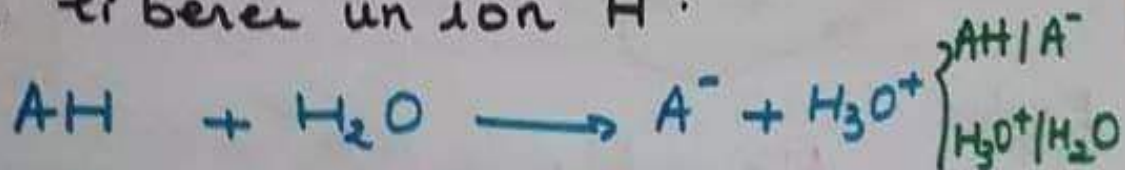
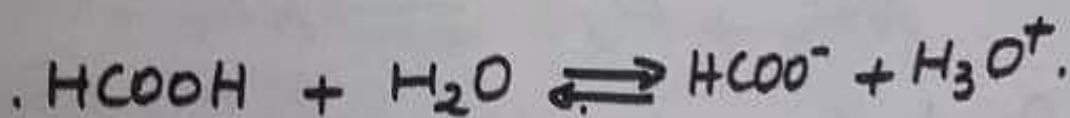
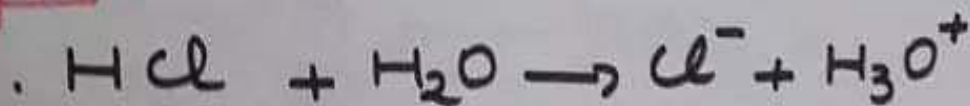


Les acides - Les bases.

Un acide: c'est une entité chimique électriquement neutre ou chargée capable de libérer un ion H^+ .



Exemples:



Constante d'acidité:

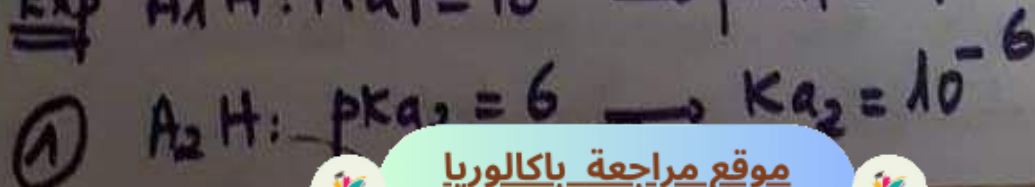
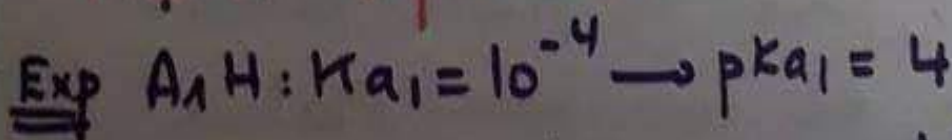


$$K_a = \frac{[A^-] \cdot [H_3O^+]}{[AH]}$$

$$pK_a = -\log K_a$$

$$K_a = 10^{-pK_a}$$

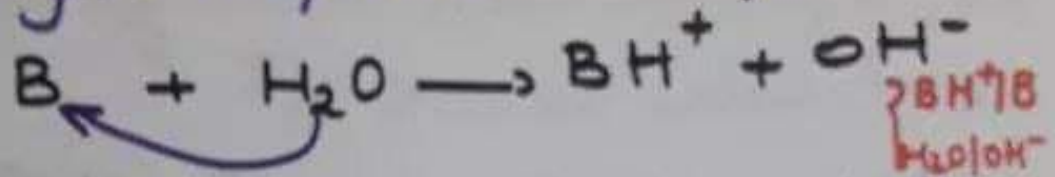
$K_a \uparrow$; $pK_a \downarrow$: acidité \uparrow .



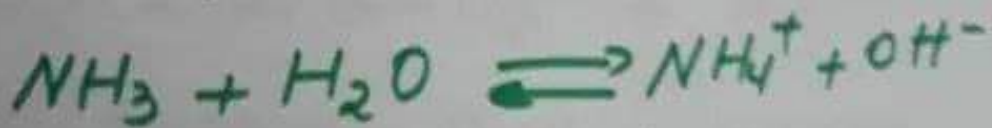
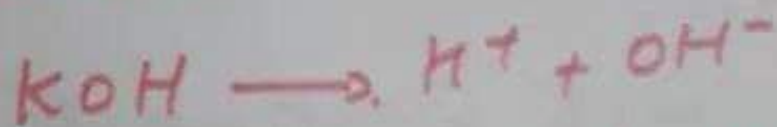
A_1H plus fort
 A_2H
 A_2^- plus fort
que



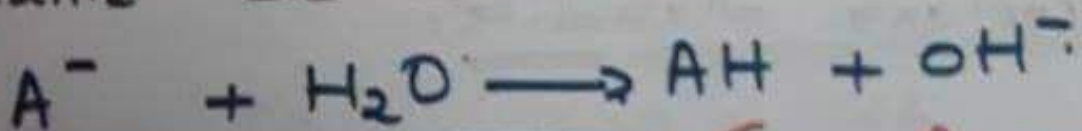
Une base: c'est une entité chimique électriquement neutre ou chargée capable de capturer un ion H^+



Exemples



Constante de basicité



$$K_b = \frac{[AH] \cdot [OH^-]}{[A^-]}$$

$$pK_b = -\log K_b$$

$$K_b = 10^{-pK_b}$$

$K_b \uparrow$; $pK_b \downarrow$: basicité \uparrow .

Rq H_2O joue le rôle d'un acide ou d'une base: c'est un ampholyte.



$$K_a \cdot K_b = \frac{[A^-] \cdot [H_3O^+]}{[AH]} \cdot \frac{[AH] \cdot [OH^-]}{[A^-]}$$

$$K_a \cdot K_b = [H_3O^+] \cdot [OH^-] = K_e = 10^{-14}$$

$$-\log(K_a \cdot K_b) = -\log K_e$$

$$-\log K_a - \log K_b = -\log K_e$$

$$pK_a + pK_b = pK_e = 14$$

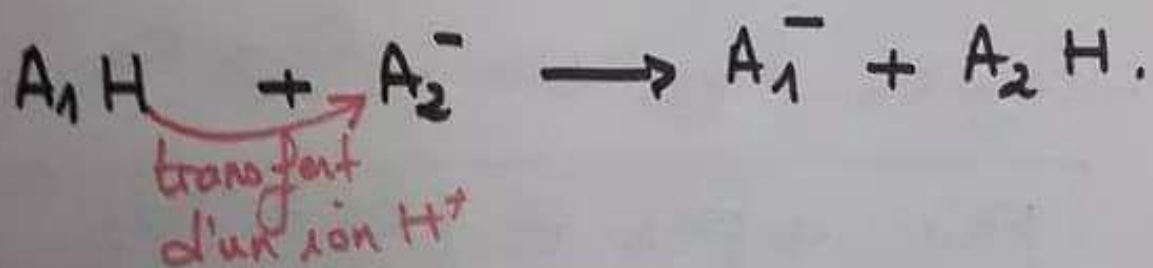
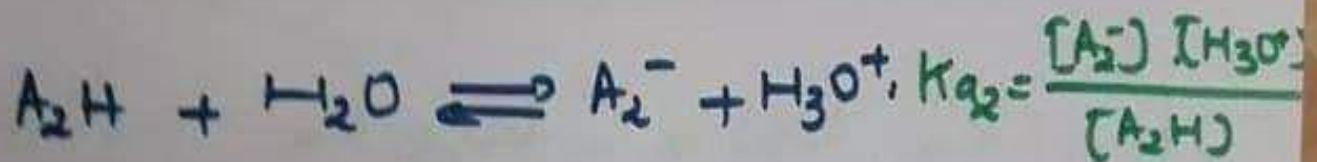
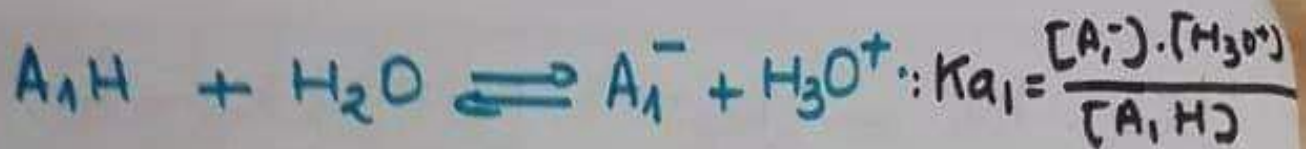
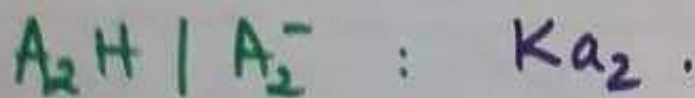
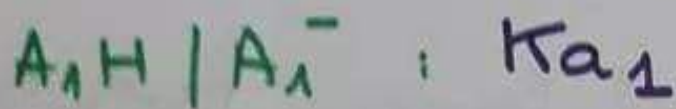
Exple . $K_a = 10^{-4}$

. $pK_a = 4$

. $pK_b = 10$

. $K_b = 10^{-10}$





$$K = \frac{[A_2H] \cdot [A_1^-] [H_3O^+]}{[H_3O^+] [A_2^-] \cdot [A_1H]} K_{a1}$$
$$\frac{1}{K_{a2}}$$

$$K = \frac{K_{a1}}{K_{a2}} = \frac{10^{-pK_{a1}}}{10^{-pK_{a2}}} = 10^{pK_{a2} - pK_{a1}}$$

$$= \frac{\frac{K_e}{K_{b1}}}{\frac{K_e}{K_{b2}}} = \frac{K_{b2}}{K_{b1}} = 10^{pK_{b1} - pK_{b2}}$$



$$A_1 H + A_2^- \longrightarrow A_1^- + A_2 H$$

$$K = \frac{[A_1^-] \cdot [A_2 H]}{[A_1 H] \cdot [A_2^-]}$$

Si $K > 1$: } $A_1 H$ plus fort que $A_2 H$

} A_2^- plus fort que A_1^-

Si $K < 1$ } $A_2 H$ plus fort que $A_1 H$

} A_1^- plus fort que A_2^-

dir. réaction de masse

$K < K$: sens direct

$K > K$: sens inverse



