

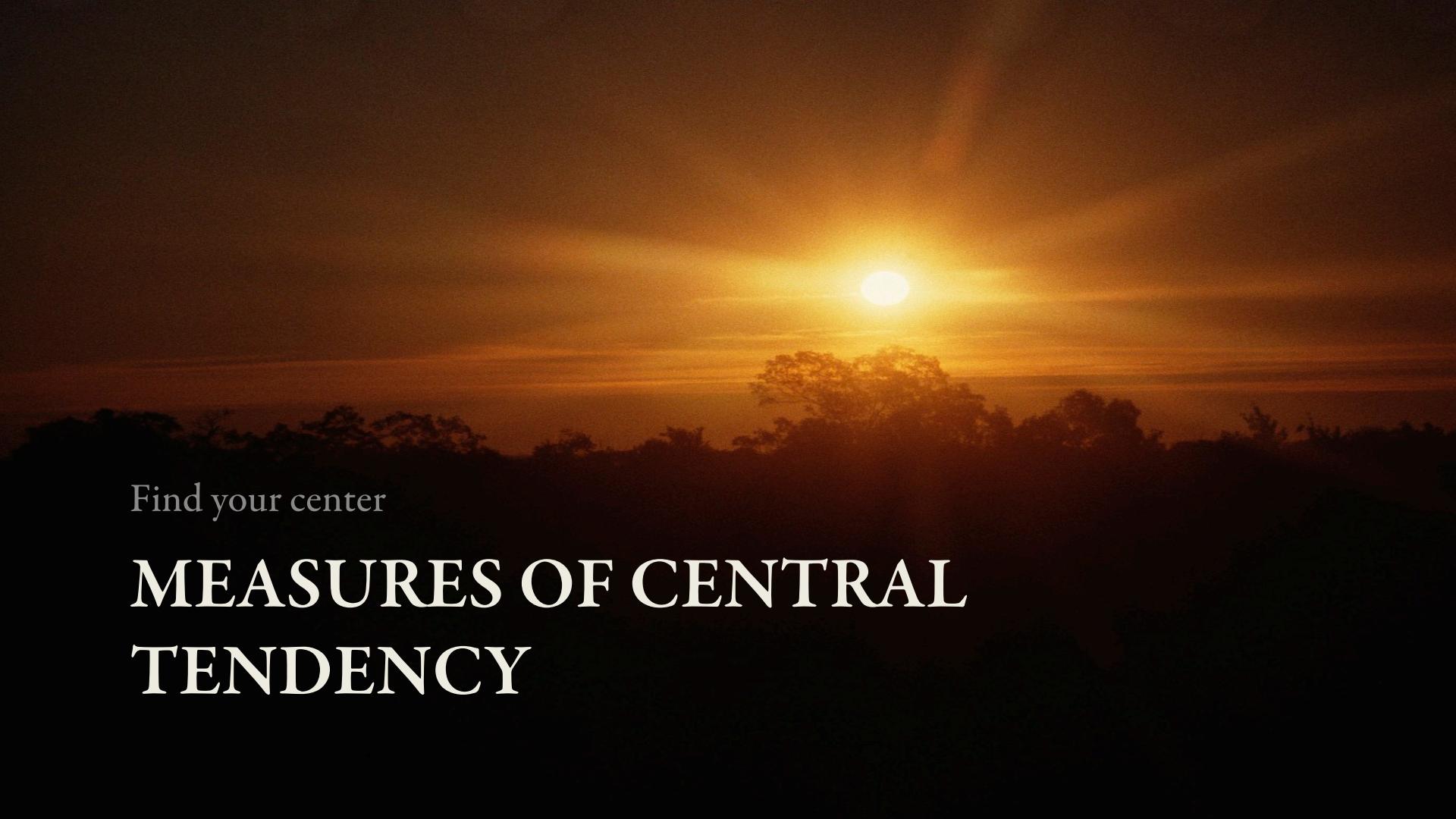


ASQ CRE Prep course

Lesson II. A. 1. b.

Basic Probability Concepts

Measures of Central Tendency

A wide-angle photograph of a sunset. The sun is a bright white circle in the upper center, casting a warm, golden glow through the clouds. The sky transitions from a deep orange at the horizon to a darker, reddish-brown at the top. In the foreground, the dark silhouettes of trees and bushes are visible against the bright sky. The overall atmosphere is peaceful and contemplative.

Find your center

MEASURES OF CENTRAL TENDENCY

1st Moment – Central Tendency

- **Average**
- **Middle**
- **Mid-point**
- **Center**
- **Center of mass**
- **Mean, X-bar**

$$\bar{X} = \frac{\sum X_i}{n}$$

- **Advantages**
 - Center of gravity
 - Uses all the data
 - No sorting required
- **Disadvantages**
 - Extreme value distortion
 - Time consuming
 - Result may not be actual value of data point

Median

- **Midpoint**
- **Sort the data**
 - Count to find middle
 - Even number use average of center two
- **Advantages**
 - Find where most data lies
 - Little calculation
 - Insensitivity to extreme values

Mode

- **Most common**
- **Most frequent**
- **Count repeats to find most common**
- **Advantages**
 - **No calculation or sorting**
 - **No influenced by extreme values**
 - **It is actual value**
- **Disadvantages**
 - **May not have mode**
 - **May have more than one mode**

Mean Median Mode

Normal Distribution
Mean Median Mode

Skewed Distribution
Mean Median Mode

When would you
use medians?



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Basic Probability Concepts

Central Limit Theorem