

1. The weight of food packed in certain containers is a normally distributed random variable with a mean weight of 500 pounds and a standard deviation of 5 pounds. If a container is picked at random, find the following:
 - a. The probability that it contains more than 510 pounds
 - b. The probability that it contains less than 498 pounds
 - c. The probability that it contains between 491 and 498 pounds
 - d. The IQR of the distribution
2. Scores of students on a test are approximately normally distributed with a mean score of 70 points and a standard deviation of 10 points. It is decided to give A's to 10 percent of the students and B's to 23 percent of the students. What scores should be assigned to A's and B's?
3. The diameter of a lead shot has a normal distribution with a mean diameter equal to 2 inches and a standard deviation equal to 0.05 inches. Find what diameter a circular hole should be so that only 3 percent of the lead shots can pass through it.
4. The nicotine content in a brand of king-size cigarettes has a normal distribution with a mean content of 1.8 mg and a standard deviation of 0.2 mg. Find the probability that the nicotine content of a randomly selected cigarette of this brand will be:
 - a. less than 1.45 mg
 - b. between 1.45 and 1.65 mg
 - c. between 1.95 and 2.15 mg
 - d. more than 2.15 mg
 - e. What value is needed so that the 80 percent of the cigarettes will exceed it in their nicotine content?