

>> If the pH is 8.0 what is the hydronium ion concentration? Now we're going to be working backwards. We're starting with knowing the pH, wanting to know what is the concentration of H_3O^+ . If you look at what we're given, we're given 8.0. Now if you recall, when you had a hydronium ion concentration that started with a coefficient of 1. That one told us that the pH would always have zeroes in the decimal place. And so the fact that this pH has nothing but zero in its decimal place tells us that the hydronium ion concentration is going to have a coefficient of 1. Okay? So zero in the decimal place indicates a coefficient of 1. Now look at how many decimal places we have. We only have one decimal place. The number of decimal places corresponds to the number of digits in the coefficient. And so again, there's only going to be one digit in the coefficient. So now we know the coefficient of the concentration is going to be simply 1. Okay. Go back and look now. Here 8 because this is going to be the simple way of working this, we can then take a look at this and say okay, that 8 represents the negative exponent in the concentration. Okay. So we would set that up as 10^{-8} to the negative 8. Here the 8 goes in as a negative exponent. Here that 0 indicates 1 is the coefficient. Put those two together and you have the hydronium ion concentration is 1 times 10^{-8} molar.