Answer on Question #52491, Chemistry, Inorganic Chemistry

Question: a.) calculate the pH of a 0.025 Nitric acid solution

b.) calculate the pH of a 0.10 NaOH

c.) a solution prepared by dissolving 0.28 g of lime (CaO) in 1.00 L water to make limewater (Ca(OH)2)

Answer:

a) Nitric acid is fully ionized:

[H+]=0.025M

pH=-log0.025=1.6

b) [OH-]=0.1M

pOH=-log0.1=1

pH=14-1=13.

c) The number of moles of CaO=0.28/56=0.005moles

CaO + H20 = Ca(OH)2

The number of moles of Ca(OH)2 will be 0.005 moles.

1 moles of Ca(OH)2 will have 2 moles of OH- ions, so the number of moles of OH- = 2*0,005=0.01

The concentration of OH- will be 0.01M

pOH=-log0.01=2

pH=14-2=12.