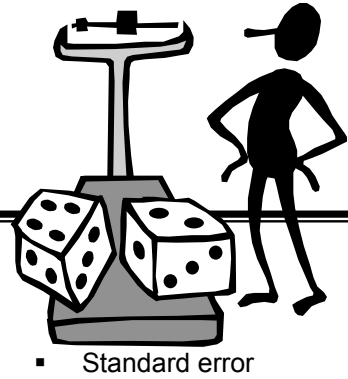


## Chapter 18: Sampling Distribution Models



### Key Vocabulary:

- parameter
- statistic
- proportion
- sampling distribution model
- Central Limit Theorem

1. Explain the difference between  $p$  and  $\hat{p}$ ?
2. What is meant by the *sampling distribution model* of a statistic?
3. How is the size of a sample related to the *spread* of the sampling distribution?
4. In an SRS of size  $n$ , what is true about the sampling distribution of  $\hat{p}$  when the sample size  $n$  increases?
5. In an SRS of size  $n$ , what is the mean of the sampling distribution of  $\hat{p}$ ?
6. In an SRS of size  $n$ , what is the standard deviation of the sampling distribution of  $\hat{p}$ ?
7. What happens to the standard deviation of  $\hat{p}$  as the sample size  $n$  increases?
8. What are the two assumptions you must make for the model for the distribution of sample proportions?

9. What are the conditions you must check before using the Normal model for the distribution of sample proportions?
  
10. Because averages are less variable than individual outcomes, what is true about the standard deviation of the sampling distribution of  $\bar{x}$ ?
  
11. What is the mean of the sampling distribution of  $\bar{x}$ , if  $\bar{x}$  is the mean of an SRS of size  $n$  drawn from a large population with mean  $\mu$  and standard deviation  $\sigma$ ?
  
12. What is the standard deviation of the sampling distribution of  $\bar{x}$ , if  $\bar{x}$  is the mean of an SRS of size  $n$  drawn from a large population with mean  $\mu$  and standard deviation  $\sigma$ ?
  
13. To cut the standard deviation of  $\bar{x}$  in half, you must take a sample \_\_\_\_\_ times as large.
  
14. When should you use  $\frac{\sigma}{\sqrt{n}}$  to calculate the standard deviation of  $\bar{x}$ ?
  
15. If  $\sigma$  is not known, what can you use to estimate the standard deviation of  $\bar{x}$ ?  
What is this called?
  
16. What does the central limit theorem say about the shape of the sampling distribution of  $\bar{x}$ ?

