Chemistry 146 Lecture Problems
Nitric Acid Equlibrium

1.00 g nitric acid added to 250 mL water.

$M := mole \cdot liter^{-1}$ $K_W := 1.0 \cdot 10^{-14} \cdot M^2$ $i := 0, 1 .. 1$

Calculate from the mass of acid used:

$mass_{acid} := 1.00 \cdot gm$

$MW_{acid} := (1.0079 + 14.007 + (3 \cdot 15.9994)) \cdot gm \cdot mole^{-1}$

$mole_{acid} := \frac{mass_{acid}}{MW_{acid}}$ $MW_{acid} = 63.013 \frac{1}{mol} \cdot gm$

$volume_{acid} := 250 \cdot mL$

$C_{acid} := \frac{mole_{acid}}{volume_{acid}}$

$C_{acid} = 0.0635 \cdot M$

The concentrations:

$C_{H3O} := C_{acid}$ $C_{H3O} = 0.063 \cdot M$

$pH := -\log\left(C_{acid} \cdot M^{-1}\right)$ $pH = 1.197$

$pOH := 14 - pH$ $pOH = 12.803$