

Solutions

Each answer shows the steps, then the **result**.

2.1

- $0.5 - x$

2.2

- A concentration cannot be negative — it is unphysical

2.3

- When K is very small, so x is under about 5% of the starting concentration

3.1 B

- small compared to the starting concentration

3.2

(a)

- $[A] = 2 - x$, $[B] = x$; $K = \frac{x}{2 - x} = 1.0$

(b)

- $x = 2 - x \Rightarrow 2x = 2 \Rightarrow x = 1.0$; so $[A] = [B] = 1.0$ M

3.3

- $\frac{x^2}{0.10} \approx 4 \times 10^{-6}$; $x^2 = 4 \times 10^{-7}$, $x = 6.3 \times 10^{-4}$; $[H^+] = 6.3 \times 10^{-4}$ M