HOW TO CALCULATE CHEMICALS NEEDED TO ADJUST POOL CHEMISTRY

You will need the dosage information for the chemical, i.e. the standard amount of a chemical needed to adjust a standard amount of water. This information is on the product label, or in the test kit guidebooks.   The information is usually listed, for example, as "2 oz per 10,000 gallons of water to raise pH 1 ppm." This amount needs to be converted (or calculated) to be specific for YOUR pool.

Except when doing breakpoint chlorination, chemical additions should be broken down into smaller amounts. The calculated amounts are approximate, and you will want to "sneak up" on the water chemistry value you are trying to reach. Add 1/3 of the amount calculated, allow to mix, retest, then add another 1/3, and so on.   Better to work up to the right reading than to over-shoot the mark and have to adjust AGAIN back down.

You want to calculate how much chemical added to the volume of water in you pool will change the chemical value the desired amount.

NEEDED INFORMATION ABOUT YOUR POOL:

POOL VOLUME = amount of water in your pool
DESIRED CHANGE = amount of change that needs to take place in your pool

CHEMICAL DOSAGE INFORMATION: (Taken from the chemical label or a table.)

AMOUNT OF CHEMICAL = amount of chemical added to a:
GIVEN WATER VOLUME produces a;
GIVEN CHEMICAL CHANGE to the pool chemical parameters

So read the above 3 items as: 1.5 pounds of sodium bicarbonate (AMOUNT OF CHEMICAL) per 10,000 gallons (GIVEN WATER VOLUME) increase the Total Alkalinity 10 ppm (GIVEN CHEMICAL CHANGE).

THE FORMULA (Terms are defined above):

POOL FACTOR = POOL VOLUME ÷ GIVEN WATER VOLUME

CHANGE FACTOR = DESIRED CHANGE ÷ GIVEN CHEMICAL CHANGE

CHEMICAL DOSAGE FOR YOUR POOL =
POOL FACTOR x CHANGE FACTOR x AMOUNT OF CHEMICAL

Chemical Dosage =   [14,000 gal ÷ 10,000 gal] x [20ppm ÷ 10ppm] x 1.5 lbs. Sod. Bicarb.

Chemical Dosage = 1.4 (Pool Factor) x 2 (Change Factor) x 1.5 lbs

=   4.2 lbs of sodium bicarbonate is needed in a 14,000 gal. pool to raise the Total Alkalinity 20 ppm.