

1. To assess the accuracy of a laboratory scale, a standard weight that is known to weigh 1 gram is repeatedly weighed a total of n times and the mean \bar{x} of the weighings is computed. Suppose the scale readings are Normally distributed with unknown mean μ and standard deviation $\sigma = 0.01$ g. How large should n be so that a 95% confidence interval for μ has a margin of error of ± 0.0001 ?
- (a) 100 (b) 196 (c) 27,061 (d) 10,000 (e) 38,416
2. A 95% confidence interval for the mean reading achievement score for a population of third-grade students is (44.2, 54.2). Suppose you compute a 99% confidence interval using the same information. Which of the following statements is correct?
- (a) The intervals have the same width.
(b) The 99% interval is shorter.
(c) The 99% interval is longer.
(d) The answer can't be determined from the information given.
(e) None of the above. The answer is _____.
3. A random sample of 900 individuals has been selected from a large population. It was found that 180 are regular users of vitamins. Thus, the proportion of the regular users of vitamins in the population is estimated to be 0.20. The standard error of this estimate is approximately
- (a) 0.1600
(b) 0.0002
(c) 0.4000
(d) 0.0133
(e) 0.0267
4. The weights of 9 men have mean $\bar{x} = 175$ pounds and standard deviation $s = 15$ pounds. What is the standard error of the mean?
- (a) 58.3 (b) 19.4 (c) 5 (d) 1.7
(e) None of the above. The answer is _____.

9. Assume the following distribution is approximately Normal. Students were given a 15 question test on the most unbelievably, and terribly difficult statistics vocabulary words, like “at most” and “at least”, to see if they knew the meaning after 85 days of school. 75% of the students given the test got at least 6 questions correct. 65% of the students got at most 12 questions right.

a) Find the standard deviation.

b) Find the mean.

c) How many questions must a student get correct to be in the 15th percentile

d) What is the probability that 4 randomly selected students would get 5 or more questions correct.