

1. Back savers

- a.  $X_{\text{coll}}$  = number of collegiate to produce

$X_{\text{mini}}$  = number of mini to produce

- b. [Max]profit =  $32X_{\text{coll}} + 24X_{\text{mini}}$

- c. Nylon, Labor, and Sales

- d. [Max]profit =  $32X_{\text{coll}} + 24X_{\text{mini}}$

Nylon)  $3X_{\text{coll}} + 2X_{\text{mini}} \leq 5000$

Labor)  $.75X_{\text{coll}} + .66X_{\text{mini}} \leq 1400$

Sales)  $X_{\text{coll}} + X_{\text{mini}} \leq 1000X_{\text{coll}} + 1200X_{\text{mini}}$

*Note: Labor is in hours, where 1400 hours is the total of 40 hours times 35 laborers*

2. The Weigelt Corporation

- a.  $X_L$  = amount of Large to produce

$X_M$  = Amount of Medium to produce

$X_S$  = Amount of Small to produce

- b. [Max]profit =  $420 X_L + 360 X_M + 300$

Storage1)  $20 X_L + 15 X_M + 12 X_S \leq 13000$

Storage2)  $20 X_L + 15 X_M + 12 X_S \leq 12,000$

Storage3)  $20 X_L + 15 X_M + 12 X_S \leq 5,000$

Sales)  $X_L + X_M + X_S = 900 X_L + 1200 X_M + 750 X_S$

Production1)  $X_L + X_M + X_S \leq 750$

Prodcutuon2)  $X_L + X_M + X_S \leq 900$

Propoduction3)  $X_L + X_M + X_S \leq 450$

*Note: Storage1,2,3 and production1,2,3 refer to the three different plants available*