

More Acid/Base

This worksheet should help you identify how we can determine the pH of salt solutions in the laboratory. It is intended for you to work through it in order. (*Don't skip ahead.*)

Two salt solutions are made:

A: 4.68 g of NaBrO is added to 300.0 mL of pure H₂O

B: 2.94 g of NaClO is added to 300.0 mL of pure H₂O

What are the molarities of the two solutions?

Will the solutions be acidic or basic?

Identify each ion in the two salts.

Write out the chemical equation of each ion in water.

Based on these chemical equations, will the solutions be acidic or basic?

Based on your decision of acidic or basic, now compare the two solutions. Hypothesize which is stronger? Draw molecular structures to support your statements.

Consider that a K_b of 5.0×10^{-6} is associated with salt A, while a K_b of 3.4×10^{-7} is associated with salt B.

What is the pH of solution A?

What is the pH of solution B?

Do the two calculated pH values match your prediction of acidic or basic?

Do the two calculated pH values match your prediction of which salt was stronger?

Let's try a few more example! Using the problem-solving method from above determine the pH of the three solutions below...you will need to look up K_a/K_b information.

X. 2.43 g of NH_4Cl in 300.0 mL of pure water.

Y. 1.54 g of KCl in 300.0 mL of pure water.

Z. 4.01 g of NH_4HCO_2 in 300.0 mL of pure water.

