

B csoport

Erőforrás	Termék				készlet	
	a	b	c	d		
I.	0	2	4	1	30	\leq
II.	3	1	2	2	45	\geq
III.	1	1	0	1	25	$=$
Haszon	10	15	10	11		

Modell

$$0x_1 + 2x_2 + 4x_3 + 1x_4 \leq 30$$

$$3x_1 + 1x_2 + 2x_3 + 2x_4 \geq 45$$

$$1x_1 + 1x_2 + 0x_3 + 1x_4 = 25$$

$$z = 10x_1 + 15x_2 + 10x_3 + 11x_4 \rightarrow \text{MAX}$$

$$\underline{x \geq 0}$$

Standard alak + 1. Bázis

$$0x_1 + 2x_2 + 4x_3 + 1x_4 + x_5 = 30$$

$$3x_1 + 1x_2 + 2x_3 + 2x_4 - x_6 + b_1 = 45$$

$$1x_1 + 1x_2 + 0x_3 + 1x_4 + y_2 = 25$$

$$z^* = -y_1 - y_2 \rightarrow \text{MAX}$$

$$\underline{y \geq 0}$$

B	x_0	a_1	a_2	a_3	a_4	a_5	a_6	q_1	q_2
a_5	30	0	(2)	(4)	1	1	0	0	0
q_1	45	(3)	1	2	(2)	0	-1	1	0
q_2	25	1	1	0	1	0	0	0	1
z^*	-20	-4	-2	-2	-3	0	1	0	0

$$60 \quad 30 \quad 15 \quad \underline{67,5}$$

B	x_B	a_1	a_2	a_3	a_4	a_5	a_6	q_2	λ
a_5	$15/2$	$-3/2$	$3/2$	3	0	1	$1/2$	0	$1/2$
a_4	$45/2$	$3/2$	$1/2$	1	1	0	$-1/2$	0	
q_2	$5/2$	$-1/2$	$1/2$	-1	0	0	$1/2$	1	$1/2$
	$-5/2$	$1/2$	$-1/2$	1	0	0	$-1/2$	0	$-3/2$

$5/2$ $5/2$

B	x_B	a_1	a_2	a_3	a_4	a_5	a_6	λ
a_5	5	-1	1	4	0	1	0	1
a_4	25	1	1	0	1	0	0	-1
a_6	5	-1	1	-2	0	0	1	
z^*	0	0	0	0	0	0	0	-1
Z	275	1	-4	-10	0	0	0	

20 12.5

B	x_B	a_1	a_2	a_3	a_4	a_5	a_6	λ
a_5	0	0	0	6	0	1	-1	1
a_4	20	2	0	2	1	0	-1	1
a_2	5	-1	1	-2	0	0	1	
	295	-3	0	-18	0	0	4	-4

30 0 0

B	x_B	a_1	a_2	a_3	a_4	a_5	a_6	λ
a_5	0	0	0	6	0	1	-1	
a_1	10	1	0	1	$1/2$	0	$-1/2$	
a_2	15	0	1	-1	$1/2$	0	$1/2$	$-1/2$
	325	0	0	-15	$3/2$	0	$5/2$	$-3/2$

0

B	x_0	a_1	a_2	a_3	a_4	a_5	a_6	λ
a_3	0	0	0	1	0	$\frac{1}{6}$	$-\frac{1}{6}$	
a_1	10	1	0	0	$\frac{1}{2}$	$-\frac{1}{6}$	$-\frac{1}{3}$	$\frac{1}{6}$
a_2	15	0	1	0	$\frac{1}{2}$	$\frac{1}{6}$	$\frac{1}{3}$	$-\frac{1}{6}$
	325	0	0	0	$\frac{3}{2}$	$\frac{5}{2}$	0	$-\frac{15}{6}$

Van alt. optimum

$$x(10, 15, 0, 0 \mid 0, 0), \quad z = 325$$

Ez a modellbe visszairva:

$$0 \cdot 10 + 2 \cdot 15 + 4 \cdot 0 + 1 \cdot 0 \leq 30 \rightarrow 0 \text{ marad}$$

$$3 \cdot 10 + 1 \cdot 15 + 2 \cdot 0 + 2 \cdot 0 \geq 45 \rightarrow 0 \text{ extra}$$

$$1 \cdot 10 + 1 \cdot 15 + 0 \cdot 0 + 1 \cdot 0 = 25 \rightarrow \text{Pont } 25$$

$$z = 10 \cdot 10 + 15 \cdot 15 + 10 \cdot 0 + 11 \cdot 0 = 325$$