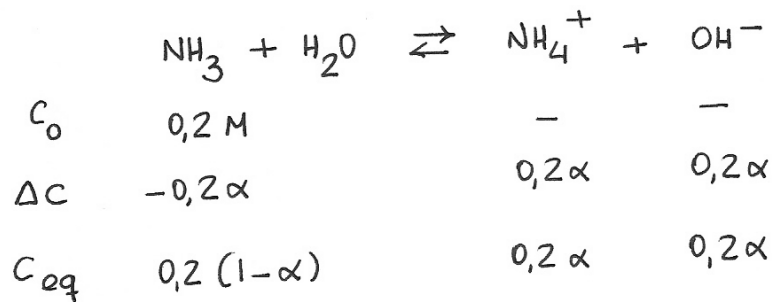




② Amoniakaren disoziazio-taula:



Basearen konstantea erabiliz:

$$K_b = \frac{[\text{NH}_4^+][\text{OH}^-]}{[\text{NH}_3]} \rightarrow 1,8 \times 10^{-5} = 0,2 \frac{\alpha^2}{1-\alpha}$$

Hurbilketa hau frogatuko dugu:  $1-\alpha \approx 1$

$$\alpha = \sqrt{\frac{1,8 \times 10^{-5}}{0,2}} = 9,5 \times 10^{-3} \quad \text{Hurbilketa egokia da}$$

Disoziazio-gradua:

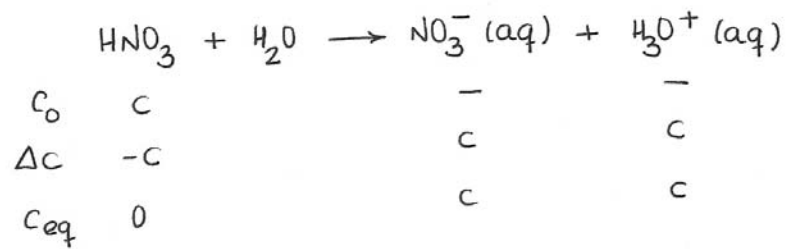
$$\alpha (\%) = 9,5 \times 10^{-3} \times 100 = \boxed{\% 0,95}$$

pH-a:

$$[\text{OH}^-] = 0,2 \alpha = 1,9 \times 10^{-3} \text{ M} \rightarrow \text{pOH} = 2,72$$

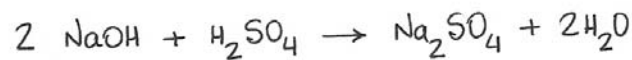
$$\text{pH} = 14 - \text{pOH} = \boxed{11,28}$$

③  $\text{HNO}_3$  azido sendoa denez guztiz disoziatuko da



$$c = [\text{H}_3\text{O}^+] = 10^{-2,15} \longrightarrow \boxed{c = 7,08 \times 10^{-3} \text{ M}}$$

④ Neutralizazioaren ekuazioa



Baloratzeko erabili den azidoaren mol-kopurua:

$$n(\text{H}_2\text{SO}_4) = 0,024 \text{ L} \times 0,1 \frac{\text{mol H}_2\text{SO}_4}{\text{L}} = 2,4 \times 10^{-3} \text{ mol H}_2\text{SO}_4$$

Baloratutako basearen mol-kopurua:

$$n(\text{NaOH}) = 2,4 \times 10^{-3} \text{ mol H}_2\text{SO}_4 \times \frac{2 \text{ mol NaOH}}{1 \text{ mol H}_2\text{SO}_4} = 4,8 \times 10^{-3} \text{ mol NaOH}$$

Basearen molaritatea:

$$[\text{NaOH}] = \frac{4,8 \times 10^{-3} \text{ mol NaOH}}{0,04 \text{ L}} = \boxed{0,12 \text{ M}}$$

⑤ Neutralizazioaren ekuazioa:



Erabili den azidoaren mol-kopurua:

$$n(\text{H}_2\text{SO}_4) = 0,245 \frac{\text{mol H}_2\text{SO}_4}{\text{L}} \times 0,02 \text{ L} = 4,9 \times 10^{-3} \text{ mol H}_2\text{SO}_4$$

Behar den basearen mol-kopurua:

$$n(\text{KOH}) = 4,9 \times 10^{-3} \text{ mol H}_2\text{SO}_4 \times \frac{2 \text{ mol KOH}}{1 \text{ mol H}_2\text{SO}_4} = 9,8 \times 10^{-3} \text{ mol KOH}$$

Behar den basearen bolumena:

$$V(\text{KOH}) = \frac{1 \text{ L dis}}{0,61 \text{ mol KOH}} \times 9,8 \times 10^{-3} \text{ mol KOH} \times \frac{1000 \text{ mL}}{1 \text{ L}}$$

$$V(\text{KOH}) = 16 \text{ mL}$$