

MA162: Finite mathematics

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October 14, 2013

SCHEDULE:

- Web Assign assignment (Chapter 4.1) due on Friday, October 18 by 6:00 pm.
- Web Assign assignment (Chapter 4.1) due on Tuesday, October 22 by 6:00 pm.
- Exam 2 on Monday, October 28, 5:00 pm to 7:00 pm.

Today we continue our discussion on the Simplex Algorithm, Chapter 4.1.

Exercise 17, Chapter 4.1

Use the simplex algorithm to solve this LPP:

Maximize: $P = 3x + 4y$

Constraints:

- $x + y \leq 4$
- $2x + y \leq 5$
- $x \geq 0, y \geq 0$

Exercise 25, Chapter 4.1

Use the simplex algorithm to solve this LPP:

Maximize: $P = 3x + 4y + z$

Constraints:

- $3x + 10y + 5z \leq 120$
- $5x + 2y + 8z \leq 6$
- $8x + 10y + 3z \leq 105$
- $x \geq 0, y \geq 0, z \geq 0$

Exercise 46, Chapter 4.1

Boise Lumber manufactures prefabricated houses. They offer three models, standard, deluxe, and luxury.

Each house is prefabricated and partially assembled in a factory. The final assembly is done on site.

The dollar amount of building material required, the amount of factory labor required, and the amount of on-site labor required, as well as profit per unit are

	Standard	Deluxe	Luxury
Material	6000	8000	10000
Factory labor	240	220	200
On-site labor	180	210	300
Profit	3400	4000	5000

They have \$8,200,000 budgeted for building materials, 218,000 hours for factory labor, and 237,000 labor hours for on-site labor.

How many houses of each type should they build in order to maximize their profit?