HONORS CHEMISTRY: NEUTRALIZATION REACTIONS DATE:_____

Learning Activities: **SWBAT. . .**

…review dilution work.

…incorporate acids and bases into solution stoichiometry.

NEUTRALIZATION REACTIONS

Strong acids complete dissociate in water. *Ex)*

Strong bases also completely dissociate in water. *Ex)*

If a strong acid is mixed with a strong base, the net ionic equation will be:

When enough acid or base is added to react completely with the other, the solution is said to be…

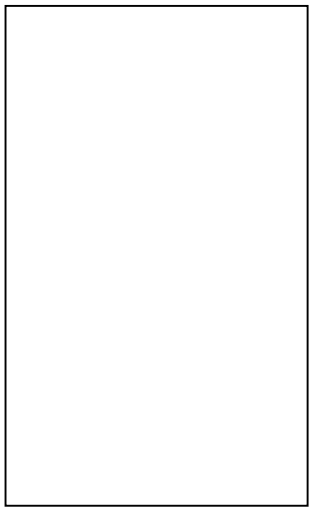
Try this... How many milliliters of .555 M NaOH(aq) are needed to neutralize 9.51 mL of 2.00 M HCl?

TITRATIONS: An analytical method used to determine the concentration of an unknown sample.

- You react the unknown solution with a solution of known concentration
- The data gained can be used to calculate _____.
- Uses an **indicator** to let you know when the **equivalence point** has been reached.
- **Indicator:**
- **Equivalence point:**

FOR EXAMPLE… TITRATING A STRONG ACID WITH A STRONG BASE:

- At the beginning there is an overwhelming amount of acid ∴
- As you add base, some neutralization occurs, but…
- Even when there is only a little acid left…
- At the equivalence point there's just enough base to…
- Add a little more base and…
- Around the equivalence point…
- We use an indicator that changes color around…
- ex) Phenolphthalein:
- Different equivalence points call for…



WHY IS THE EQUIVALENCE POINT SO IMPORTANT?

- At that point, we know that_____ equal_____ .
- We can then solve for the concentration of the unknown using a familiar equation:

$$M_aV_a = M_bV_b$$

Where M_a = V_a =

M_b = V_b =

- Note, this equation can be tweaked to handle polyprotic acids. (Can you figure out how?)

Try this… Use the equation about to determine how many milliliters of .555 M NaOH(aq) are needed to neutralize 9.51 mL of 2.00 M HCl?

"You've got to do your own growing, no matter how tall your grandfather was." Irish Proverb