

HAT 9/7/17
Chapter 3 Practice

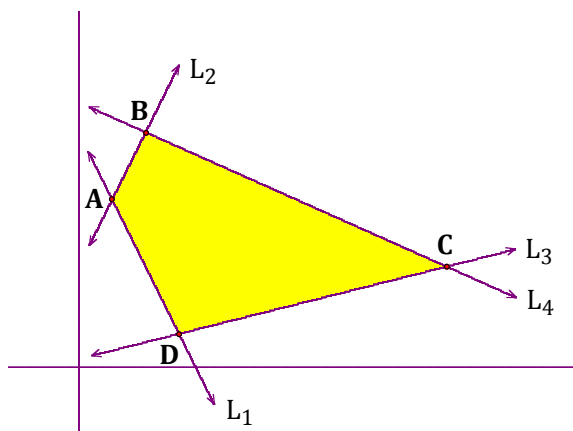
1) This feasibility region has boundary lines

$$L_1: 6x + 3y = 21$$

$$L_2: 7y = 14x + 21$$

$$L_3: 2x = 8y - 2$$

$$L_4: 4x + 9y = 71$$



a) Use ELIMINATION to find the coordinates of points A and C.

b) Use SUBSTITUTION to find the coordinates of points B and D.

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- c) If the objective function is $M = 6x - 2y$, find both the MAXIMUM and MINIMUM values of the objective function.
- d) If the objective function is $M = 2x + 6y$, find both the MAXIMUM and MINIMUM values of the objective function.

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- 2) STUGO will screen print t-shirts and sweatshirts to sell during Homecoming week. They have at most 20 hrs to make shirts and can spend no more than \$600 on supplies. To be worthwhile, they want to have at least 50 items to sell. A t-shirt requires \$4 for supplies, takes only 10 min to print, and has a profit of \$6. A sweatshirt requires \$20 for supplies, takes 30 min to print, and has a profit of \$20. Make a recommendation that will help STUGO maximize their profit. What is the maximum possible profit?

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4) Solve this system by ELIMINATION:

$$\begin{aligned}3x + 4y + 5z &= 32 \\4x + 3y - 6z &= -31 \\5x - 2y + 3z &= 30\end{aligned}$$

(Calculator may be used for basic operations.)

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$X = \text{tshirts}$

$Y = \text{sweatshirts}$

$X + y \geq 50$

$(10/60)x + (30/60)y \leq 20$

$4x + 20y \leq 600$

$\text{Profit} = 6x + 20y$

Answer: 15 tshirts, 35 sweatshirts, profit \$790