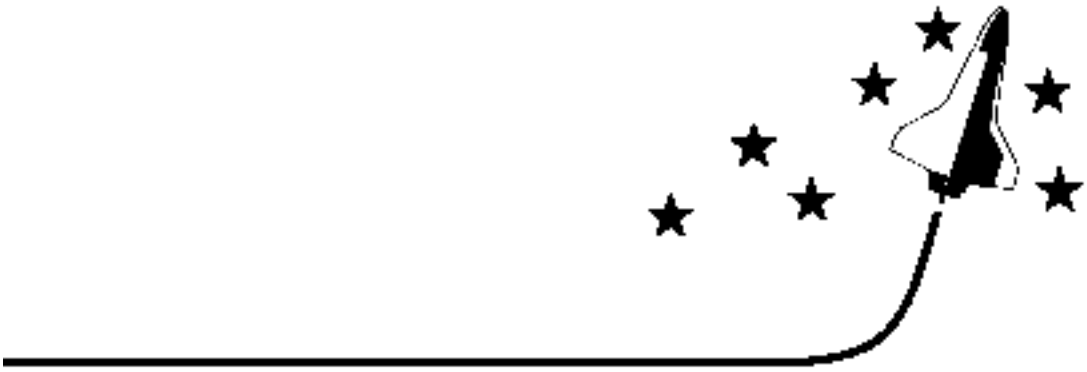
FACULTY NOTES

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.



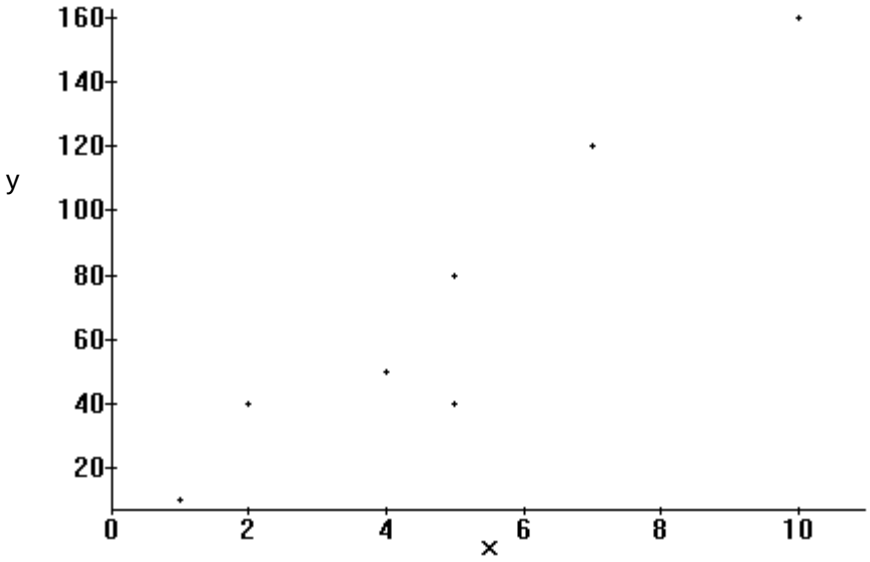
FACULTY NOTES

SPINOFF 6C

Correlation and Regression Applied to Biomass in a Lunar Base Station

Solutions

1) Let x-axis be the number of crew members and y-axis be the area of biomass.



2) Equation of the regression line: $y = -8.39 + 16.43x$

3) $r = 0.948$

4) Null hypothesis $H_0: \rho = 0$

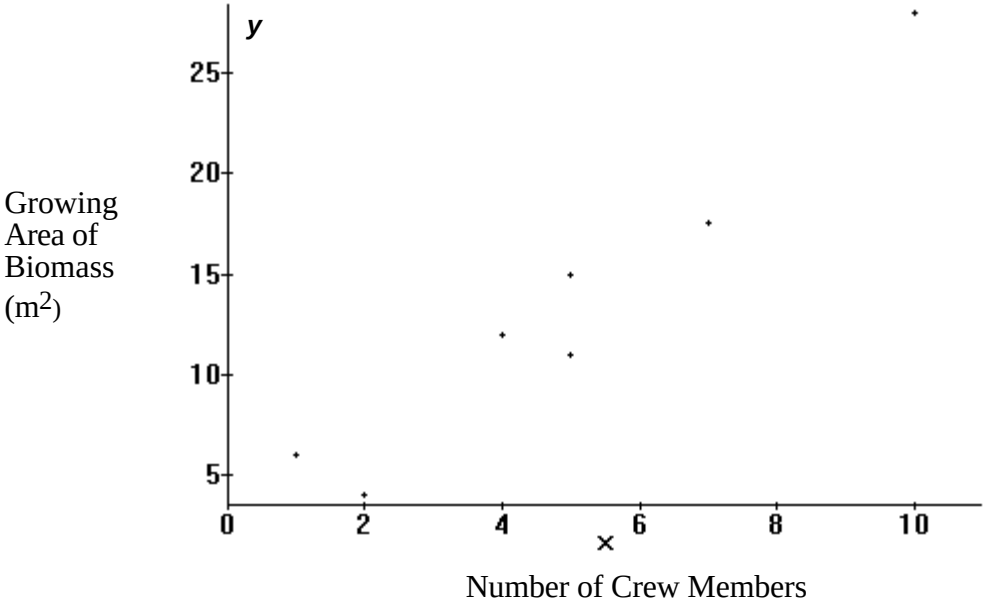
   Alternative hypothesis $H_1: \rho \neq 0$

   Test Statistic: $r = 0.948$

   p-value: 0.001157 (from TI-83™)

   Conclusion: Reject H_0. There is sufficient evidence to warrant rejection of the claim of no correlation. There appears to be a linear correlation.

5)



Equation of the regression line: $y = 0.930 + 2.56x$
Correlation coefficient: $r = 0.968$

Null hypothesis $H_0: \rho = 0$

$H_1: \rho \neq 0$

Test Statistic: $r = 0.968$
p-value: 0.000349 (from TI-83™)

Conclusion: Reject H_0. There is sufficient evidence to warrant rejection of the claim of no correlation. There appears to be a linear correlation.