

Из приведенных ниже целевых функций a с ограничениями b или c сформировать задачи ЛП как на максимум, так и на минимум, и решить их графически.

а) Целевые функции:

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| 1. $\varphi = 3x_1 + 2x_2$ | 11. $\varphi = 4x_1 + 3x_2$ | 21. $\varphi = 4x_1 + 6x_2$ |
| 2. $\varphi = 2x_1 + 3x_2$ | 12. $\varphi = x_1 + 2x_2$ | 22. $\varphi = 6x_1 + 6x_2$ |
| 3. $\varphi = -2x_1 + 3x_2$ | 13. $\varphi = -x_1 + 2x_2$ | 23. $\varphi = -8x_1 + 4x_2$ |
| 4. $\varphi = 3x_1 + 8x_2$ | 14. $\varphi = 3x_1 - x_2$ | 24. $\varphi = -2x_1 + x_2$ |
| 5. $\varphi = 3x_1 - 8x_2$ | 15. $\varphi = 2x_1 - x_2$ | 25. $\varphi = -x_1 + (1/2)x_2$ |
| 6. $\varphi = 2x_1 + x_2$ | 16. $\varphi = -3x_1 + 2x_2$ | 26. $\varphi = -3x_1 + 7x_2$ |
| 7. $\varphi = x_1 + x_2$ | 17. $\varphi = -4x_1 + 3x_2$ | 27. $\varphi = -3x_1 + x_2$ |
| 8. $\varphi = 2x_1 + 5x_2$ | 18. $\varphi = 2x_1 - 6x_2$ | 28. $\varphi = -x_1 + 4x_2$ |
| 9. $\varphi = x_1 - x_2$ | 19. $\varphi = x_1 + 4x_2$ | 29. $\varphi = 3x_1 + x_2$ |
| 10. $\varphi = -4x_1 + 2x_2$ | 20. $\varphi = -x_1 + x_2$ | 30. $\varphi = -4x_1 + x_2$ |

в) Ограничения:

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| 1. $\begin{cases} 4x_1 - x_2 \leq 0, \\ 2x_1 + x_2 \leq 6, \\ 2x_1 + x_2 \geq 2, \\ x_1 \geq 0, x_2 \geq 0. \end{cases}$ | 2. $\begin{cases} x_1 + 2x_2 \geq 2, \\ 5x_1 + 2x_2 \leq 10, \\ 2x_1 \leq 3, \\ x_1 \geq 0, x_2 \geq 0. \end{cases}$ | 3. $\begin{cases} x_1 + 2x_2 \leq 2, \\ x_1 + x_2 \geq 1, \\ -x_1 + x_2 \leq 1, \\ x_1 \geq 0, x_2 \geq 0. \end{cases}$ |
| 4. $\begin{cases} x_1 + x_2 \geq 1, \\ -9x_1 + 3x_2 \leq 9, \\ x_1 - 2x_2 \leq 2, \\ x_1 \geq 0. \end{cases}$ | 5. $\begin{cases} x_1 + x_2 \geq 4, \\ 8x_1 + x_2 \leq 48, \\ 6x_1 + 6x_2 \leq 24, \\ x_1 \geq 0, x_2 \geq 0. \end{cases}$ | 6. $\begin{cases} -3x_1 + 5x_2 \geq -15, \\ -6x_1 + 4x_2 \leq 12, \\ 3x_1 + x_2 \geq 3, \\ x_1 \geq 0, x_2 \geq 0. \end{cases}$ |
| 7. $\begin{cases} 2x_1 + 3x_2 \leq 12, \\ -x_1 + 2x_2 \geq -4, \\ x_1 + x_2 \geq 1, \\ x_1 \geq 0. \end{cases}$ | 8. $\begin{cases} x_1 + x_2 \leq 10, \\ x_1 \geq 4, \\ -x_1 + x_2 \leq -3, \\ x_1 \geq 0, x_2 \geq 0. \end{cases}$ | 9. $\begin{cases} x_1 + x_2 \geq 3, \\ 2x_1 - x_2 \geq -6, \\ 2x_1 + x_2 \leq 8, \\ x_2 \geq 0. \end{cases}$ |
| 10. $\begin{cases} x_2 \leq 2, \\ -x_1 + x_2 \geq -2, \\ x_1 + x_2 \geq 1, \\ x_1 \geq 0. \end{cases}$ | 11. $\begin{cases} 3x_1 + 4x_2 \leq 24, \\ -x_1 + x_2 \geq -5, \\ x_1 + x_2 \geq 2, \\ x_1 \geq 0. \end{cases}$ | 12. $\begin{cases} x_2 \leq 4, \\ -4x_1 + 7x_2 \geq -28, \\ 3x_1 + x_2 \geq 3, \\ x_1 \geq 0, x_2 \geq 0. \end{cases}$ |
| 13. $\begin{cases} x_1 \leq 4, \\ x_2 \leq 5, \\ x_1 + x_2 \geq 2, \\ x_2 \geq 0. \end{cases}$ | 14. $\begin{cases} x_1 \leq 4, \\ x_1 - x_2 \geq -4, \\ 2x_1 + x_2 \geq 2, \\ x_2 \geq 0. \end{cases}$ | 15. $\begin{cases} x_1 - x_2 \geq -1, \\ x_1 + 2x_2 \geq 4, \\ x_1 + x_2 \leq 5, \\ x_1 \geq 0. \end{cases}$ |

$$16. \begin{cases} x_1 + x_2 \geq 2, \\ 2x_1 + x_2 \leq 10, \\ 2x_1 - x_2 \geq -6, \\ x_2 \geq 0. \end{cases}$$

$$17. \begin{cases} x_1 - x_2 \geq -2, \\ x_1 + x_2 \geq 4, \\ x_1 - 2x_2 \leq 8. \end{cases}$$

$$18. \begin{cases} -2x_1 + 5x_2 \geq -20, \\ 2x_1 + x_2 \geq 2, \\ 5x_1 + 8x_2 \leq 40, \\ x_1 \geq 0. \end{cases}$$

$$19. \begin{cases} -2x_1 + 3x_2 \geq -12, \\ 2x_1 + 3x_2 \leq 6, \\ 3x_1 + x_2 \geq 3, \\ x_1 \geq 0. \end{cases}$$

$$20. \begin{cases} -2x_1 + x_2 \leq -2, \\ 2x_1 + x_2 \leq 8, \\ x_1 - 2x_2 \leq 6, \\ x_1 \geq 0. \end{cases}$$

$$21. \begin{cases} x_1 - 2x_2 \geq -2, \\ x_1 + x_2 \geq 2, \\ x_1 - x_2 \leq 6, \\ x_1 \geq 0. \end{cases}$$

$$22. \begin{cases} -3x_1 + 4x_2 \geq -12, \\ x_1 + 2x_2 \leq 10, \\ 3x_1 + 2x_2 \geq 6, \\ x_2 \geq 0. \end{cases}$$

$$23. \begin{cases} -x_1 + 2x_2 \leq -2, \\ x_1 \leq 6, \\ x_1 + x_2 \geq 3, \\ x_1 \geq 0. \end{cases}$$

$$24. \begin{cases} x_1 - x_2 \geq 2, \\ x_1 + x_2 \leq 5, \\ -x_1 + 2x_2 \geq -8, \\ x_1 \geq 0. \end{cases}$$