$\frac{1}{At}$ = Kt + $\frac{1}{A\_{0}} $ …………………………….. (1)

t = t1/2 & At = $\frac{A\_{0}}{2}$

Substituting values in equation 1

$\frac{1}{A\_{0}/2}$ = $Kt\_{1/2}$ + $\frac{1}{A\_{0}}$

$\frac{2}{A\_{0}}$ = Kt1/2  + $\frac{1}{A\_{0}}$

Kt1/2 = $\frac{2}{A\_{0}}$ - $\frac{1}{A\_{0}}$

T1/2 = $\frac{1}{K}$[$\frac{1}{A\_{0}}]$

 = $\frac{1}{KA\_{0}}$