Вариант 2

Лаб 6

$a_0 := 15 \quad a_1 := 15 \quad a_2 := 9 \quad m_0 := 570 \quad m_1 := 576 \quad m_2 := 445$

$b_0 := 30 \quad b_1 := 25 \quad b_2 := 4 \quad c_0 := 8 \quad c_1 := 10$

$f(x_1, x_2) = c_0 \cdot x_0 + c_1 \cdot x_1$

$a_0 \cdot x_0 + b_0 \cdot x_1 \le m_0$

$a_1 \cdot x_0 + b_1 \cdot x_1 \le m_1$

$a_2 \cdot x_0 + b_2 \cdot x_0 \le m_2$

$x_0, x_1 \ge 0$

$n := 1$

$f(x) := \sum_{i=0}^{n} (c_i \cdot x_i) \quad x_0 := 0 \quad x_1 := 0$

Given

$a \cdot x_0 + b \cdot x_1 \le m$

$x \ge 0$

$x := \text{Maximize}(f, x)$

$x = \begin{pmatrix} 38 \\ 0 \end{pmatrix}$

$f(x) = 304$

Результат совпадет с 6лаб

Лаб 6

Лаб 9

$$c := \begin{pmatrix} 7 & 4 & 5 \\ 6 & 3 & 4 \\ 4 & 6 & 5 \end{pmatrix} \quad a := \begin{pmatrix} 4 \\ 5 \\ 7 \end{pmatrix} \quad b := \begin{pmatrix} 6 \\ 8 \\ 2 \end{pmatrix}$$

$n := 2$

$$f(x) := \sum_{i=0}^{n} \sum_{j=0}^{n} \left(c_{i,j} \cdot x_{i,j} \right) \quad x := \begin{pmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{pmatrix}$$

Given

$x_{0,0} + x_{0,1} + x_{0,2} = a_0 \quad x_{1,0} + x_{1,1} + x_{1,2} = a_1 \quad x_{2,0} + x_{2,1} + x_{2,2} = a_2$

$x_{0,0} + x_{1,0} + x_{2,0} = b_0 \quad x_{0,1} + x_{1,1} + x_{2,1} = b_1 \quad x_{0,2} + x_{1,2} + x_{2,2} = b_2$

$x \geq 0$

$x := \text{Minimize}(f, x)$

$$x = \begin{pmatrix} 0 & 3 & 1 \\ 0 & 5 & 0 \\ 6 & 0 & 1 \end{pmatrix}$$

$f(x) = 61$

Результат совпадет с 9лаб

Лаб 9

Лаб 10 мин

$$c := \begin{pmatrix} 5 & 2 & 3 & 8 & 5 \\ 7 & 8 & 6 & 1 & 3 \\ 9 & 0 & 2 & 4 & 7 \\ 5 & 5 & 7 & 2 & 3 \\ 4 & 1 & 4 & 5 & 3 \end{pmatrix} \qquad x := \begin{pmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$$

$n := 4$

$$f(x) := \sum_{i=0}^{n} \sum_{j=0}^{n} \left(c_{i,j} \cdot x_{i,j} \right)$$

Given

$$\sum_{j=0}^{n} x_{0,j} = 1 \quad \sum_{j=0}^{n} x_{1,j} = 1 \quad \sum_{j=0}^{n} x_{2,j} = 1 \quad \sum_{j=0}^{n} x_{3,j} = 1 \quad \sum_{j=0}^{n} x_{4,j} = 1$$

$$\sum_{i=0}^{n} x_{i,0} = 1 \quad \sum_{i=0}^{n} x_{i,1} = 1 \quad \sum_{i=0}^{n} x_{i,2} = 1 \quad \sum_{i=0}^{n} x_{i,3} = 1 \quad \sum_{i=0}^{n} x_{i,4} = 1$$

$x \geq 0$

$x := \text{Minimize}(f, x)$

$$x = \begin{pmatrix} 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \\ 1 & 0 & 0 & 0 & 0 \end{pmatrix}$$

$f(x) = 11$

Результат совпадет с 10лаб

Лаб 10 мин

Лаб 10 макс

$$c := \begin{pmatrix} 5 & 2 & 3 & 8 & 5 \\ 7 & 8 & 6 & 1 & 3 \\ 9 & 0 & 2 & 4 & 7 \\ 5 & 5 & 7 & 2 & 3 \\ 4 & 1 & 4 & 5 & 3 \end{pmatrix} \qquad x := \begin{pmatrix} 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$$

$n := 4$

$$f(x) := \sum_{i=0}^{n} \sum_{j=0}^{n} \left(c_{i,j} \cdot x_{i,j} \right)$$

Given

$$\sum_{j=0}^{n} x_{0,j} = 1 \quad \sum_{j=0}^{n} x_{1,j} = 1 \quad \sum_{j=0}^{n} x_{2,j} = 1 \quad \sum_{j=0}^{n} x_{3,j} = 1 \quad \sum_{j=0}^{n} x_{4,j} = 1$$

$$\sum_{i=0}^{n} x_{i,0} = 1 \quad \sum_{i=0}^{n} x_{i,1} = 1 \quad \sum_{i=0}^{n} x_{i,2} = 1 \quad \sum_{i=0}^{n} x_{i,3} = 1 \quad \sum_{i=0}^{n} x_{i,4} = 1$$

$x \geq 0$

$x := \text{Maximize}(f, x)$

$$x = \begin{pmatrix} 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

$f(x) = 35$

Результат совпадет с 10лаб

Лаб 10 макс