1. A researcher recorded the amount of time each bird spent in the plain chamber during a 60-minute session. Suspose the study produced a mean of M=37 minutes on the plain chamber with SS=288 for a sample of n=9 birds. (Note: If the eye spots have no effect, then the birds should spend an average of µ=30 minutes in each chamber.)
2. Calculate and report the value of the t-statistic.  Do you reject or fail to reject the null hypothesis?
3. Compute the estimated Cohen's d.
4. A sample of n=25 children who attend day care before starting school had an average score of M=87 with SS=1536 on a standard math test for which the population mean is µ=81. Use a two-tailed test with α=.01.
5. Calculate and report the value of the t-statistic.
6. Do you reject or fail to reject the null hypothesis?
7. It is known that laboratory rats normally eat an average of µ=21 grams of food each day. Researchers select a random sample of n=16 rats and place them in a controlled atmosphere room in which the relative humidity is maintained at 90%. The daily food consumption scores for the rats are as follows:

14, 18, 21, 15, 18, 18, 21, 18

16, 20, 17, 19, 20, 17, 17, 19

1. What is the value of the t-statistics? Do you reject or fail to reject the null hypothesis?
2. Compute the requested values.
3. An independent-measures research study was used to compare two treatment conditions with n=12 participants in each treatment. The first treatment had a mean of M=55 with a variance of s2 =8, and the second treatment had M=52 and s2=4. Use a two-tailed test with α=.05.
4. What is the value of the t-statistic? Do you reject or fail to reject the null hypothesis?
5. The following results are similar to those obtained in a recent study. The scores are a measure of concern about the negative aspects of eating.

|  |  |
| --- | --- |
| Males | Females |
| N=6 | N=9 |
| M=31 | M=45 |
| SS=490 | SS=680 |

1. What is the value of the t-statistic? Do you reject or fail to reject the null hypothesis?
2. Compute the value.
3. A researcher conducts an independent-measures research study and obtains t=2.070 with df=28.
4. How many individuals participated in the entire research study?
5. Using a two-tailed test with α=.05, is there a significant difference between the two treatment conditions?
6. Compute r2 to measure the percentage of variance accounted for by the treatment effect.

PLEASE SHOW THE STEPS TO SOLVE EACH PROBLEM.