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pH of Strong Acids

1. 0.5M HBr

   a. Write the hydrolysis reaction and create an ISE table.

	HBr	+	H_2O		H_3O^+	+	Br^{-1}
I	0.5						
S	-0.5				+0.5		+0.5
E	0				0.5		0.5

   b. What is the concentration of H_3O^{+1} ions at the end?

0.5M H_3O^+

   c. What is the pH of the solution?

pH = -log[0.5] = 0.301

2. 0.1M HCl

   a. Write the hydrolysis reaction and create an ISE table.

	HCl	+	H_2O	$\longrightarrow$	H_3O^+	+	Cl^{-1}
I	0.1						
S	-0.1				+0.1		+0.1
E	0				0.1		0.1

   b. What is the concentration of H_3O^{+1} ions at the end?

0.1M

   c. What is the pH of the solution?

pH=1

3. 0.001M HX (strong acid)

   a. Write the hydrolysis reaction and create an ISE table.

$HX + H_2O \rightarrow H_3O^+ + X^-$

I	0.001						
S	-0.001				+0.001		+0.001
E					0.001		0.001

   b. What is the concentration of H_3O^{+1} ions at the end?

0.001 M

   c. What is the pH of the solution?

$pH = -\log[0.001] = 3$