

Self-Check 7.1

Name: _____ Date: _____ Row: _____ **Self-Check 7.1**

1. The length of time taken on the SAT for a group of students is normally distributed with a mean of 2.5 hours and a standard deviation of 0.25 hours. A sample size of $n=60$ is drawn randomly from the population.
 1. In words, $X =$
 2. In words, $\bar{X} =$
 3. $X \sim$
 4. Find the probability that the sample mean is between two hours and three hours.
 5. Find the 80th percentile for the sample mean hours (two decimal place).
2. A gondola carries skiers to the top of a mountain. It bears a plaque stating that the maximum capacity is 12 people or 2004 lb. That capacity will be exceeded if 12 people have weights with a mean of $2004/12 = 167$ lb. Because men tend to weigh more than women, a worst case scenario would be if all 12 passengers were men. Men have weights that are normally distributed with a mean of 172 lb and a standard deviation of 29 lb.
 1. Find the probability that if an individual man is randomly selected, his weight is greater than 167 lb.
 2. Find the probability that 12 randomly selected men will have a mean that is greater than 167 lb.
 3. In a recent study reported Oct. 29, 2012 on the Flurry Blog, the mean age of tablet users is 34 years. Suppose the standard deviation is 15 years. Take a sample of size $n= 100$.
 1. What are the mean and standard deviation for the sample mean ages of tablet users?
 2. Find the probability that the sample mean age is more than 30 years.
 3. Find the 95th percentile for the sample mean age (to one decimal place).

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