

FACULTY NOTES

The LTAs and Spinoffs are designed so that each professor can implement them in a way that is consistent with his/her teaching style and course objectives. This may range from using the materials as out-of-class projects with minimal in-class guidance to doing most of the work in class. The LTAs and Spinoffs are amenable to small group cooperative work and typically benefit from the use of some learning technology. Since the objective of the LTAs and Spinoffs is to support the specific academic goals you have set for your students, the Faculty Notes are not intended to be prescriptive. The purpose of the Faculty Notes is to provide information that assists you to take full advantage of the LTAs and Spinoffs. This includes suggestions for instruction as well as answers for the exercises.



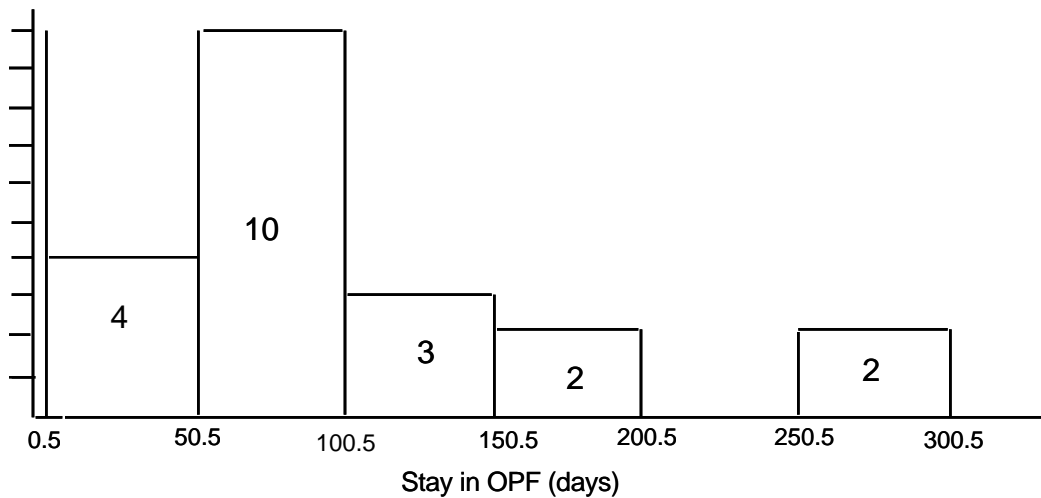
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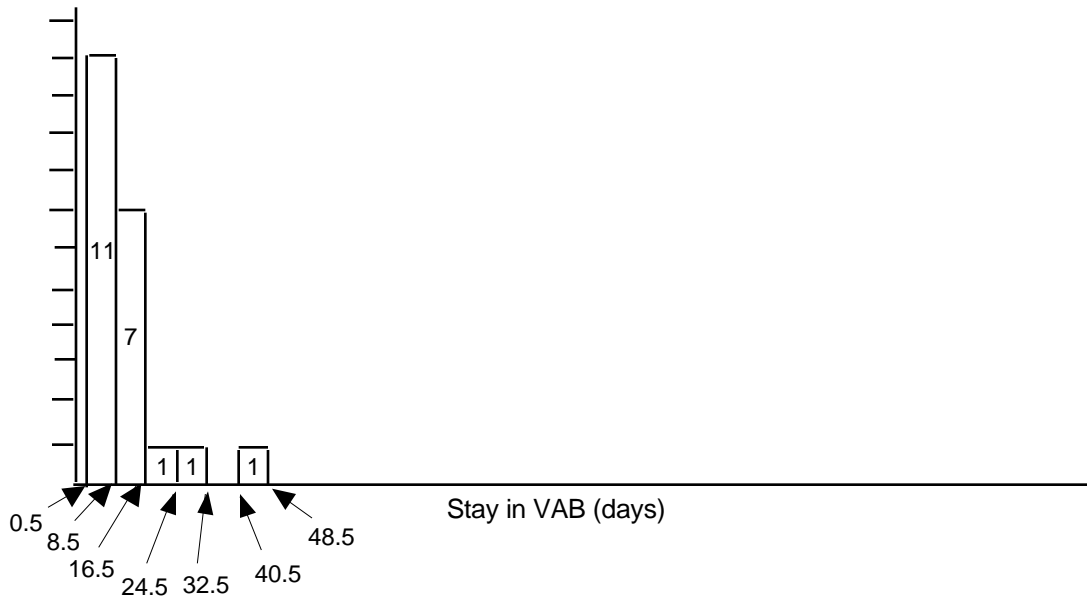
Standard Deviations of Time Spent in the OPFs

Answers

- 1) One would expect the standard deviation of time spent in the OPF to be larger than that of the time spent in the VAB. Standard deviation is a measure of the variability of data, and there is greater variability in OPF times than in the VAB times. The type of mission has a much greater impact on OPF times than it does on VAB times. All other things being equal, this means that OPF times will vary from mission to mission more than VAB times.
- 2) Mean for Discovery OPF times = 102.48 days.
Standard deviation for Discovery OPF times = 64.08 days
- 3) Mean for Discovery VAB times = 12.33 days.
Standard deviation for Discovery VAB times = 10.29 days
- 4) Histogram for stay in OPF. Class width = 50 days.



Histogram for stay in VAB. Class width = 8 days.



- 5) The center or balance point of the histogram for the stays in the VAB is considerably to the left of the balance point of the histogram for stays in the OPF. You can think of a histogram as being made of a very thin sheet of metal. Then ask yourself, “Where could I support the horizontal axis with a knife-edge so that the histogram would balance?” Since most of the VAB stays are accounted for in the first two bars of the histogram and since none of the remaining three items of data is very far to the right of 16.5, we see that the mean must be less than 16.5 days. On the other hand, the histogram for the OPF stays would appear to balance around a point that is greater than 50.5 days. Thus, by studying the histograms, we expect that the mean of the VAB stays is smaller than the mean of the OPF stays.
- 6) The standard deviation is a measure of how much a set of data is spread out about the mean of the data. We see that the histogram for OPF times is much wider than the histogram for the VAB times. Thus, we expect the standard deviation of the OPF times to be much larger than the standard deviation for VAB times.