

ASSIGNMENT

1. Min. $z = 6x_1^2 + 5x_2^2$ subject to $x_1 + 5x_2 = 3$; $x_1, x_2 \geq 0$.
2. Max. $z = 5x_1 + x_2 - (x_1 - x_2)^2$ subject to $x_1 + x_2 = 4$; $x_1, x_2 \geq 0$.
3. Min. $z = 2x_1^2 + x_2^2 + 3x_3^2 + 10x_1 + 8x_2 + 6x_3 - 100$ subject to $x_1 + x_2 + x_3 = 20$; $x_1, x_2, x_3 \geq 0$.
4. Optimize $z = 4x_1 + 9x_2 - x_1^2 - x_2^2$ subject to $4x_1 + 3x_2 = 15$, $3x_1 + 5x_2 = 14$; $x_1, x_2 \geq 0$.
5. Use Kuhn-Tucker conditions to minimize $z = 2x_1^2 + 12x_1x_2 - 7x_2^2$ subject to $2x_1 + 5x_2 \leq 98$; $x_1, x_2 \geq 0$.
6. Use Kuhn-Tucker conditions to maximize $z = 8x_1 + 10x_2 - x_1^2 - x_2^2$ subject to $3x_1 + 2x_2 \leq 6$; $x_1, x_2 \geq 0$.