

A random sample of 25 cigarettes of a certain brand were tested for nicotine content. The sample gave a mean of 18 and a standard deviation of 3 milligrams.

1. Calculate the standard error for \bar{X} .
2. Calculate a confidence interval for the (population) mean nicotine content μ of this brand with a confidence coefficient 95%.
3. Concerning the CI you calculated in (b) above, which of the following is true: (i) it contains the population mean, (ii) it misses the population mean, or (iii) can't tell from available information?

Solutions:

1. $s/\sqrt{n} = 3/\sqrt{25} = 3/5$.
2. $\bar{x} \pm t_{.025,24}s/\sqrt{n} = 18 \pm 2.064(3)/5 = (16.7616, 19.2384)$.
3. (iii) can't tell from available information.