

Materials Needed:

Scale

Instructions:

Do all work in the metric system

1. Member's Mark claims that there are _____ grams of candy in each bag.
2. For your bag of candy, measure the following and record.

Mass of package (g)	Mass of wrapper (g)	Mass of candy (g)

3. Record the number of each animal in your bag.

Ape	Bear	Chimp	Elephant	Giraffe	Hippo	Koala	Lion	Penguin	Seal

4. Gather the mass of the candy from all of the students and record them in the table.

We will be working with the claimed mass of the candy at this point. Save the animal data for later in the course.

The original claim is that there is a certain amount of candy in each bag. Since a sample of size one is statistically useless, we'll instead test the claim that the mean of our bags is that amount.

5. Summarize the sample

Sample Size, n	Mean, \bar{x}	St. Dev, s	SE Mean

6. Write the original claim symbolically.

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

8. Write the null and alternative hypotheses.

H_0 :

H_1 :

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

10. The level of significance is $\alpha =$ _____.

11. The Student's t distribution needs degrees of freedom, which are _____.

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

13. The test statistic is $t = \frac{\bar{x} - \mu}{SE(\bar{x})}$, its value is _____.

14. The probability value is _____.

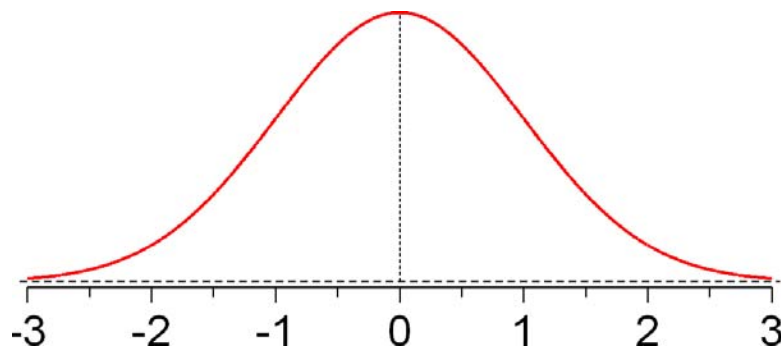
15. The _____ % confidence interval is _____ $< \mu <$ _____.

16. Complete the following table to demonstrate an understanding of the relationship between the answers questions 9-14. Correctly label four of the values in the table as CV, TS, α , and p-value.

t-score	area to left*	area to right*	twice smaller area

*If you have a two tail test, then put the same area for the left and right when finding the critical value.

17. Illustrate the diagram as follows
- Draw and label vertical line(s) at the critical value(s)
 - Shade and label the critical region
 - Label the non-critical region
 - Draw arrows and label the area in the critical region and non-critical region. Use α notation like $\alpha = 0.05$ or $1 - \alpha = 0.05$.
 - Label the appropriate regions with "Reject H_0 " and "Retain H_0 ".
 - Draw and label a vertical line at the test statistic.
 - Draw an arrow and label the area beyond the test statistic with the p-value.



18. The test statistic (does / does not) fall in the critical region, so we (reject / retain) the null hypothesis.
19. The p-value is (less / greater) than the significance level, so we (reject / retain) the null hypothesis.
20. The confidence interval (does / does not) contain the claimed value of the mean, so we (reject / retain) the null hypothesis.

