

Step 1: Create Dataset (10-15 test scores)

12 scores

78, 85, 92, 67, 88, 73, 95, 81, 76, 89, 90, 84

Step 2: calculations

1) Mean

$$\text{Mean} = \frac{\text{Sum of all values}}{\text{number of values}}$$

$$= \frac{78 + 85 + 92 + 67 + 88 + 73 + 95 + 81 + 76 + 89 + 90 + 84}{12}$$

$$= \frac{998}{12} = \underline{\underline{83.17}}$$

2) Median

Arranged in ascending order

67, 73, 76, 81, 84, 85, 88, 89, 90, 92, 95

$n = 12$ (even)

Median = average of 6th and 7th values

$$\text{Median} = \frac{84 + 85}{2} = \underline{\underline{84.5}}$$

3) Variance

$$\sigma^2 = \frac{\sum (x_i - \mu)^2}{n}$$

$$\text{Mean} = 83.17$$

$$(78 - 83.17)^2 = 26.73$$

$$(85 - 83.17)^2 = 3.34$$

$$(92 - 83.17)^2 = 77.90$$

$$(67 - 83.17)^2 = 262.30$$

$$(88 - 83.17)^2 = 23.30$$

$$(73 - 83.17)^2 = 103.30$$

$$(95 - 83.17)^2 = 139.00$$

$$(81 - 83.17)^2 = 4.70$$

$$(76 - 83.17)^2 = 51.30$$

$$(89 - 83.17)^2 = 34.00$$

$$(90 - 83.17)^2 = 46.70$$

$$(84 - 83.17)^2 = 0.70$$

$$\text{Sum} = 772.3$$

$$\sigma^2 = \frac{772.3}{12} = \underline{\underline{64.36}}$$

4) Standard Deviation

$$\sigma = \sqrt{\sigma^2} = \sqrt{64.36} = \underline{\underline{8.02}}$$

5) Probability of score > 90

2 scores are greater than 90
92, 95

Total scores = 12

$$P(x > 90) = \frac{2}{12} = \underline{\underline{0.167}}$$

$$\text{in percentage} = \underline{\underline{16.7\%}}$$