

Solutions

Each answer shows the steps, then the **result**.

2.1

- $0.200 \times 0.0300 = 0.00600 \text{ mol}$

2.2

- 0.0030 mol

2.3

- The point where the titrant has exactly reacted with the unknown (per the mole ratio)

3.1 B

- the acid and base have exactly reacted in the stoichiometric ratio

3.2

(a)

- $0.150 \times 0.0180 = 0.00270 \text{ mol}$

(b)

- moles HCl = 0.00270; $[\text{HCl}] = \frac{0.00270}{0.0250} = 0.108 \text{ M}$

3.3

- moles NaOH = $0.200 \times 0.0250 = 0.00500$; moles $\text{H}_2\text{SO}_4 = 0.00500 \div 2 = 0.00250$;
 $[\text{H}_2\text{SO}_4] = \frac{0.00250}{0.0200} = 0.125 \text{ M}$