>> pH equals 5.85; calculate the hydroxide ion concentration. What you see on the board here are two different ways to solve this problem. This is– this is one way and this a second way. I wanted to show both ways so that you could choose which way you prefer to go. With this way– well, with this way what we're going to do first off is we're going to take the 5.85 and use what you know about how to convert from pH back to hydronium ion concentration using your calculator. You can get the hydronium ion concentration of 1.4 times 10 to the negative 6. Now, knowing this equation here you now know you can put this value here in here, you can use your 1.0 times 10 to the negative 14 for Kw; you'll be able to solve for the hydroxide ion concentration. So, it's just a matter of rearranging the equation so that hydroxide is by itself, and then putting in those numbers and doing the calculation you get hydroxide ion concentration equals 7.1 times 10 to the negative 9 molar. Okay, this is one way you can do it, and if you're comfortable using scientific notation on your calculator this is a good way to do it. This is the second way to do it. You don't have to worry about using scientific notation. This way we're using the fact that pH plus pOH equals 14. And we know pH already is 5.85, so when we rearrange this equation we can get pOH isolated and that equals 14 minus the pH. Now we bring in that 5.85 here, we do the subtraction and we get a pOH value of 8.15. Now what we're doing here is the same thing that we did here, it's just a matter of using 8.15 with our method to get, on the calculator, the concentration and plugging this in, solving on the– on the calculator you get the same value for both ways. And it seems like both of these ways are different from each other and yet they're the same– they're the same problem. What you have here is a relationship between concentrations and here you actually have a relationship between the negative log of the concentration. Where we see 10 to the minus 14 here, if you take the negative log of this number that's where we come up with the 14. The negative log of this number, that's where we come up with this, okay. And so, we're actually doing the same thing, but here we're just using our scientific notation, here we're using negative log of each one of these values in the form of pH and pOH.