

Name : Md. Altabur Rahman

ID : 20 - 92107 - 1

Assignment : 2

1. Mean of Ages :

⊗ Arithmetic mean :

$$\begin{aligned}\frac{\sum x}{n} &= \frac{324}{15} \\ &= 21.6\end{aligned}$$

⊗ Geometric mean :

$$\begin{aligned}&(\pi x)^{\frac{1}{n}} \\ &= (\pi x)^{\frac{1}{15}} \\ &= 21.59\end{aligned}$$

⊗ Harmonic mean :

$$\begin{aligned}&\frac{n}{\sum \frac{1}{x}} \\ &= 21.57\end{aligned}$$

⊗ Median of ages : 20, 21, 22, 23

$$\begin{aligned}\text{median} &= \frac{21+22}{2} \\ &= 21.5\end{aligned}$$

⊗ Mode of ages :

23, 22, 21, 22, 21, 20, 21, 21, 22, 22, 22, 22, 21,
22, 22.

$$\text{mode} = 22$$

Roll	x	\bar{x}	$x_i - \bar{x}$	$ x_i - \bar{x} $	$(x_i - \bar{x})^2$
1	23	$\frac{324}{15} = 21.6$	$23 - 21.6 = 1.4$	1.4	1.96
2	22		$22 - 21.6 = 0.4$	0.4	0.16
3	21		$21 - 21.6 = -0.6$	0.6	0.36
4	22		$22 - 21.6 = 0.4$	0.4	0.16
5	21		$21 - 21.6 = -0.6$	0.6	0.36
6	20		$20 - 21.6 = -1.6$	1.6	2.56
7	21		$21 - 21.6 = -0.6$	0.6	0.36
8	21		$21 - 21.6 = -0.6$	0.6	0.36
9	22		$22 - 21.6 = 0.4$	0.4	0.16
10	22		$22 - 21.6 = 0.4$	0.4	0.16
11	22		$22 - 21.6 = 0.4$	0.4	0.16
12	22		$22 - 21.6 = 0.4$	0.4	0.16
13	21		$21 - 21.6 = -0.6$	0.6	0.36
14	22		$22 - 21.6 = 0.4$	0.4	0.16
15	22		$22 - 21.6 = 0.4$	0.4	0.16
Total = 324			Total = 9.2		Total = 7.6

⊛ Mean deviation :

$$\frac{1}{n} \sum_{i=1}^n |x_i - \bar{x}|$$

$$= \frac{9.2}{15}$$

$$= 0.613$$

⊛ Variance :

$$\sigma^2 = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2$$

$$= \frac{7.6}{15}$$

$$= 0.50$$

⊛ Standard deviation :

$$\sigma = \sqrt{\text{Variance}}$$

$$= \sqrt{0.5}$$

$$= 0.7$$

⊛ Coefficient of variation :

$$\frac{0.7}{2.6} \times 100\%$$

$$= \cancel{7\%} \quad 3.29\%$$