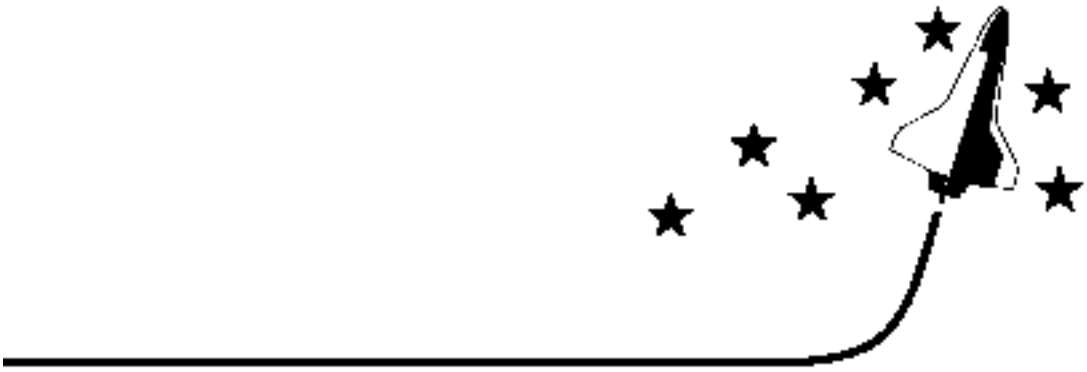
FACULTY NOTES

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 2A

Cost Analysis for the NASA Aquatics Lab

Solutions

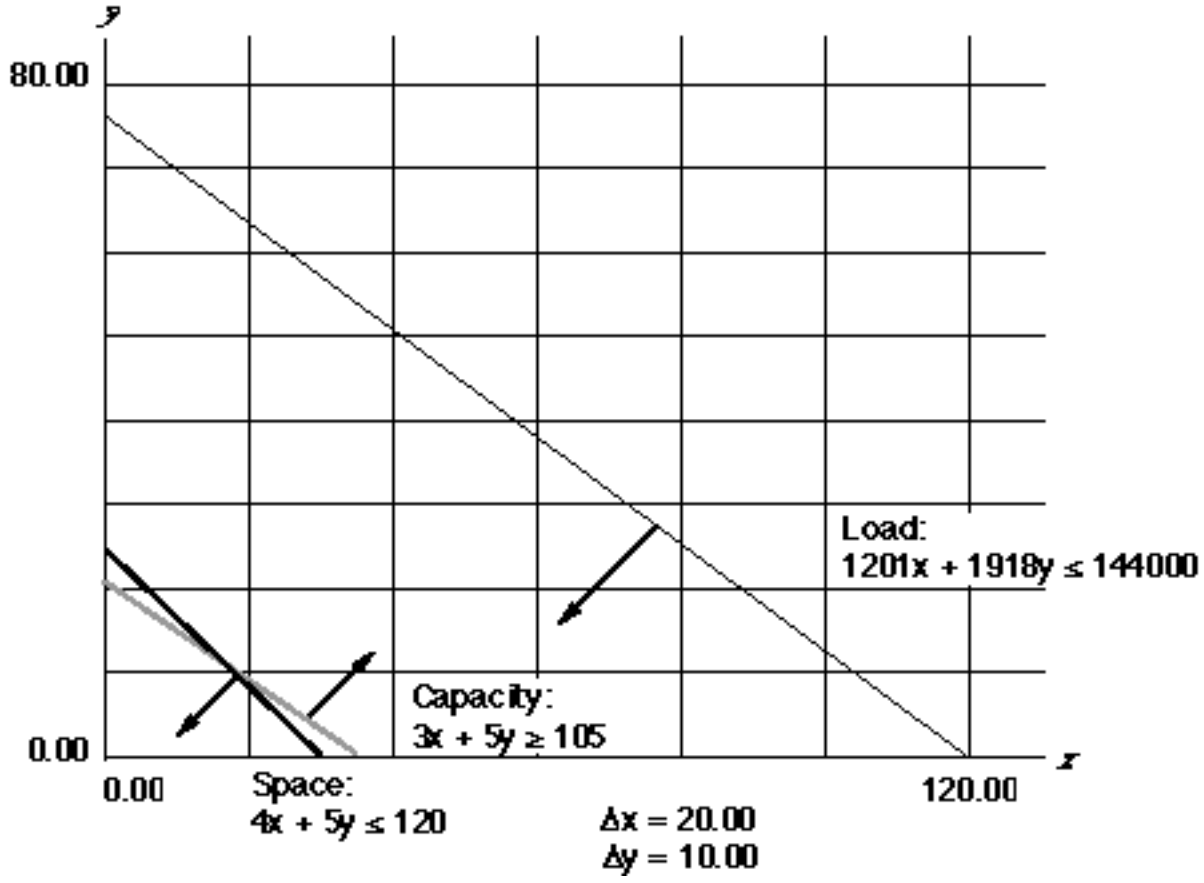
1) Load
   each 30 gallon rack: $4(8.34)(30) + 200 \approx 1201$ lbs
   each 50 gallon rack: $4(8.34)(50) + 250 \approx 1918$ lbs
   total load capacity of floor space: $200(720) = 144000$ lbs
   $1201x + 1918y \leq 144000$ Intercepts: (119.9, 0) & (0, 75.1)

2) Space
   $24x + 30y \leq 720$ or $4x + 5y \leq 120$ Intercepts: (30, 0) & (0, 24)

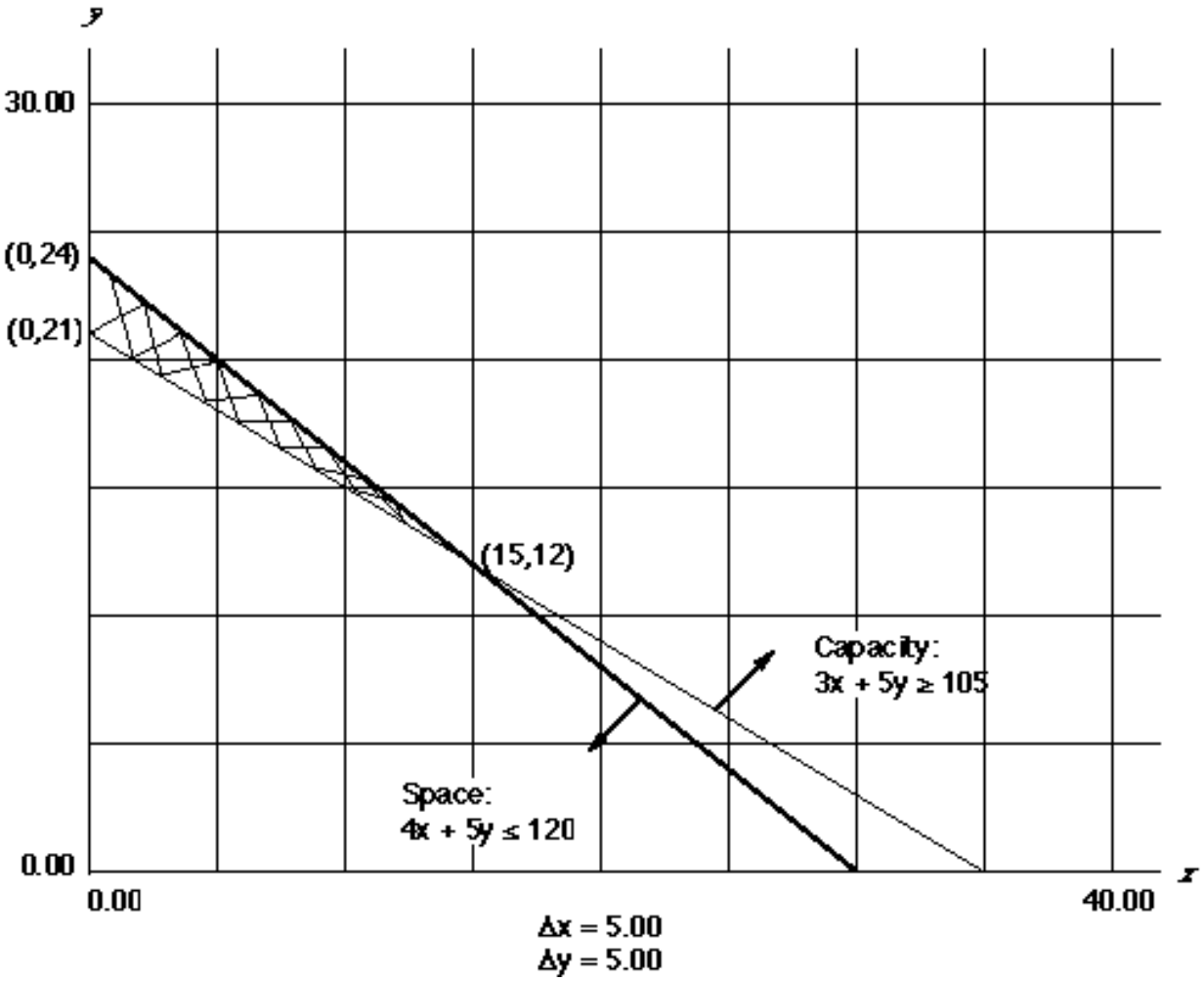
3) Capacity
   each 30 gallon rack: $4(30) = 120$ gallons
   each 50 gallon rack: $4(50) = 200$ gallons
   $120x + 200y \geq 4200$ or $3x + 5y \geq 105$ Intercepts: (35, 0) & (0, 21)

4) Cost Function
   $C(x,y) = 2600x + 4500y$

5. a)



5. b)



6) C(0,24) = 4500(24) = $108,000

C(0,21) = 4500(21) = $94,500

C(15,12) = 2600(15) + 4500(12) = $93,000

7) The minimum cost is $93,000 and occurs when fifteen 30-gallon racks and twelve 50-gallon racks are installed in the NASA Aquatics Lab.