

Practice Questions for the 102 Final Exam

Version for Brase Text

A random sample of earthworms had the following cranial widths. Use the data in problems 1-5:

51	84	96	38	44	39	35	25	76	74
96	85	52	28	82	25	91	83	41	53
29	56	79	90	58	24	83	62	25	23

1. Construct a stem and leaf plot for the data.
2. Construct a histogram for the data. Use a class width of **10**; begin the first class with **20**.
3. Find the mean, median, mode, sample standard deviation, and range.
4. Using the mean and standard deviation just computed, find the interval centered on the mean in which you would expect to find approximately (a) 68% of the data; (b) 95% of the data.
5. Show the five-number summary and construct the box plot for the data.
6. You can make a free throw with probability 0.7 and a shot from the top of the key with probability 0.6. What is the probability that you miss two in a row, one from the free throw line and the second from the top of the key?
7. For a *normal* distribution ($\mu = 35$, $\sigma = 8.2$), find $P(31 \leq x \leq 48)$.
8. A random sample of 300 students reported the lengths of time they studied for their statistics exam. The mean was 6.2 hours and the standard deviation was 2.3 hours. Find the 95% confidence interval for the true population **mean** μ of all statistics students' study times.
9. A maker of a medication claims it will cure athlete's foot in 14 days or less, on average. To test the claim, a trainer used it on the next 25 athletes she encountered with the problem. The mean cure time for this sample was 16 days. The sample had a standard deviation of 2.1 days. Is there sufficient evidence to reject the 14-day average claim? (a) Test at the $\alpha = .05$ level. (b) **Find the p -value for the test.**

Seven students recorded their total study times for all five of their exams, combined. After the grades were posted on the web, they recorded their GPAs for the term. Here's the result, applicable to the next two questions:

Study time (hours)	30	35	50	40	60	80	60
Semester GPA	2.0	2.5	3.5	2.9	3.1	3.9	2.9

10. Find the correlation coefficient. (b) Determine if there is significant correlation using the $\alpha = .05$ level.
11. Find the regression equation that predicts GPA from study time. (b) Use it to predict the GPA of someone who spends 45 hours studying.