Stat 171 - Worksheet for Section 5.2

Name: _____

1. The average speed of vehicles traveling on a stretch of highway is 67 miles per hour with a standard deviation of 3.5 miles per hour. A vehicle is selected at random. What is the probability that it is violating the speed limit of 70 miles per hour? Assume the speed are normally distributed and are represented the variable x.
   (a) Sketch a graph.
   (b) Find the z-score that corresponds to 70 miles per hour.
   (c) Find the area to the right of that z-score.
   (d) Interpret the results.

2. A survey indicates that for each trip to a supermarket, a shopper spends an average of 45 minutes with a standard deviation of 12 minutes in the store. The lengths of times pent in the store are normally distributed and are represented by the variable x. A shopper enters the store. What is the probability that the shopper will be in the supermarket between 33 and 60 minutes.

   (a) Sketch a graph.

   (b) Find the z-score that correspond to 33 minutes and 60 minutes.

   (c) Find the cumulative area for each z-score and subtract the smaller area from the larger area.

   (d) Interpret your answer when 150 shoppers enter the store. How many shoppers would you expect to be in the store between 33 and 60 minutes?