# HYPOTHESIS TESTING: PRACTICE 2; SINGLE MEAN, UNKNOWN POPULATION STANDARD DEVIATION

## STUDENT LEARNING OUTCOMES

- **THE STUDENT WILL EXPLORE THE PROPERTIES OF HYPOTHESIS TESTING WITH A SINGLE MEAN AND UNKNOWN POPULATION STANDARD DEVIATION.**

## GIVEN:

A random survey of 75 death row inmates revealed that the average length of time on death row is 17.4 years with a standard deviation of 6.3 years. Conduct a hypothesis test to determine if the population average time on death row could likely be 15 years.

## HYPOTHESIS TESTING: SINGLE AVERAGE

1. Is this a test of averages or proportions? _____

2. State the null and alternative hypotheses.

   a. $H_o$: _____
   b. $H_a$: _____

3. Is this a right-tailed, left-tailed, or two-tailed test? How do you know?

4. What symbol represents the Random Variable for this test?

5. In words, define the Random Variable for this test.

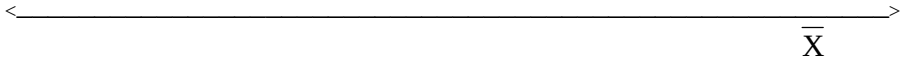
6. Is the population standard deviation known and, if so, what is it?

7. Calculate the following:
   a. $\bar{x}$ = _____
   b. 6.3 = _____
   c. n = _____

8. Which test should be used?
   In 1 -2 complete sentences and explain why.

9. State the distribution to use for the hypothesis test.

10. Sketch a graph of the situation. Label the horizontal axis. Mark the hypothesized mean and the sample mean, $\bar{x}$. Shade the area corresponding to the p-value.




11. Find the p-value: _____

12. At a pre-conceived $\alpha = 0.05$, what is your:
   a. Decision:
   b. Reason for the decision:
   c. Conclusion (write out in a complete sentence):

## DISCUSSION QUESTION

13. Does it appear that the average time on death row could be 15 years? Why or why not?