u>HClO_4</u> |

} memorize these!!

"Strong acids" – means that these acids completely dissociate when dissolved in water. You will learn more about this in the unit about acids and bases. If an acid is not a strong acid, then it is a "weak acid". There are many more of these, too many to list. **YOU MUST KNOW THE NAMES AND FORMULAS OF THE STRONG ACIDS LISTED ABOVE!**