1 $Z(X) = 5x_1 - x_2 + x_3 \to$ max $Z_1(X) = 5x_1 - x_2 + x_3 - Mx_4 \to$ max

$x_1 + 4x_2 - x_3 = 1$ $x_1 + 4x_2 - x_3 \quad = 1$

$\quad\quad 2x_2 + 3x_3 = 18$ **+ a** $\quad 2x_2 + 3x_3 + a = 18$

$x_j \ge 0 \quad j=1,2,3$ $x_j \ge 0 \quad j=1,2,3; \ a \ge 0$

		5	-1	1	-M					
Б К	Б П	x_1	x_2	$\downarrow x_3$	a	ОБР	Θ_2	Θ_3		
5	x_1	1	4	-1	0	1	0,25	-	$\Delta Z_2 = -(21-2M)\cdot 0,25 =$	**-21/4+M/2**
-M	$\leftarrow$ a	0	2	3	1	18	9	6	$\Delta Z_3 = -(-6-3M)\cdot 6 =$	**36+18M**
	Δ_j	0	21	-6	0	5				
	Δ_{jM}	0	-2M	-3M	0	-18M				
5	x_1	1	4 2/3	0		7				
1	x_3	0	2/3	1		6				
	Δ_j	0	25	0		41				

$X_1^* = $ **(7; 0; 6; 0; 0)**

$X^* = $ **(7; 0; 6)** $Z^* = Z_1^* = $ **41**

---

2 $Z(X) = 2x_1 + 6x_2 + x_3 + x_4 \to$ max $Z_1(X) = 2x_1 + 6x_2 + x_3 + x_4 - Ma_1 - Ma_2 \to$ max

$4x_1 - 5x_2 - 2x_3 + x_4 = 2$ **+ a_1** $4x_1 - 5x_2 - 2x_3 + x_4 + a_1 \quad = 2$

$-5x_1 + 4x_2 + x_3 - x_4 = 1$ **+ a_2** $-5x_1 + 4x_2 + x_3 - x_4 \quad + a_2 = 1$

$x_j \ge 0 \quad j = 1,\dots,4$ $x_j \ge 0 \quad j = 1,\dots,4; \ a_1, a_2 \ge 0$

		2	6	1	1	-M	-M				
Б К	Б П	x_1	x_2	x_3	$\downarrow x_4$	a_1	a_2	ОБР	Θ_3		
-M	$\leftarrow a_1$	4	-5	-2	1	1	0	2	2	$\Delta Z_3 = -(-1)\cdot 2 =$	**2**
-M	a_2	-5	4	1	-1	0	1	1	-		
	Δ_j	-2	-6	-1	-1	0	0	0			
	Δ_{jM}	M	M	M	0	0	0	-3M			
1	x_4	4	-5	-2	1	1	0	2			
-M	a_2	-1	-1	-1	0	1	1	3			
	Δ_j	2	-11	-3	0	1	0	2			
	Δ_{jM}	M	M	M	0	0	0	-3M			

$X_1^* = $ **(0; 0; 0; 2; 0; 3)**

Система ограничений не имеет решений (несовместна)