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(A)  ${}^1_1\text{H} \rightarrow {}^0_+1\text{e} + {}^1_0\text{n} \quad \checkmark$

(B)  ${}^1_0\text{n} \rightarrow {}^0_+1\text{e} + {}^1_1\text{H} \quad \times$

(C)  ${}^1_1\text{H} \rightarrow {}^0_+1\text{e} + {}^0_{-1}\text{e} \quad \times$

(D)  ${}^1_0\text{n} \rightarrow {}^0_+1\text{e} + {}^0_{-1}\text{e} \quad \times$

(E)  ${}^0_{-1}\text{e} \rightarrow {}^0_+1\text{p} + {}^1_1\text{H} \quad \times$

Apr 26-8:24 AM

(EC) 5.55 dpm ~~100g~~ rain water  $A_0$

$K = \frac{0.693}{12.3} = 0.0563$   $t_{1/2} = 12.3 \text{ yr}$   $t = 50 \text{ yr}$

\_\_\_\_\_ dpm ~~100g~~ 50% wine  $A_t$

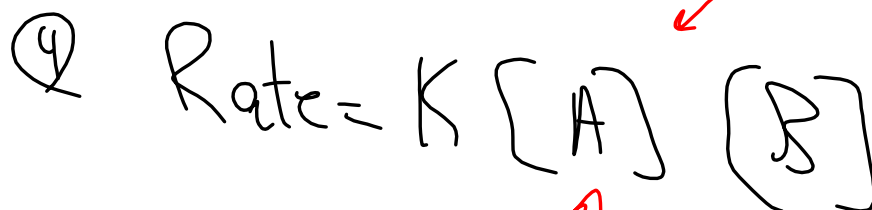
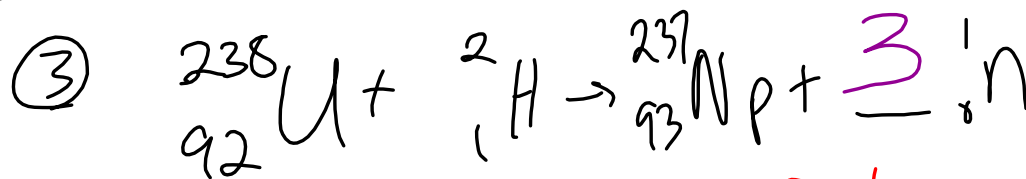
$\ln A_t = -Kt + \ln A_0$

$\ln A_t = -(0.0563)(50) + \ln 5.55$

$A_t = 0.33247 \text{ dpm}$

Apr 26-9:01 AM

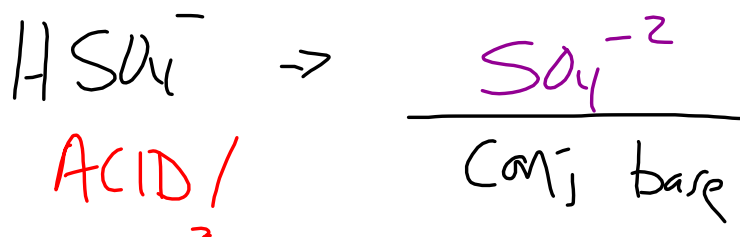
Final 2017



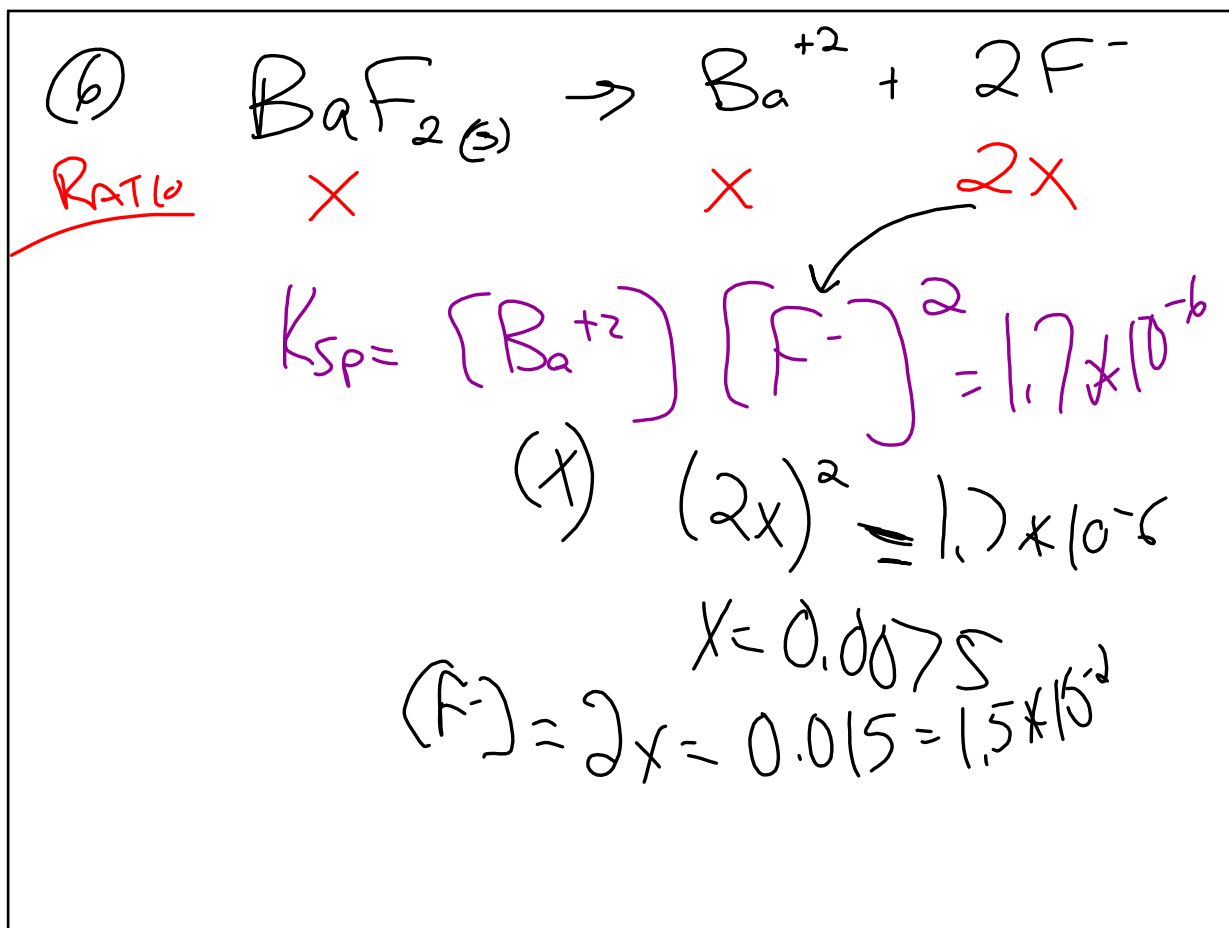
reaction orders  
rate table  
reactants

Apr 26-9:07 AM

$\textcircled{5}$



Apr 26-9:12 AM



Apr 26-9:13 AM