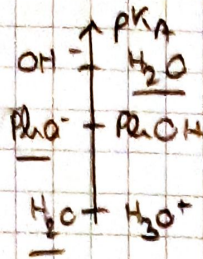


Donc  $pH = 3,4$

② e.i.



meilleure acide, meilleure base:  $H_2O, PhO^-$



e.i. /  $10^{-1}$       /  $10^{-2,5}$  /  $10^{-2,5}$   
 e.b. /  $10^{-1}$

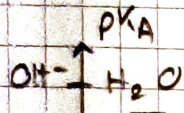
$$K = \frac{[OH^-][PhOH][H_3O^+]}{[PhO^-][H_2O]} = \frac{K_a}{K_a} = \frac{10^{-14}}{10^{-10}} = 10^{-4} = \frac{x^2}{(10^{-1} - x)}$$

on suppose  $x \ll 10^{-1} \rightarrow x^2 = 10^{-5}$  donc  $x = 10^{-2,5} < 10^{-2}$   
 donc hypothèse ok

Donc:  $pH = 14 - pOH = 14 - 2,5 = 11,5$

### Application 10:

e.i.



meilleure acide, meilleure base:  $CH_3COOH, CH_3COO^-$



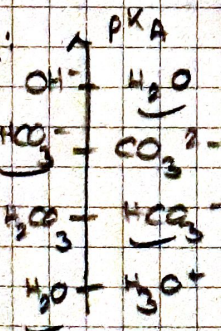
$K = 1$  donc la réaction ne modifie pas le bilan

$$K_a = \frac{[CH_3COO^-][H_3O^+]}{[CH_3COOH]} \rightarrow [H_3O^+] = 10^{-4,8} \times \frac{0,06}{0,08}$$

Donc:  $pH = -\log [H_3O^+] = 5,1$

### Application 11:

e.i.



meilleure acide, meilleure base:  $HCO_3^-$



e.i.  $2,0 \times 10^{-3}$       /

e.b.  $1,3 \times 10^{-3}$       /

$x = 3,6 \times 10^{-4}$

$$K = \frac{[CO_3^{2-}][H_2CO_3][H_3O^+]}{[HCO_3^-]^2[H_2O]} = \frac{10^{-10,3}}{10^{-6,3}} = 10^{-4} = \frac{x^2}{(2 \times 10^{-3} - x)^2}$$

donc  $x^2 = 4 \times 10^{-10} \rightarrow \sqrt{4} \times 10^{-5} = 2 \times 10^{-5}$  mais on a  $x = 3,6 \times 10^{-4}$  donc on prend  $x = 3,6 \times 10^{-4}$

$x^2 = 10^{-4} (2 \times 10^{-3} - 2x) \quad \Delta = 8,4 \times 10^{-7}$