



o Example

Calculate the [H 3 O +], [OH -], pH, and pOH for .1M HNO 3 Since HNO 3 is a strong acid, so all the hydrogen ions will be dissociated in water to form H 3 O +

> $\begin{bmatrix} 3 + \end{bmatrix} = .1$ = $-\log(\begin{bmatrix} 3 + \end{bmatrix}) = -\log(.1) = 1$ = - = 14 - 1 = 13 $\begin{bmatrix} - \end{bmatrix} = 10^{-1} = 10^{-13}$

Calculate the [H 3 O +], [OH -], pH, and pOH for .05M NaOH This works the same way, but NaOH is a strong base so we can find the concentration of OH - first and work backward to find the concentration of H 3 O +

$$\begin{bmatrix} - \end{bmatrix} = \begin{bmatrix} \\ \end{bmatrix} = .05$$
$$= -\log(\begin{bmatrix} - \end{bmatrix}) = -\log(.05) = 1.30$$
$$= 14 - = 14 - 1.3 = 12.70$$
$$\begin{bmatrix} 3 \\ \end{bmatrix} = 10^{-12.7} = 2 \quad 10^{-13}$$