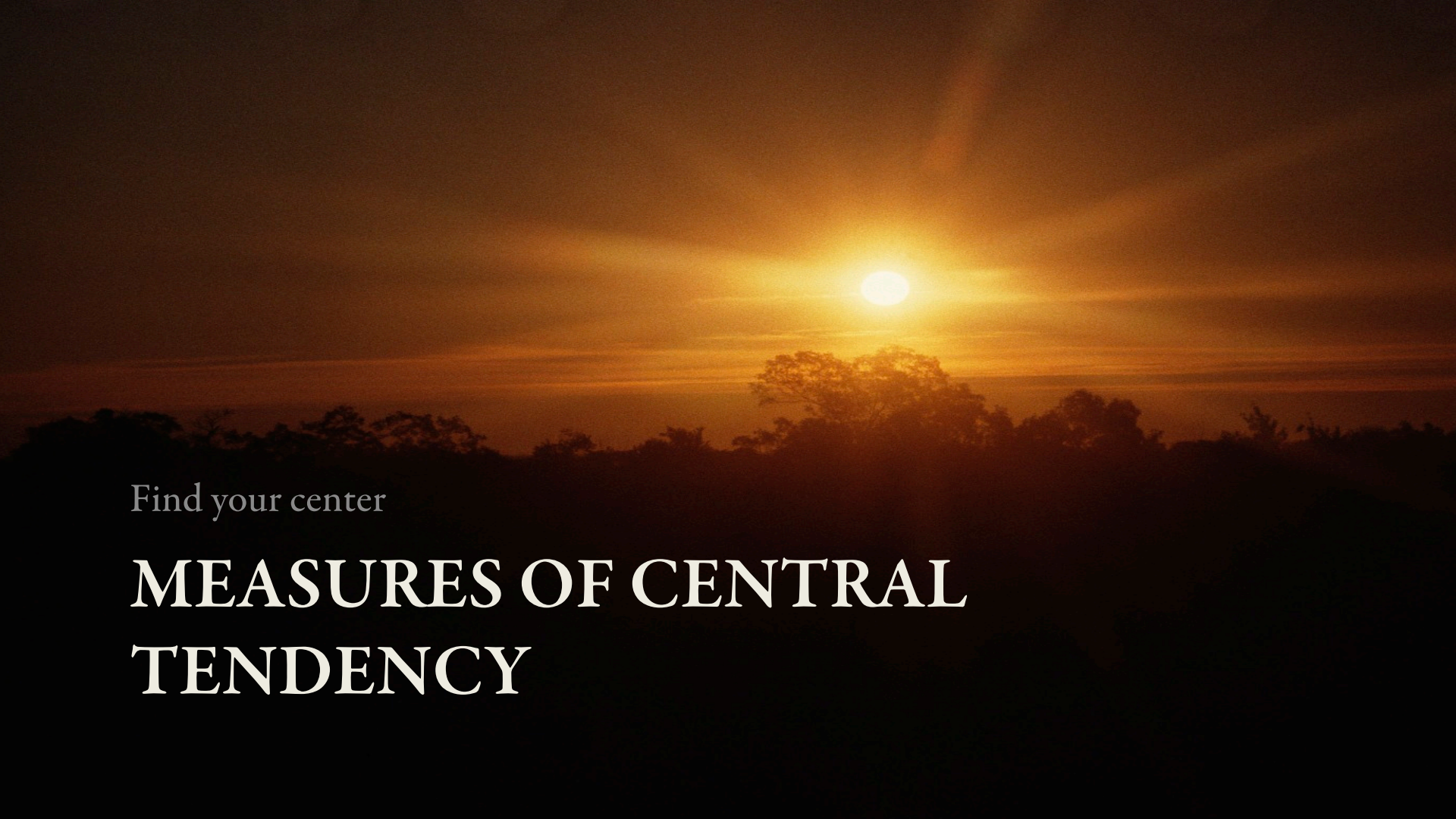
ASQ CRE Prep course

Lesson II. A. 1. b.

Basic Probability Concepts

Measures of Central Tendency



Find your center

MEASURES OF CENTRAL TENDENCY

1st Moment – Central Tendency

- Average
- Middle
- Mid-point
- Center
- Center of mass

- Mean, X-bar

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

- 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