

Estimation of the mean retail value of greeting cards

Business



The owner of the stationery store wants to estimate the mean retail value of greeting cards that the store has in its inventory. A random sample of 20 greeting cards indicates a mean value of \$1.67 and a standard deviation of \$.32.

Sample size (s) = 20

Mean (?) = \$ 1.67

Standard deviation (?) = \$ 0.32

Normal Distribution

A) Assuming a normal distribution, construct a 95% confidence interval estimate of the mean value of all greeting cards in the stores' inventory.

The confidence interval 95% means that we have to find out the z-score associated to the probability of $(1-0.95)/2 = 0.025$ and $0.95 + (1-0.95)/2 = 0.975$ or 0.025.

The z-value at 0.25 (left) and 0.975 (0.025 right) are respectively -1.96 and 1.96.

Similarly,

Here, standard error of mean is ± 0.14 ($x - 1.67 = \pm 0.14$)

Therefore, for a 95% confidence interval, the mean retail value of greeting cards that the store has in its inventory will be between \$1.53 and \$1.81.

B) How are the results in (A) useful in assisting the store owner to estimate the total value of her inventory?

From the part (A), the standard error of mean is ± 0.14 ($x - 1.67 = \pm 0.14$). Now the store owner can estimate the approximate total value of her inventory. The store owner can find a range based on the standard error of the mean for approximate maximum and the minimum total value of inventory.

Suppose, the number of greeting cards is 100 then the total value will be most likely in-between \$153 and \$181.