Chapter 6 – Homework Solutions

32. 
   a) smallest value is 100 – 3(1/3) or 99 and the largest is 100 + 3(1/3) or 101 
   b) 3 standard deviations above or below the mean (i.e., + or − 1) 
   c) No, the answer to part b does not depend on the value of the mean.

64. False

82. a) 5.1; .4981 
    b) yes 
    c) .2119 
    d) .4071

84. 
   a) The mean, \( m \), diameter of the bearings is unknown with a standard deviation, \( \sigma \), of .001 inch. Assuming that the distribution of the diameters of the bearings is normal, the sampling distribution of the sample mean is also normal. 
   Find the z score for \( \mu - .0001 \) and get \( z = -.5 \) 
   Find the z score for \( \mu + .0001 \) and get \( z = .5 \) 
   Answer is .383.

   b) The approximation is unlikely to be accurate. In order for the Central Limit Theorem to apply, the sample size must be sufficiently large. For a very skewed distribution, \( n = 25 \) is not sufficiently large, and thus, the Central Limit Theorem will not apply.