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| **Chapter** **Key Vocabulary:*** **parameter**
* **statistic**
* **sampling variability**
* **sample distribution**
* **sampling distribution**
* **population distribution**
 | * **margin of error**
* **biased estimator**
* **unbiased estimator**
* **bias**
* **variability**
* **variability of a statistic**
 | * **sample proportion**
* **sample mean**
* **central limit theorem**
 |

1. What is a parameter? What is a statistic? How is one related to the other?
2. Explain the difference between  and, between *p* and, between *σ* and sx?
3. Identify the population, parameter(with notation), sample, and statistic(with notation),:
	1. The Gallup Poll asked a random sample of 515 US adults whether or not they believed in ghosts. Of the respondents, 160 said “Yes.”
	* Population
	* Parameter
	* Sample
	* Statistic
	1. A random sample of 100 female college students has a mean of 64.5 inches; which is greater than the 63 inch mean height of all adult American women.
	* Population
	* Parameter
	* Sample
	* Statistic
4. What is sampling variability? Why do we care?
* What is the difference between variability of the parameter and sampling variability (sample means and sample proportions)?
* How is sampling variability related to margin of error?
1. What is the difference between the **distribution of the population**, the **distribution of the sample**, and the **sampling distribution of a sample statistic**? *Give an example. It is helpful to sketch graphs of each! See graphs on pages 420-423.*
* **Define** *Population Distribution; and* **sketch a graph**:
* **Define** Distribution of a sample*; and* **sketch a graph**:
* **Define** Sampling distribution of a statistic*; and* **sketch a graph**:
* **CHECK YOUR UNDERSTANDING** (page 420) complete questions 1-3

1)

2)

3)

1. Explain the difference between these 3 distributions. Why do we care sampling distributions of a statistics?
2. What is an unbiased estimator? What is a biased estimator? Why do we care?
* **Define**: Unbiased Estimator
* Explain the difference between Biased and Unbiased Estimators
* When is a statistic considered an unbiased estimator?
* **CHECK YOUR UNDERSTANDING** (page 426) complete questions 1-3

1)

2)

3)

1. What is the variability of a statistic? Why do we care?
* **Define**: Variability of a Statistic
* How can you reduce the variability of a statistic?
* What effect does the size of the population have on the variability (spread) of a statistic?
1. What is the difference between accuracy and precision? How does this relate to bias and variability?
2. Explain the difference between bias and variability. Sketch the 4 bull’s eyes on page 426 and clearly explain their bias and variability.
* What is the ideal estimator?