neutralization reaction
acid + base → water + salt
HCl + NaOH → H₂O + NaCl

base
NaOH → Na⁺ + OH⁻  √
Ca(OH)₂ → Ca²⁺ + 2OH⁻  √

HCl → H⁺  H₂O⁺: kind of like H⁺, but is covalent with water
Cl⁻

NH₃ → NH₄⁺

AH
proton donor
pH is a measure of acidity
P.Kₐ = -log[H⁺]

• Strong acids dissociate completely in water
• Weak acids partially dissociate in water

Base
proton acceptor
pOH is a measure of basicity
P.K₉ = log[OH⁻]

H⁺ + OH⁻ → H₂O

HCl
H⁺ + Cl⁻

CH₃COOH
H⁺ + CH₃COO⁻

CH₃COOH

H₂O

Kₐₙ = [H⁺][OH⁻] = 10⁻¹⁴

pH = -log[H⁺]
pOH = -log[OH⁻]
pH + pOH = 14.00
-log[H⁺] - (-log[OH⁻]) = 14.00
-log[H⁺][OH⁻] = 14.00