Calculating the Statistics

9.16 We use formulas to describe calculations. Find the error in symbolic notation in each of the following formulas. Explain why it is incorrect and provide the correct symbolic notation.

 a. z = (X – M)

 σ

 b. X = z(σ) - µm

c. σm = \_\_\_σ\_\_

√N – 1

d. *t* = (M – μM)

 σM

9.18 For the following data (1.01, 0.99, 1.12, 1.27, 0.82, 1.04), calculate the standard deviation under both of these conditions. (Note: You will have to carry some calculations out to the third decimal place to see the difference in calculations.)

 a. For the sample

 b. As an estimate of the population

9.20 Calculate the standard error for t for the sample used in # 9.18 using symbolic notation: 1.01, 0.99, 1.12, 1.27, 0.82, 1.04.

9.22 Calculate the t statistic for the data presented in # 9.18, assuming µ = 0.96. Again, the data are 1.01, 0.99, 1.12, 1.27, 0.82, 1.04

9.24 Calculate degrees of freedom and identify the critical t value in each of the following circumstances:

 a. A two-tailed test based on 8 observations at a p level of 0.10

 b. A one-tailed test based on 42 observations at a p level of 0.05

 c. A two-tailed test based on 89 observations at a p level of 0.01