

ЛЕКЦИЯ 5

Пример 2

Найти решение ЗЛП при помощи решения двойственной задачи

- 26 -

2019 - 2020

$$Z(X) = 6x_1 + 26x_2 + 8x_3 \rightarrow \min$$

$$\begin{cases} -3x_1 + 4x_2 + 2x_3 \geq 1 & y_1 \\ 2x_1 + 3x_2 - 1 \cdot x_3 \geq 3 & y_2 \\ x_1, x_2, x_3 \geq 0 \end{cases}$$

$$F(Y) = 1 \cdot y_1 + 3y_2 \rightarrow \max$$

$$\begin{cases} I & -3y_1 + 2y_2 \leq 6 \\ II & 4y_1 + 3y_2 \leq 26 \\ III & 2y_1 - 1 \cdot y_2 \leq 8 \\ & y_1, y_2 \geq 0 \end{cases}$$

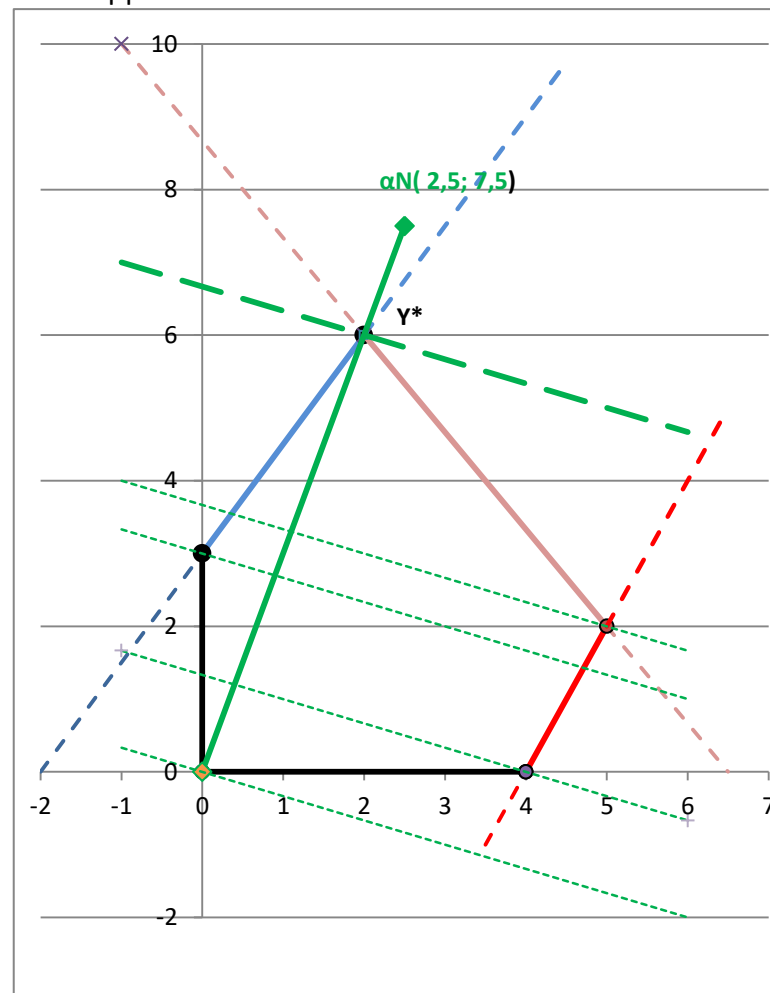
$$\begin{array}{rcl} \frac{2}{-3y_1 + 2y_2} & \leq & \frac{6}{6} \\ \frac{6}{4y_1 + 3y_2} & \leq & \frac{26}{26} \\ \frac{6}{2y_1 - 1 \cdot y_2} & \leq & \frac{26}{26} \end{array} \quad \begin{array}{l} = \\ = \\ < \end{array} \quad \begin{array}{l} \\ \\ x_3^* = 0 \end{array}$$

$$\begin{cases} -3x_1 + 4x_2 + 2 \cdot 0 = 1 \\ 2x_1 + 3x_2 - 1 \cdot 0 = 3 \end{cases} \quad \begin{cases} x_1^* = 9/17 \\ x_2^* = 11/17 \end{cases}$$

k ; 1/k		1,5	2/3
I	y ₁	0	-2
	y ₂	3	0

k ; 1/k		-1 1/3	- 3/4
II	y ₁	0	6,5
	y ₂	8 2/3	0

k ; 1/k		2	1/2
III	y ₁	3,5	4
	y ₂	-1	0



$$N = (1; 3)$$

$$\alpha N = (2,5; 7,5)$$

$$Y^* : \begin{cases} -3y_1 + 2y_2 = 6 \\ 4y_1 + 3y_2 = 26 \end{cases}$$

$$\begin{cases} y_1^* = 2 \\ y_2^* = 6 \end{cases}$$

$$Y^* = (2; 6)$$

$$F^* = 1 \cdot 2 + 3 \cdot 6 = 20$$

$$Z^* = F^* = 20$$

$$X^* = (9/17; 11/17; 0)$$