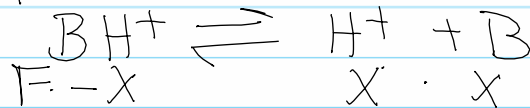


$$V_a = 10 \text{ ml}$$



$$\text{BH}^+ = 0.1 \text{ M} \left[\frac{100 \text{ ml}}{110 \text{ ml}} \right]$$

$$0.091 \text{ M}$$

$$\frac{x^2}{\text{F} - x} = K_a$$

$$K_a \text{ for BH}^+ = 10^{-9}$$

$$K_a = 10^{-\text{p}K_a}$$

$$\frac{x^2}{0.091 - x} = 10^{-9}$$

$$x = 9.534 \times 10^{-6}$$

$$\text{pH} = -\log [9.534 \times 10^{-6}]$$

$$\text{pH} = 5.02$$