

Chem 462—Instrumental Analysis

Chapter 5 Solution Set

5.7.  $\bar{x} = 1.0029 \text{ g}$        $n = 9$   
 $s = 2.804 \times 10^{-3} \text{ g}$

$$S/N = \frac{\bar{x}}{3s} = \frac{1.0029}{3(2.804 \times 10^{-3})} = 119$$

$$500 = \sqrt{N} \frac{s}{N}$$

$$\sqrt{N} = \frac{500}{119} \Rightarrow N = 18 \quad \begin{array}{l} 18 \text{ additional measurements} \\ 162 \text{ total} \end{array}$$

5.8.  $\bar{x} = 1.435$        $n = 6$

$$s = 0.271$$

$$\frac{s}{N} = \frac{1.435}{3(27)} = 1.77$$

$$\sqrt{N} = \frac{500}{1.77} = 282 \Rightarrow N = 32 \times \text{additional measurements} \\ 256 \text{ total}$$

5.16 100