AMS 102, Section 3  
In-class Exercise #2  
February 6, 2002

NAME ___________________  ID ___________________

Given the weights (in pounds) of 6 people,

110, 125, 130, 145, 170, 250

compute the following sample statistics:
(1) median (2) 70th percentile (3) mean (4) variance and standard deviation (5) range.
(Hint: \( \sum x = 930 \) and \( \sum x^2 = 157050 \))
(Algebra: \( 930^2/6 = 144150 \), \( 157050 - 144150 = 12900 \), \( 12900/5 = 2580 \), and \( \sqrt{2580} = 50.79 \))

**Answer:**

1. \( n = 6 \): even. Therefore, median = \( (130 + 145)/2 = 137.5 \).
2. \( np = 6 \times 0.7 = 4.2 \uparrow 5 \implies \) The 70th percentile is \( x_{(5)} = 170 \).
3. \( \bar{x} = \sum x/n = 930/6 = 155 \)
4. Sample variance:
\[
\begin{align*}
s^2 &= \frac{1}{n-1} \left[ \sum_{i=1}^{n} x_i^2 - \left( \frac{\sum_{i=1}^{n} x_i}{n} \right)^2 \right] \\
&= \frac{1}{5} \left[ 157050 - \frac{(930)^2}{6} \right] \\
&= (157050 - 144150)/5 = 12900/5 = 2580
\end{align*}
\]
Sample standard deviation: \( s = \sqrt{s^2} = \sqrt{2580} = 50.79 \)
5. Range = max − min = 250 − 110 = 140