1. The total duration of baseball games in the major league in the 2011 season is uniformly distributed between. 447 hours and 521 hours inclusive.

1. Find *a* and *b* and describe what they represent.
2. Write the distribution.
3. Find the mean and the standard deviation.
4. What is the probability that the duration of games for a team for the 2011 season is between 480 and 500 hours?

2. IQ is normally distributed with a mean of 100 and a standard deviation of 15. Suppose one individual is randomly chosen. Let *X* = IQ of an individual.

1. Find the probability that the person has an IQ greater than 120. Include a sketch of the graph and write a probability statement.
2. MENSA is an organization whose members have the top 2% of all IQs. Find the minimum IQ needed to qualify for the MENSA organization. Sketch the graph, and write the probability statement.

3. The percent of fat calories that a person in America consumes each day is normally distributed with a mean of about 36 and a standard deviation of 10. Suppose that one individual is randomly chosen. Let *X* = percent of fat calories.

1. Find the probability that the percent of fat calories a person consumes is more than 40. Graph the situation. Shade in the area to be determined.
2. Find the maximum number for the lower quarter of percent of fat calories. Sketch the graph and write the probability statement.

4. The amount of time spouses shop for anniversary cards can be modeled by an exponential distribution with the average amount of time equal to eight minutes. Write the distribution, state the probability density function, and graph the distribution. Find the probability that a clerk spends four to five minutes with a randomly selected customer.