Step 1 :- Write your Dataset

Data set (13 test scores) :-

95, 88, 76, 92, 85, 67, 100, 83, 91, 78, 89, 94, 72

Step 2 :- Mean calculation

1, Mean = $\frac{\text{Sum of all scores}}{n}$

2, 95 + 88 + 76 + 92 + 85 + 67 + 100 + 83 + 91 + 78 + 89 + 94 + 72 = 1110

Sum = 1110

3, Mean = $\frac{1110}{13}$ = 85.38 (Approx)

Step 3 :- Median calculation

1, Write the sorted dataset

Correct ascending order :-

67, 72, 76, 78, 83, 85, (88), 89, 91, 92, 94, 95, 100

Since n = 13 (odd), median = 7th value

Median = 88

Step 4 :- Variance and Standard Deviation

1, Formula

$$\sigma^2 = \frac{\Sigma (x - \mu)^2}{n}$$

2, Compute $(x - \text{means})^2$ for each value

mean = 85-83

| $x$ | $x - mean$ | $(x - mean)^2$ |
|---|---|---|
| 95 | $95 - 85.38 = 9.62$ | 92.54 |
| 88 | $88 - 85.38 = 2.62$ | 6.86 |
| 76 | $76 - 85.38 = -9.38$ | 87.98 |
| 92 | 6.62 | 43.82 |
| 85 | −0.38 | 0.14 |
| 67 | −18.38 | 337.99 |
| 100 | 14.62 | 213.73 |
| 83 | −2.38 | 5.66 |
| 91 | 5.62 | 31.58 |
| 78 | −7.38 | 54.45 |
| 89 | 3.62 | 13.10 |
| 94 | 8.62 | 74.30 |
| 72 | −13.38 | 179.01 |

3, Sum all squared values

$\sum (x - \mu)^2 = 1140.16$ (Approx)

4, Variance

$$\sigma^2 = \frac{1140.16}{13} = 87.7$$

5, Standard deviation

$$\sigma = \sqrt{87.7} = 9.36$$

Step 5 :- Probability of Score > 90

Scores greater than 90 :- 93, 95, 92, 100, 91, 94

Total Scores = 13

$$P(X > 90) = \frac{5}{13} = 0.38$$

$$= 38\%$$

# Final Answers

1, Mean $\approx$ 85.83

2, Median = 88

3, Variance $\approx$ 87.7

4, Standard deviation $\approx$ 9.36

5, Probability (Score > 90) = 38%