**CLASS ACTIVITY IN PAIRS**

**Normal Distribution**

**NAMES:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE:\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**INSTRUCTIONS: Use the App StatsMate to answer the following exercises. Remember that it is always useful to draw sketches.**

1. Assume that the mean weight of 1 year-old girls is normally distributed with a mean of 9.5 kg and a standard deviation of 1.1 kg. Estimate the percentage of 1 year-old girls that meet the following conditions.
   1. Less than 8.4 kg
   2. Between 7.3 kg and 11.7 kg
   3. More than 12.8 kg
2. The mean daily milk production of a herd of cows is assumed to be normally distributed with =70 pounds and = 13 pounds.
   1. What is the probability that the milk production for a cow chosen at random will lie in the interval from 60 to 90 pounds? Draw and label a sketch.
   2. What is the probability that the milk production for the randomly selected cow will exceed 90 pounds in a given year? Draw and label a sketch.
3. Let´s assume that the scores for an admission test are normally distributed with a mean of 82 and a standard deviation of 11.
   1. What is the probability for any student chosen randomly having a grade over 90?
   2. What is the probability for any student chosen randomly having a grade below 60?
   3. What is the probability for any student chosen randomly having a grade between 70 and 90?
   4. What is the minimum grade that a student needs if he/she wants to be in the TOP 10%?
4. The mean for a package of peanuts is 50 g, with standard deviation of 4 g.
   1. What is the probability of having packages 48 g or less?.
   2. What is the weight of a package that corresponds to the 67th percentile (probability of 0.67)? What is the z value for the 67th percentile?
5. For a standardized normal distribution, find:
   1. The probability when z > 1.96
   2. The probability for z< -1.65 or z > 1.65
   3. The probability of -1.96<z<1.96
   4. The z value for a probability < 50%