## Exercise 12.4

## More Weak Acid Calculations

1. Calculate the approximate pH of each solution at $25^{\circ} \mathrm{C}$.
(a) $\quad 1.25 \mathrm{~g}$ hydrazoic acid $\left(H N_{3}, p K_{a}=4.72\right)$ is dissolved in $1.000 L$ water.
(b) 1.25 g chlorous acid $\left(\mathrm{HClO}_{2}, p K_{a}=1.96\right)$ is dissolved in 1.000 L water.
(c) $\quad 1.25 \mathrm{~g}$ nitrous acid $\left(\mathrm{HNO}_{3}, p K_{a}=3.39\right)$ is dissolved in 1.000 L water.
2. What must the concentration be for a solution of nitrous acid $\left(\mathrm{HNO}_{3}, p K_{a}=3.39\right)$ to have a pH of 2.00 at $25^{\circ} \mathrm{C}$ ?
3. What mass of hydrazoic acid $\left(H N_{3}, p K_{a}=4.72\right)$ would you have to dissolve in 250 mL water to give a solution with a pH of 2.72 at $25^{\circ} \mathrm{C}$ ?
