Chapter 8.6

The Normal Curve

Answer the following questions giving all sketches, formulas used and calculations done to support your answers.

1. A negative z score signifies that the original score is_____.

2. On a reading comprehension test, Marie's z-score is 2.3 and Joan's is 1.75. Which girl performed better on the test and why?
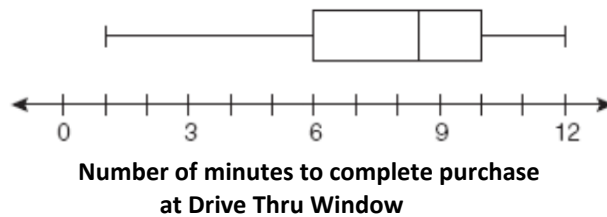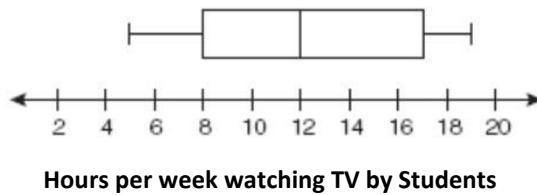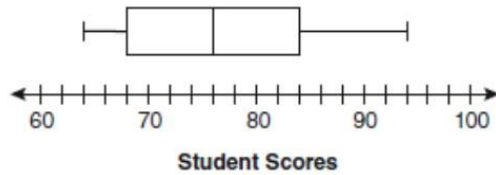
The following questions (3-7) refer to a normal distribution of IQ scores with a mean of 100 and a standard deviation of 15. Percents and IQs are rounded to the nearest whole number. **Draw a sketch of the target area** and show your calculations for each problem below.

3. What percent of IQs are below 110?

4. What percent of IQs are above 115?

5. What IQ corresponds to fifth percentile?

6. What percent of IQs fall between 130 and 145?

7. What pair of IQs separate the middle 95 percent from the remainder of the distribution?

8. The Beanstalk Club has a minimum height requirement of 5' 10" for women. If women have heights with a mean of 5' 5.5" and standard deviation of 2.5", what percent of women are eligible?

9. The weights of men aged 18 to 74 are normally distributed with a mean of 173 lb. and a standard deviation of 30 lb. (based on data from the National Health Survey). Find the percent of men who would weigh between 165-175 lb.

10. Using the results from problem 9, if a sample of 500 men was surveyed, how many of that group would you expect to weigh between 165-175 lb.?

11. The combined math and verbal scores for females taking the SAT math test in 2013 was normally distributed with a mean of 487 and standard deviation of 103 (based on data from the College Board). At Mitchell College, the combined mean SAT math score for the fall 2013 freshman class was 590. What percent of girls score above 590 on the math part of the SAT?

Chapter 8.6

Box-and-Whisker Plot

For problems 1-3, give the five-number summary for each box-and-whiskers plot. For each problem, give the range of values and the IQR.

1.

Student Scores

2.

Hours per week watching TV by Students

3.

Number of minutes to complete purchase at Drive Thru Window

4. Construct a box and whisker plot for the data set: {5, 2, 16, 9, 13, 7, 10}.

5. Construct a box and whisker plot for these math test scores:
{75, 90, 95, 65, 65, 80, 85, 70, 100}.

6. The time required for two headache medications to be effective was compared. The median time that it took for both medications to provide relief was 32 minutes. Using the box-and-whisker plot, which medication would you choose and why?

Minutes Until Headache Relief