



ASQ CRE Prep course

Lesson II. A. 7. h.

SPC and Process Capability

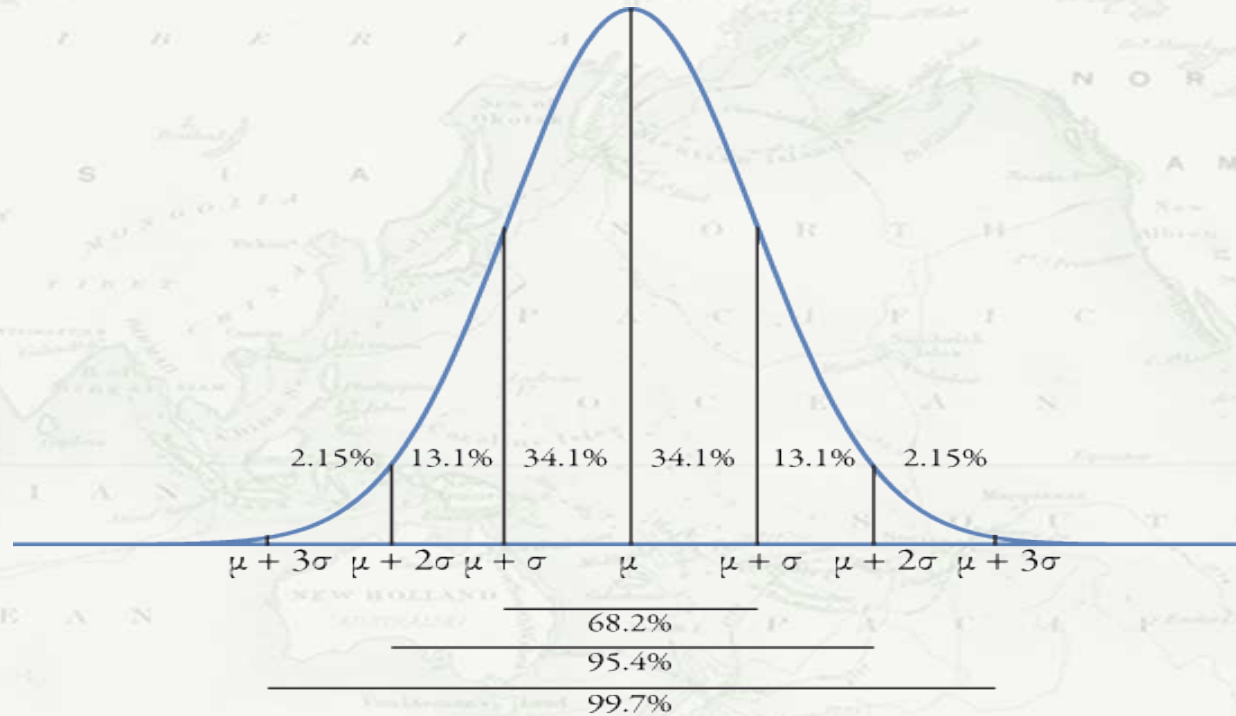
Standard Normal and z-values

A scenic landscape featuring a body of water in the foreground, a rocky shoreline, and snow-capped mountains in the background. The water is a deep blue, and the shoreline is composed of grey and brown stones. In the middle ground, there are green hills with some trees and a small structure. The background shows a range of mountains with significant snow cover under a clear blue sky.

We've seen this before and will again

THE Z-VALUE

Normal Curve and Standard Deviations



Converting data to z-values

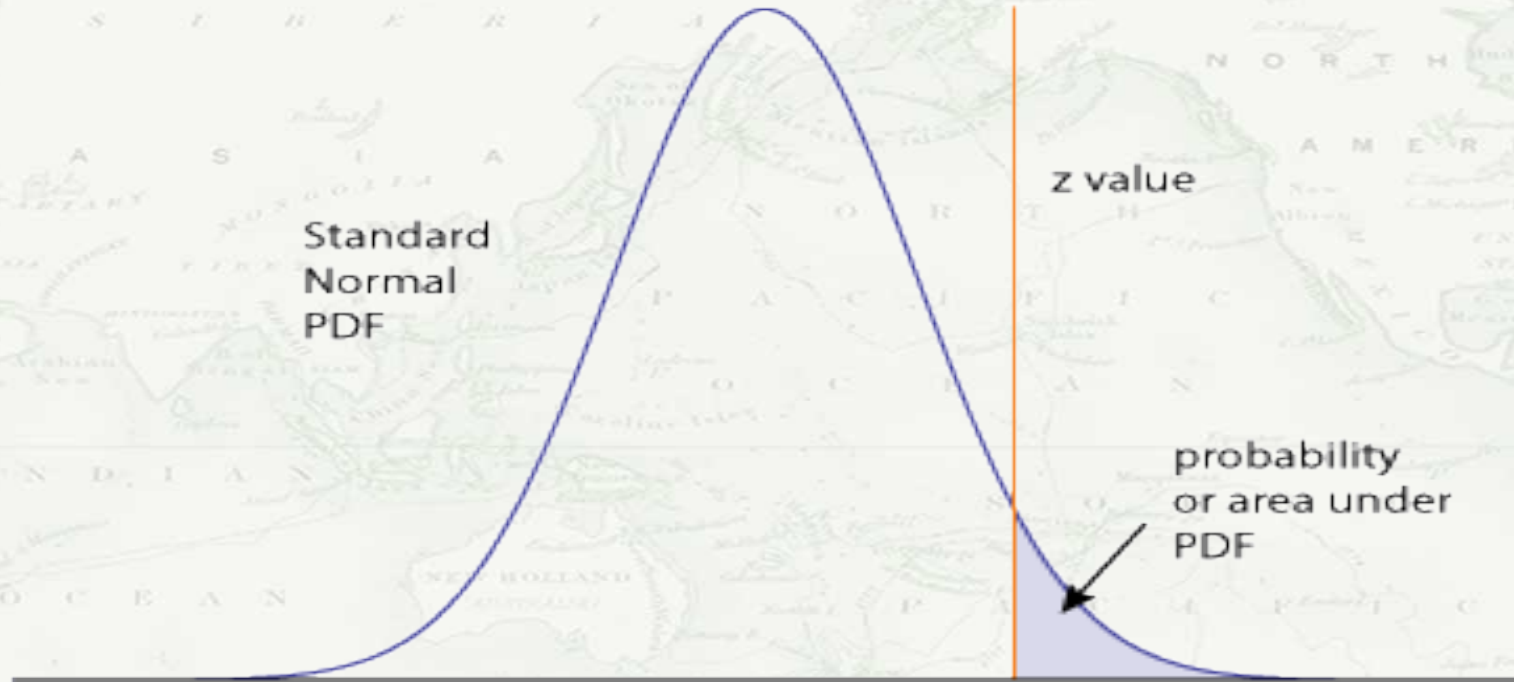
- **The Z transformation formula is:**

$$z_{upper} = \frac{USL - \bar{X}}{s}$$

- **The area (probability) outside a specific value for a normal curve can be found using z-values**

$$z = \frac{X - \mu}{\sigma}$$

Use the z table to find probability



Example

- **Given a population with mean weight of 150lbs and standard deviation of 20lbs**

What is probability of student weighing more than 175 lbs?

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What is probability of student weighing more than 175 lbs?



$$z = \frac{X - \mu}{\sigma}$$
$$z = \frac{175 - 150}{20}$$
$$z = 1.25$$

How do you
check for
normality?



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Capability and Charts