

3.If $\mu = 55$, $\sigma_{\alpha} = 4$, $\sigma_{\beta} = 10$, $\sigma_c = 15$, In this which is better?

Given:

Mean (μ) = 55

Standard deviation:

- $\sigma_{\alpha} = 4$
- $\sigma_{\beta} = 10$
- $\sigma_c = 15$

Which is better?

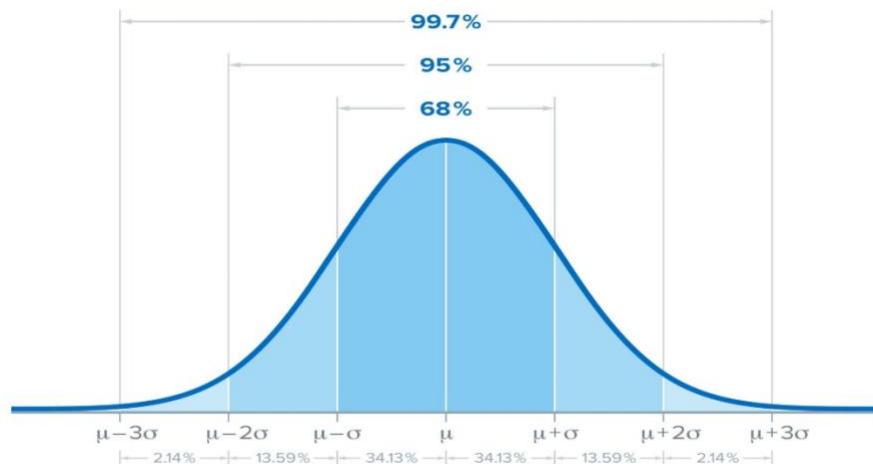
To decide which is better, we compare **standard deviation (σ)**.

Standard deviation tells us how much the values deviate (spread) from the mean.

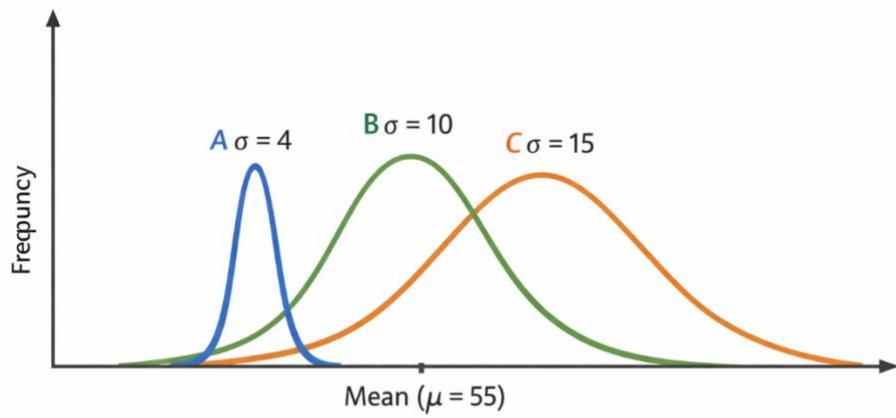
- Small $\sigma \rightarrow$ values are close to mean \rightarrow more consistent \rightarrow better
- Large $\sigma \rightarrow$ values are far from mean \rightarrow less consistent

Comparison

Case	Mean (μ)	Standard Deviation (σ)	Interpretation
A	55	4	Very less variation, highly consistent
B	55	10	Moderate variation
C	55	15	High variation, less consistent



Comparison of Normal Distribution with Same Mean



Conclusion

Since all have same mean (55), we choose the one with **lowest standard deviation**.

$\sigma_a = 4$ is better

because it has the **least variation** and values are closer to the mean.