Math 113: Classroom Activity 4   Name : _____
10 pts

Materials Needed:
        Bags of candy.

Instructions:
        Do NOT look into the bag until instructed to do so.

1.   Without looking, reach into the bag and withdraw one piece of candy and record
        the color of the wrapper (you may abbreviate the colors) in the table below.
        Replace the candy into the bag and repeat this process 49 more times so that you
        have a total of 50 trials.

2.   Create a frequency distribution and a probability (proportion) distribution of the
        flavors of the candies in your bag based on your results. Finally, convert your
        proportions into percents (proportions are just the decimal form of percents). Then
        open your bag and record the actual number of each flavor.

Flavor (color)	Orange (orange)	Strawberry (pink)	Cherry (red)	Lemon (yellow)	Total
Frequency					50
Proportion					1.00
Percent					100%
Actual					

3.   If you repeated this entire process again with the same bag of candy, would you expect to get exactly the same results? Would you expect to get similar results? Explain your answer.

Test the claim that 35% of the candies are strawberry.

4.   Write the original claim symbolically (circle one).
$p < 0.35$ $p = 0.35$ $p > 0.35$
$p \leq 0.35$ $p \neq 0.35$ $p \geq 0.35$

5.   The original claim is the (null / alternative) hypothesis.

6.   Write the null and alternative hypotheses.

        H_0:

        H_1:

7.   This is a (left / right / two) tail test.

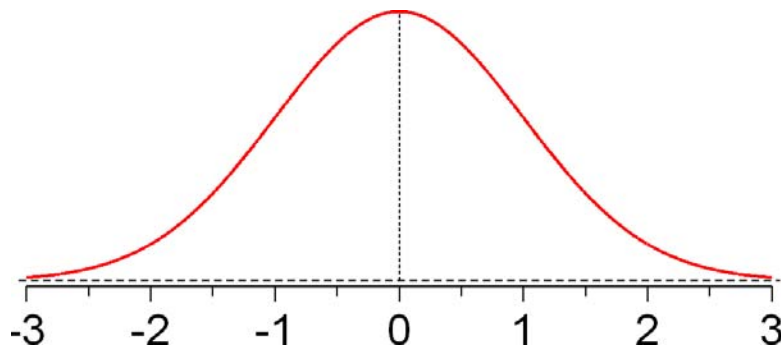8.   The significance level is $\alpha =$ _____.

9.   The critical value(s) is/are _____.

10.   The test statistic is _____.

11.   The probability value is _____.

12.   The _____ % confidence interval is _____ $< p <$ _____.

13. Illustrate the figure as follows.
    a.   Draw and label vertical line(s) at the critical value(s)
    b.   Shade and label the critical region
    c.   Label the non-critical region
    d.   Label the area in the critical and non-critical regions. Use α notation
        (example, $\alpha = 0.05$ or $\alpha/2 = 0.025$, or $1 - \alpha = 0.95$)
    e.   Identify the regions with "Reject H_0" or "Retain H_0"
    f.   Draw and label a vertical line at the test statistic
    g.   Label the area beyond the test statistic with the p-value.

14. The test statistic (does / does not) fall in the critical region so we (reject / retain) the null hypothesis.

15. The p-value is (less / greater) than the significance level so we (reject / retain) the null hypothesis.

16. The claimed value of 35% (does / does not) fall in the confidence interval, so we (reject / retain) the null hypothesis.

17. The decision is to (reject / retain) the null hypothesis.

18. There (is / is not) enough evidence to (reject / support) the claim that 35% of the candies are strawberry.

19. The actual proportion of strawberry candies in the bag is _____.

20. The confidence interval (does / does not) contain the actual proportion of strawberry candies found in the bag.