

## Examples in Linear Programming

Math 20  
Introduction to Multivariable  
Calculus and Linear Algebra  
October 18, 2004



## Maximizing Sales Revenue

- + A candy manufacturer has 130 pounds of chocolate-covered cherries and 170 pounds of chocolate-covered mints
- + Decides to sell them as half-and-half and one-third-to-two-thirds mixtures
- + Half-and-half bags will cost \$2.00/lb.
- + Other bags will cost \$1.25/lb.
- + How much of each mixture should he make to maximize revenue?



## Maximizing Annual Yield

- + An investor has \$10K to invest in two bonds, A and B
- + A has APY of 10%, B has APY of 7%
- + Investor decides
  - + At most \$6K into A
  - + At least \$2K into B
  - + At least as much in A as B
- + How much in each bond to maximize yield?



## Minimizing Cost

- + Student wants to eat a breakfast of cornflakes and milk which is economical as possible

	Milk (1/2 c.)	Corn Flakes (1 oz.)
Cost	7.5¢	5¢
Protein	4g	2g
Vitamin D	1/8 RDA	1/10 RDA
Calcium	1/6 RDA	0



## Minimizing Cost

- + Wants
  - + At least 9g protein
  - + At least 1/4 USRDA of vitamin D
  - + At least 1/3 USRDA of calcium
  - + Between 1 and 3 oz. cereal for each cup of milk
- + What mixture will minimize the cost of breakfast?

	Milk (1/2 c.)	Corn Flakes (1 oz.)
Cost	7.5¢	5¢
Protein	4g	2g
Vitamin D	1/8 RDA	1/10 RDA
Calcium	1/6 RDA	0

