Calculate the pH of a 0.100 M HF solution

$K_a = 6.8 \times 10^{-4} = \dfrac{[H^+][F^-]}{[HF]}$ $\quad HF \leftrightarrows H^+ + F^-$

	[HF]	[H$^+$]	[F$^-$]
I	0.100	0.00	0.00
C	-x	+x	+x
E	0.100 - x	x	x

$$6.8 \times 10^{-4} = \frac{x^2}{0.100 - x}$$

$x = [H^+] = 8.24 \times 10^{-3}$

pH = 2.08

$\dfrac{0.00824}{0.100} \times 100 = 8.25\ \%$ 5% assumption not good

.00790 solve quadratic or successive iterations

.00791

.00791 $x = 7.91 \times 10^{-3}$ pH = 2.10