# Analysis of Random Sample Distributions

To determine which graph represents a random sample from the given population, I need to analyze the shape, center, and spread of each distribution compared to the population distribution.

## Population Characteristics

- Mean: 6.4

- Standard deviation: 4.1

- Shape: Right-skewed distribution with most values clustered toward the lower end

## Analysis of Sample Distributions

### Graph A

- Shows a multi-modal distribution

- Has several peaks and inconsistent shape

- The distribution doesn't maintain the same right-skewed pattern as the population

- The spread appears too wide and irregular for a large sample (n=500)

### Graph B

- Shows a narrow, approximately normal distribution

- Concentrated around 8-9, which doesn't match the population mean of 6.4

- The spread appears much smaller than would be expected with σ=4.1

- Shape does not preserve the right-skewed nature of the population

### Graph C

- Shows a right-skewed distribution similar to the population

- Peak appears to be around 6-7, consistent with population mean of 6.4

- Spread extends appropriately to the right

- Shape preserves the essential characteristics of the population distribution

- With n=500, we would expect the sample to closely resemble the population, which Graph C does

## Answer

(C) Graph C.

Graph C most likely represents a random sample of 500 values from the given population because it maintains the right-skewed shape, appears centered near the population mean, and has an appropriate spread that reflects the population's standard deviation.