AP Statistics **Standard Normal Calculations Name: _____**
Ch. 2 **Worksheet #2** **Period: _____**

1. The EPA fuel economy estimates for automobile models tested recently predicted a Normal model with a mean of 24.8 mpg and a standard deviation of 6.2 mpg.

   a) In what interval would you expect the central 68% of autos to be found?

   b) About what percent of autos should get less than 31 mpg?

   c) What percent of cars should get between 31 and 37 mpg?

   d) What percent of cars should get more than 20 mpg?

   e) Describe the gas mileage of the worst 20% of all cars?

2. Some IQ tests are standardized to a Normal model with a mean of 100 and a standard deviation of 16.

   a) What score would begin the interval for the top 16% of all scores? You may use the Empirical Rule to answer this.

   b) The top 10% of all scores represent the label of "genius". What is the range of scores for anyone who qualifies as a genius?

   c) What proportion of test takers score a 130 or higher?

3. Assume the cholesterol levels of Adult American women can be described by a Normal model with a mean of 188 mg/dL and a standard deviation of 24.

   a) What percent of adult women do you expect to have cholesterol levels over 200 mg/dL?

   b) What percent of adult women do you expect to have cholesterol levels between 150 and 170 mg/dL?

   c) Estimate the interquartile range of the cholesterol levels.

   d) Above what value are the highest 15% of women's cholesterol levels?

4. While only 5% of babies have learned to walk by the age of 10 months, 75% have earned to walk by 13 months of age. If the age at which babies develop the ability to walk can be described by a Normal model, find the mean and standard deviation of the Normal model.

5. Wildlife biologists believe that the weights of adult trout can be described by a Normal model. Fishermen report that 22% of all trout caught were thrown back because they weigh below the 2-pound minimum, and only 6% weighed over 5 pounds. What are the mean and standard deviation of the model?