

**Problem Set 1 Answers**  
**[35 points total]**

**Chapter 3**

- #4. The median is used instead of the mean when there is a skewed distribution (i.e., a few extreme scores), an open ended distribution, undetermined scores, or an ordinal scale. **[2 POINTS]**
- #5. They are the same for a symmetrical distribution with one mode. **[2 POINTS]**
- #8. For this sample, the mean, median, and mode are all 7. **[2 POINTS]**
- #10. Mean = 7.6 (152/20) **[1 POINT]**  
Median = 7.5 **[1 POINT]**  
Mode = 7 **[1 POINT]**
- #12.  $\sum X = 250$  **[2 POINTS]**
- #14. The new mean is 7 (147/21). **[2 POINTS]**
- #16. The new mean is 8 (48/6); changing  $X = 14$  to  $X = 2$  subtracts 12 points from  $\sum X$ . **[2 POINTS]**
- #22. The combined mean is  $(1000+50)/25 = 42$ . **[2 POINTS]**
- #26. a. The mean for weekdays is .99 inches; work weekend days 1.67 inches. **[2 POINTS]**  
b. There does appear to be more rain on weekend days than on weekdays. **[2 POINTS]**

**Chapter 4**

- #4. A standard deviation of zero indicates there is no variability; all of the scores have exactly the same value. **[2 POINTS]**
- #10. a. With a standard deviation of 10 points and mean of 30, a score of  $X=38$  would not be considered an extreme score; it is within one SD of the mean. **[2 POINTS]**  
b. With a standard deviation of 2 points and mean of 30, a score of  $X=38$  would be considered an extreme score; it is 4 SDs above the mean. **[2 POINTS]**
- #12. a. The new mean is  $\mu = 90$ , but the standard deviation is not changed. **[2 POINTS]**  
b. Both the mean and the standard deviation are multiplied by 2; the new mean is  $\mu = 160$  and the new standard deviation is  $\sigma = 40$ . **[2 POINTS]**
- #27. a. For the exercise group,  $M = 3.125$  with  $s = 1.25$ ; for the no exercise group,  $M = 5.25$  with  $s = 1.28$ . **[3 POINTS]**  
b. On average, the exercise group appears to have fewer symptoms of depression. **[1 POINT]**