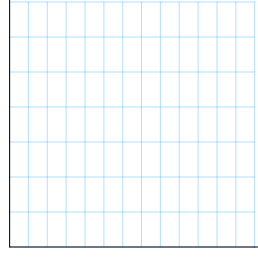
|  |  |  |
| --- | --- | --- |
| **Chapter**  **Key Vocabulary:**   * **parameter** * **statistic** * **sampling variability** * **sample distribution** * **sampling distribution** * **population distribution** | * **margin of error** * **biased estimator** * **unbiased estimator** * **bias** * **variability**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

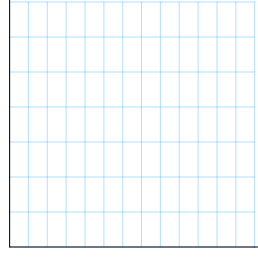
1. What is a parameter? What is a statistic? How is one related to the other?
2. Explain the difference between  and, between *p* and, between *σ* and sx?
3. Identify the population, parameter(with notation), sample, and statistic(with notation),:
   1. The Gallup Poll asked a random sample of 515 US 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?