**Notes: Acids and Bases** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: compounds that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when they’re dissolved in water.

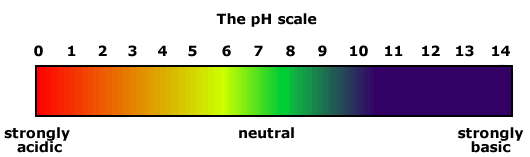
* Examples from investigation:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: compounds that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when they’re dissolved in water.

* Examples from investigation:

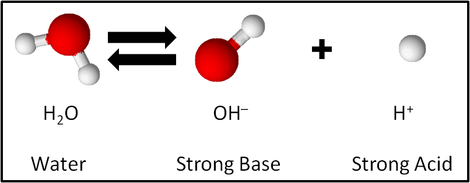
**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:** compounds that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ when they’re dissolved in water.

* Examples from investigation:
* Water already has some H+ ions to start with, which is why neutral solutions have “some” H+ ions in them



**Dissociation of Water**

* Pure water is in a state of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_with its ions:



* It’s mostly H2O, with 10-7 M H+ and 10-7 M OH-

You dissolve the following compounds in water. Write the dissociation reaction that occurs and identify if the compound is an acid or base:

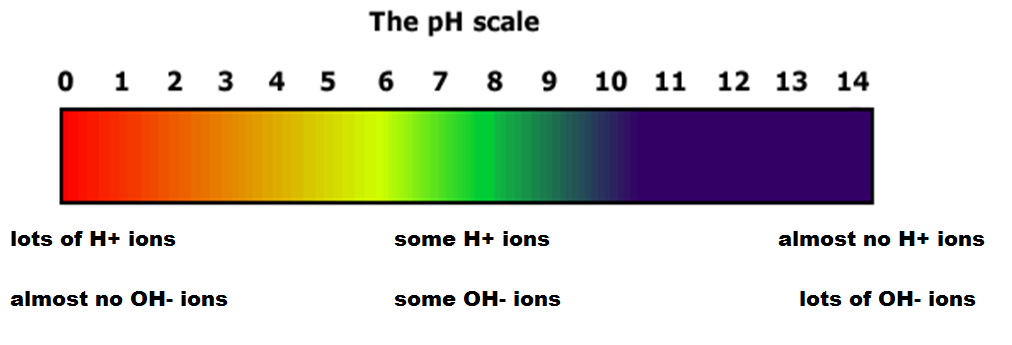
1. HF
2. KOH
3. Mg(OH)2
4. H2SO4

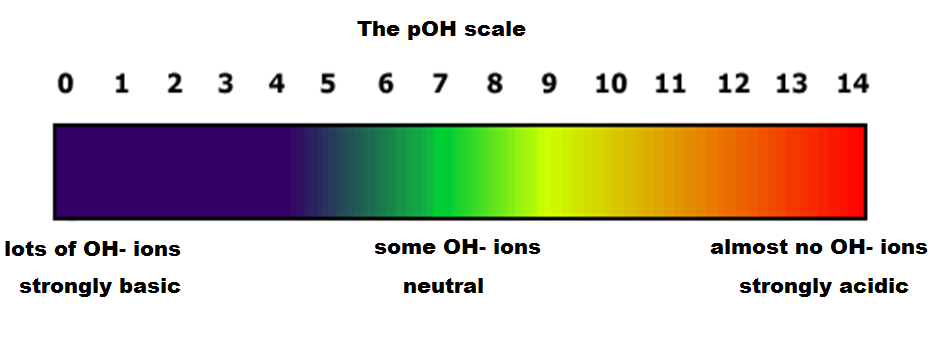
**pH Scale**

* pH =
* In water, the concentration of H+ ions is 10-7 M. What is the pH of water?

Every solution has H+ and OH- ions in it

* Acidic solutions =
* Basic solutions =
* [H+] and [OH-] have an **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** 
  + [H+] x [OH-] =



**pOH Scale**

pOH =

[H+] x [OH-] =

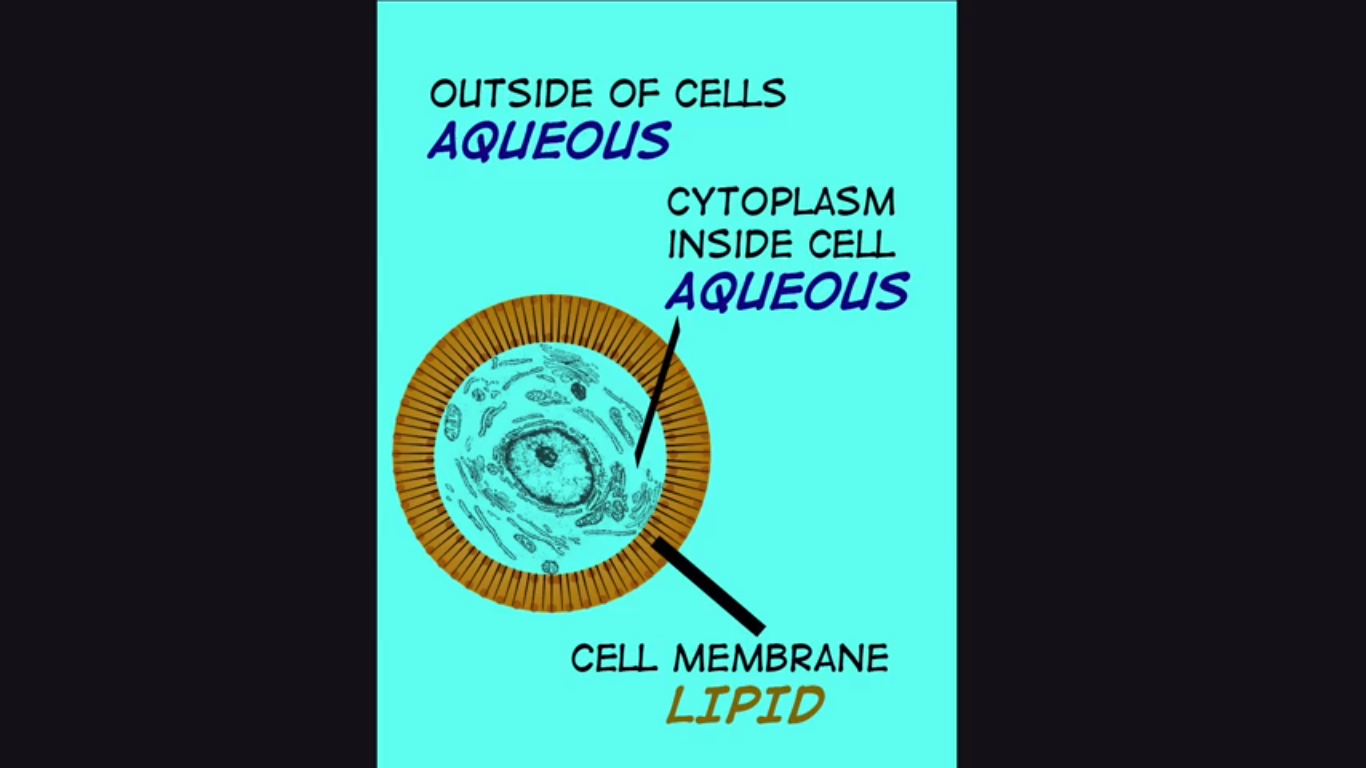
pH + pOH =

If [OH-] = 10-3 M, what is the pOH? What is the pH?

**Practice:**

1. [H+] = 10-4 M. What is the pH? What is the pOH?
2. [OH-] = 10-2 M. What is the pOH? What is the pH?
3. [H+] = 3.5 x 10-7 M. What is the pH? What is the pOH?
4. Challenge: the pH of a solution is 3. What is the concentration of H+ ions?

**Strength of an acid:**

* Strong acids/bases:
  + HCl
  + NaOH
* Weak acids/bases:
  + RCOOH
  + NH3
* Most drugs (medicine or recreational) are **weak acids or bases**
  + The ability of weak acids/bases to go back and forth between charged and uncharged forms allows it to move throughout our bodies!
* In aqueous environments, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_molecules are more easily dissolved.
* It’s easier for a molecule to pass through the lipid membranes of our cells if it is **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**