

## OPTIONAL Chapter 11 Review

### Vocab to Review

- Sampling Methods: self-selected survey, stratified sampling, cluster sampling, systematic sampling, convenience sampling
- Types of Studies: experimental, sample survey, observational study
- Statistical Variables: categorical vs quantitative
- Population vs Sample
- Parameter vs Statistic
- Measures of Center
- Five Number Summary
- Types of Skew

1. If a data point is at the 84<sup>th</sup> percentile, what is its  $z$ -value?
2. A student takes the SAT II Math test, which had a mean score of 550 and a standard deviation of 75:
  - A. If he scores 475, what is his percentile ranking?
  - B. If he scores at the 97.5<sup>th</sup> percentile, what is his score?
  - C. What is the probability that his score is between 400 and 625?
3. When a specific type of radish is grown without fertilizer, the weight of the radishes produced are normally distributed with a mean of 40 g and a standard deviation of 10 g. When the same type of radish is grown in the same way except for the inclusion of fertilizer, the weight of the radishes produced are also normally distributed, but with a mean of 140 g and a standard deviation of 40 g. Determine the proportion of radishes grown:
  - A. without fertilizer with weights less than 50 g.
  - B. with fertilizer with weights less than 60 g.
  - C. without fertilizer with weights between 20 g and 70 g.
  - D. with fertilizer with weights greater than or equal to 260 g.
4. Every year, 50,000 runners compete in the Peachtree Road Race. They run 10 km with the average finishing time being 55 mins and a standard deviation of 10 min. Fred and Wilma completed the race in 61 mins and 51 mins, respectively. Barney and Betty had finishing times with  $z$ -scores of  $-0.3$  and  $0.7$  respectively. List the runners in order, starting with the fastest runner and ending with the slowest runner.
5. 99.7% of men have heights between 5 ft and 7 ft. What is the standard deviation of their heights?
6. Use the following data to answer the questions below: 2, 3, 4, 8, 4, 8, 7, 8, 10, 9, 10, 8, 7, 8, 6
  - A. Find the measures of center and the standard deviation
  - B. Find the five number summary
  - C. Find the type of skew
  - D. What 2 pieces of data would be best to describe the data?