Answer on Question #42320, Chemistry, Other

Task:
What quantity of 0.25 M HNO_3 can be neutralized by 0.10 liters of 0.50 M NaOH?

Answer:
$HNO_3 + NaOH = NaNO_3 + H_2O$

$$Ñ_M = \frac{\nu}{V} \qquad V = \frac{\nu}{Ñ_M} \qquad \nu = Ñ_M \cdot V$$

where C_M – molarity of a solution, M;
ν – amount of moles of a substance, moles;
V – volume of a solution, l.
According to the equation, the amount of HNO_3 moles is equal to the amount of NaOH moles. That is why:
$C_M(HNO_3) \cdot V(HNO_3) = C_M(NaOH) \cdot V(NaOH)$

$$V(HNO_3) = \frac{C_M(NaOH) \cdot V(NaOH)}{C_M(HNO_3)}$$

$$V(HNO_3) = \frac{0.10 \cdot 0.50}{0.25} = 0.20 \text{ l}$$