

Question #65294, Math / Statistics and Probability

The ages of the employees of a fruit-juice outlet are as follows: 20,18,21,20,65,19,19 i) Compute the mean, the median and the mode of the ages. ii) How would these three measures of central tendency be affected if the oldest employee retired? Also, find the coefficients of variation in this case.

Answer.

Arranged set: 18, 19, 19, 20, 20, 21, 65

i) Mean $\mu = \frac{1}{n} \sum x_i = 26$

Median $M = 20$

Mode $M_o = 19, 20.$

Sample variance $s^2 = \frac{1}{n-1} \sum (x_i - \mu)^2 = 296.67$

Sample standard deviation $s = 17.22$

Coefficient of variation $CV = \frac{s}{\mu} = 0.66$

ii) Without age of 65

Mean $\mu = \frac{1}{n} \sum x_i = 19.5$

Median $M = 19.5$

Mode $M_o = 19, 20.$

So mean changes sufficiently, median changes slightly, mode remain the same.

Sample variance $s^2 = \frac{1}{n-1} \sum (x_i - \mu)^2 = 1.1$

Sample standard deviation $s = 1.05$

Coefficient of variation $CV = \frac{s}{\mu} = 0.06$

Answer provided by www.AssignmentExpert.com