65.

0.15 M of HA is 3.0% dissociated

Calculate K_a.

$$HA \rightleftharpoons H^+ + A^-$$

	HA	H^+	A^-
I	0.15	0	0
C	$-x$	$+x$	$+x$
E	$0.15-x$	x	x

$$\%\ \text{dis.} = \frac{[H^+]}{[HA]_0} \times 100$$

$$\frac{3}{100} = \frac{[H^+]}{0.15}$$

$$[H^+] = 0.0045\,M = x$$

$$[A^-] = 0.0045\,M = x$$

$$K_a = \frac{[H^+][A^-]}{[HA]}$$

AXIS $\approx .15$

$.15 - x$

$.15 - .0045$

$.1455 \approx .15$

$$K_a = \frac{(.0045)(.0045)}{.15}$$

$$= \underbrace{1.35 \times 10^{-4}}_{1.4 \times 10^{-4}}$$

66. HA

25% dis.

eq. conc. = 0.30

Cal K_a

$$HA \rightleftharpoons H^+ + A^-$$

	HA	H^+	A^-
I	?	0	0
C	$-x$	$+x$	$+x$
E	0.30	x	x

$x =$

$I - x = .30$

$I = .30 + x$

$I = .30 + .10$

$= .40$

$$\frac{25}{100} = \frac{[H^+]}{[HA]}$$

$$\frac{25}{100} = \frac{x}{.30+x}$$

$$25(.30+x) = 100x$$

$$x = 0.10 = [H^+] =$$

$$[A^-]$$

$$K_a = \frac{[H^+][A^-]}{[HA]}$$

$$= \frac{(.1)(.1)}{.3}$$

$$= .0333$$