

Example, Section 3.9 (Production Process)

(Exercise 4, p. 98)

Chemco produces three products (1, 2, 3). Each pound of raw material costs \$25. It undergoes processing and yields 3 oz of product 1 and 1 oz of product 2. It costs \$1 and takes 2 hours of labor to process each pound of raw material. Each oz of product 1 can be used in one of three ways:

- It can be sold for \$10 per oz
- It can be processed into 1 oz of product 2. This requires 2 hours of labor and costs \$1
- It can be processed into 1 oz of product 3. This requires 3 hours of labor and costs \$2.

Each oz of product 2 can be used in one of two ways:

- It can be sold for \$20 per oz
- It can be processed to make 1 oz of product 3. This requires 1 hour of labor and costs \$6.

Product 3 is sold for \$30 per oz. The maximum number of oz of each product that can be sold: Product 1- 5,000. Product 2- 5,000. Product 3- 3,000. A maximum of 25,000 hours of labor are available. Determine how Chemco can maximize profit.