MA162: Finite mathematics

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Schedule:

- HW 1.1-1.4, 2.1-2.4 are late
- Exam 1, Monday, Feb 04, 2013, from 5pm to 7pm
- HW 3.1 due Friday, Feb 08, 2013
- HW 3.2-3.3 due Friday, Feb 15, 2013
- HW 4.1 due Friday, Feb 22, 2013
- HW 2.5-2.6 due Friday, Mar 01, 2013

Today we review the practice exam.

Practice exam #1

- (a) Graph $4x + 3y = 120$
- (b) Graph $2x + 5y = 100$
- (c) Label the approximate intersection
- (d) Using algebra, find the intersection exactly
- (e) Determine the value of $P = 1.25x + 1.35y$

PE#2: Cost revenue profit

- Assume linear models and

Production level	Cost	Revenue	Profit
1200 ounces	\$575	\$975	\$400
1600 ounces	\$600	\$1300	\$700

- (a) Predict the profit at 1300 ounces of production.
- (b) Predict the profit at 1400 ounces of production.
- (c) What level of production is needed for \$1000 of profit?
- (d) What level of production results in \$0 of profit?
- (e) Give a formula for the profit at x ounces of production.

PE#3: Supply and demand

- Supply: $X = 48P + 85$
- Demand:

Price	Demand
\$5	500
\$10	240

- (a) What is the demand equation if one uses a linear model for demand?
- (b) What is the equilibrium price and equilibrium demand?

PE#4: Full resource usage

- Cost and availability of resources:

	MB	TV	Labor
Assembly	15 min	10 min	40 hrs
Shipping	5 min	5 min	15 hrs

- How many of each product should be made in order to keep the workers busy?

- (Plain english and math justification)

PE#5: Solve it

$$\begin{cases} 2x + 8y + 6z = 68 \\ x + 5y + 5z = 48 \\ 2x + 8y + 7z = 73 \end{cases}$$

- (a) Write the augmented matrix corresponding to this system of equations

- (b) Find the general solution of this system of equations

$(x = \_\_\_\_\_, y = \_\_\_\_\_, z = \_\_\_\_\_)$

PE#6: Be free!

$$\begin{cases} 2x + 8y + 6z + 1w = 68 \\ x + 5y + 5z + 2w = 48 \\ 2x + 8y + 7z + 3w = 73 \end{cases}$$

- (a) Write the augmented matrix corresponding to this system of equations

- (b) Find the general solution of this system of equations

$(x = \_\_\_\_\_, y = \_\_\_\_\_, z = \_\_\_\_\_, w = \_\_\_\_\_)$

PE#7: Bigger keep em busy

- You have three types of workers: packers, sewers, cutters. You have three types of products: short-sleeve, sleeveless, long-sleeve. It takes the following amount of time to make them:

	Short	**Less**	**Long**
Pack	4 min	3 min	4 min
Sew	24 min	22 min	28 min
Cut	12 min	9 min	15 min

- You have 24 hours of packers, 160 hours of sewers, and 80 hours of cutters.

- How many of each product should you make to keep everyone working?

PE#8: Worky time or free time?

	Short	**Less**	**Long**	**Scarf**
Pack	4 min	3 min	4 min	5 min
Sew	24 min	22 min	28 min	2 min
Cut	12 min	9 min	15 min	9 min

You have 24 hours of packers, 160 hours of sewers, and 80 hours of cutters.

- (a) There are many ways to keep the workers busy. Write a general formula for these ways.
- (b) Suppose you get paid per item made (each one worth the same amount). How can you maximize the number of items made, while keeping the workers busy?