Neutralization and Stoichiometry Worksheet

Scoring guide · one credit per question · review written work against each rubric

Neutralization and Stoichiometry

Question 1

Choice (2)

H_3O^+ and OH^- combine to form two H_2O molecules.

Question 2

The balanced ratio is 1 mol NaOH per mole HCl. The required amount is 0.0300 mol NaOH.

Question 3

Choice (3)

The coefficients give a 2:1 ratio of NaOH to H_2SO_4.

Question 4

The mole amounts depend on concentrations as well as volumes. The balanced reaction determines the needed ratio, which can differ from 1:1.

Comparing Two Acid Samples

Question 5

Choice (2)

Convert 50.0 mL to 0.0500 L. Multiply by 0.100 mol/L to obtain 0.00500 mol.

Question 6

Q contains (0.100 mol/L)(0.0500 L) = 0.00500 mol H_2SO_4. Multiply by 2 to obtain 0.0100 mol NaOH. Divide by 0.200 mol/L to get 0.0500 L, or 50.0 mL.

Question 7

Choice (3)

The samples contain equal acid mole amounts. Each mole of H_2SO_4 requires two moles of NaOH, while each mole of HCl requires one.

Question 8

25.0 mL gives 0.00500 mol NaOH. That matches the 0.00500 mol needed for P. Q requires 0.0100 mol, so Q still has excess acid.