



$$\frac{[\text{H}_2\text{CO}_3]}{[\text{HCO}_3^-]} = \frac{[\text{H}^+]}{K_a} = \frac{(3.16 \times 10^{-5})}{(4.4 \times 10^{-7})} = \frac{71.9}{1}$$

$$[\text{H}^+] = 10^{-\text{pH}} = 10^{-4.5} = 3.16 \times 10^{-5}$$

$$\text{moles H}_2\text{CO}_3 = 71.9 \text{ moles} \times \left(\frac{62 \text{ g}}{1 \text{ mole}} \right) = \boxed{4,456 \text{ g H}_2\text{CO}_3}$$

$$1 \text{ mole HCO}_3^- = 1 \text{ mole NaHCO}_3 \left(\frac{84 \text{ g}}{1 \text{ mole}} \right) = \boxed{84 \text{ g NaHCO}_3}$$