

⑧ $\text{CO} + 2\text{H}_2 \rightleftharpoons \text{CH}_3\text{OH}$

	I	0.42	0.42	0.42	
M ⇒	Δ	-0.13	-0.26	+0.13	MOLE RATIO
	E	0.29	0.16	0.13	

$$K = \frac{[\text{CH}_3\text{OH}]}{[\text{CO}][\text{H}_2]^2} = \frac{0.13}{(0.29)(0.16)^2} = 17.51$$

Favors product formation
b/c $K > 1$

May 4-7:43 AM

⑨ $\ln A_t = -Kt + \ln A_0$

$\ln(0.75) = -K(60) + \ln(1)$

$K = 0.0048 \text{ min}^{-1}$

$t_{1/2} = \frac{0.693}{k}$

Start 100%
25% Decomposes
↳ HAVE 75%
60 min

144.53 min

May 4-7:57 AM

$K_a * K_b = K_w$
 (with K above and $\frac{1}{K}$ below)

$\frac{1}{K}$
 Flip

$* \left(\frac{1}{K}\right)^2 *$
 Double

$\frac{1^2}{K^2} = \frac{1}{K^2}$ (circled)
 MSTR

1×10^{-14} @ 25°C
 Sm⁴¹

May 4-8:04 AM

$PbCl_2(s) \rightarrow Pb^{+2} + 2Cl^-$
 M RATIO x $2x + 0.15$

Find

$K_{sp} = [Pb^{+2}][Cl^-]^2$
 $1.6 \times 10^{-5} = (x) (\cancel{2x} + 0.15)^2$

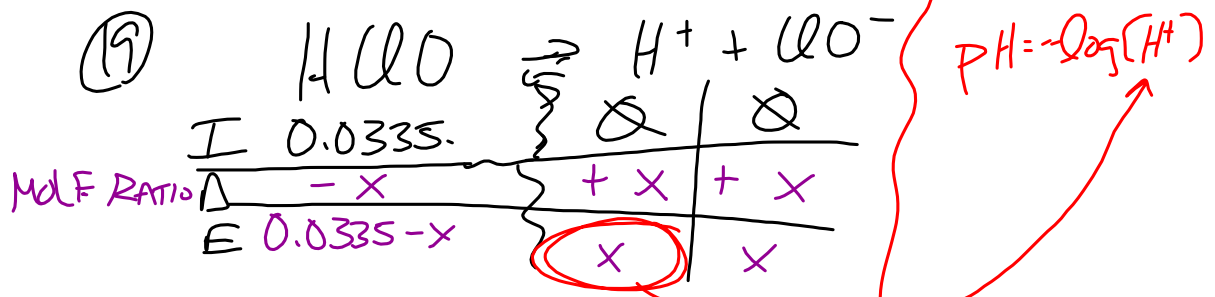
$x = 7.11 \times 10^{-4}$ (circled)

$HCl \rightarrow H^+ + Cl^-$
 0.15M 0.15M 0.15M
 Common ion

May 4-8:09 AM

(16) $[H^+][OH^-] = 1 \times 10^{-14}$ at 25°C
 $[H^+](0.075) = \dots$

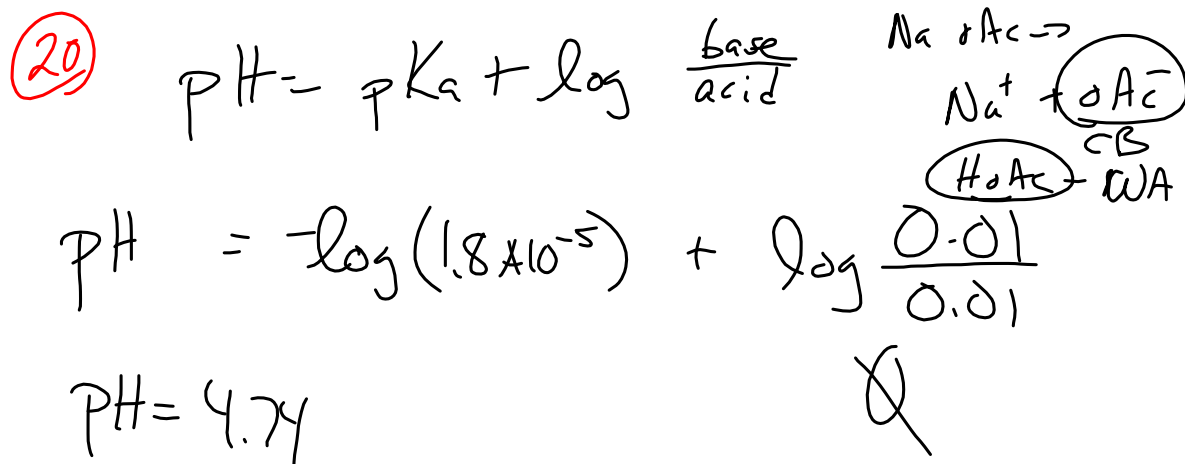
May 4-8:17 AM



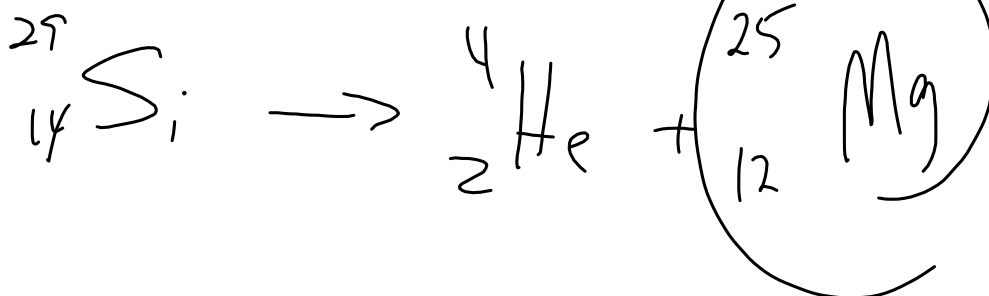
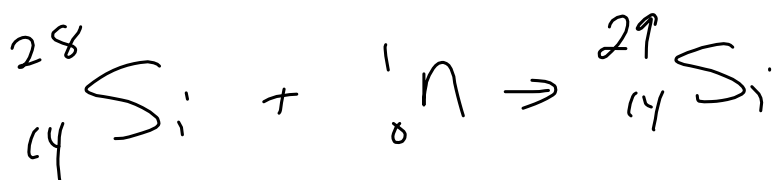
$$K_a = \frac{[H^+][ClO^-]}{[HClO]} = 3 \times 10^{-8}$$

$$= \frac{x(x)}{0.0335} = 3 \times 10^{-8}$$

May 4-8:21 AM



May 4-8:25 AM



May 4-8:30 AM