Stat 171 - Worksheet for Section 5.3

Name: _____

1. Find the z-score that has 96.16% of distribution's area to its left.

2. Find the z-score that has 96.16% of distribution's area to its right.

3. Find the z-score for which 95% of the distribution's area lies between $-z$ and z.

4. Find the z-score that corresponds each percentile: P_{10}, P_{20}, P_{99}.
   (a) Write the percentile as an area. If necessary, draw a graph of the area to visualize the problem.
   (b) Locate the area in the Standard Normal Table. If the area is not in the table, use the closest area. If the area is halfway between two area entries, use the z-score halfway between the corresponding z-score.
   (c) Identify the z-score that corresponds to the area.

5. A veterinarian records the weight of dogs treated at a clinic. The weights are normally distributed, with a mean of 52 pounds and a standard deviation of 15 pounds. Find the weights x corresponding to z-scores of -2.33, 3.10, and 0.58. Interpret your results.

6. A researcher tests the braking distances of several cars. Te braking distance from 60mph to a complete stop on dry pavement is measured in feet. The braking distances of a sample of cars are normally distributed, with a mean of 129ft and a standard deviation of 5.18ft. What is longest braking distance one of the cars could have and still be in the bottom 1%?

7. The lengths of time that employees worked at a corporation are normally distributed, with a mean of 11.2 years and a standard deviation of 2.1 years. In a company cutback, the lowest 10% in seniority are laid off. What is the maximum length of time an employee could have worked and still be laid off?