

The weights of newborn children in the United States vary according to the Normal distribution with mean 7.5 pounds and standard deviation 1.25 pounds. The government classifies a newborn as having low birth weight if the weight is less than 5.5 pounds.

1. What is the probability that a baby chosen at random weighs less than 5.5 pounds at birth?

You choose three babies at random and compute their mean weight, \bar{x} .

2. What are the mean and standard deviation of the sampling distribution of the mean weight \bar{x} of the three babies?
3. What is the probability that their average birth weight is less than 5.5 pounds?
4. Would your answers to 1, 2, or 3 be affected if the distribution of birth weights in the population were distinctly non-Normal?