Population
- Shape: Not normal, skewed right
- Center: Mean, $\mu = 8.08$
- Spread: Standard Deviation, $\sigma = 6.22$

Distribution of $\bar{y}$
- $n = 5$
- Shape: Approximately normal
- Center: Mean, $\mu = 8.08$
- Spread: Standard Deviation,
  $$SD(\bar{y}) = \frac{\sigma}{\sqrt{n}} = \frac{6.22}{\sqrt{5}} = 2.78$$
Population
- Shape: Not normal, skewed right
- Center: Mean, $\mu = 8.08$
- Spread: Standard Deviation, $\sigma = 6.22$

Distribution of $\bar{y}$
- $n = 25$
- Shape: Approximately normal
- Center: Mean, $\mu = 8.08$
- Spread: Standard Deviation, $\text{SD}(\bar{y}) = \frac{\sigma}{\sqrt{n}} = \frac{6.22}{\sqrt{25}} = 1.24$
Central Limit Theorem

* When selecting random samples from a population with a distribution that is not normal, the distribution of $\bar{y}$ will be approximately normally distributed.
* The larger the sample the better the approximation.

Conditions

* Random sampling condition
  - Samples must be selected at random from the population.
* 10% condition
  - When sampling without replacement, the sample size should be less than 10% of the population size.

Summary

* Distribution of $\bar{y}$
  - Shape: Approximately normal
  - Center: $\mu$
  - Spread: $SD(\bar{y}) = \frac{\sigma}{\sqrt{n}}$