Lecture 23

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Q: Find the optimal solution of:

Min f(x)

A. $x = -2$

B. $x = 0$

C. $x = 1$

D. $x = 0$, $x = -2$, and $x = 1$

E. $x = -2$ and $x = 1$

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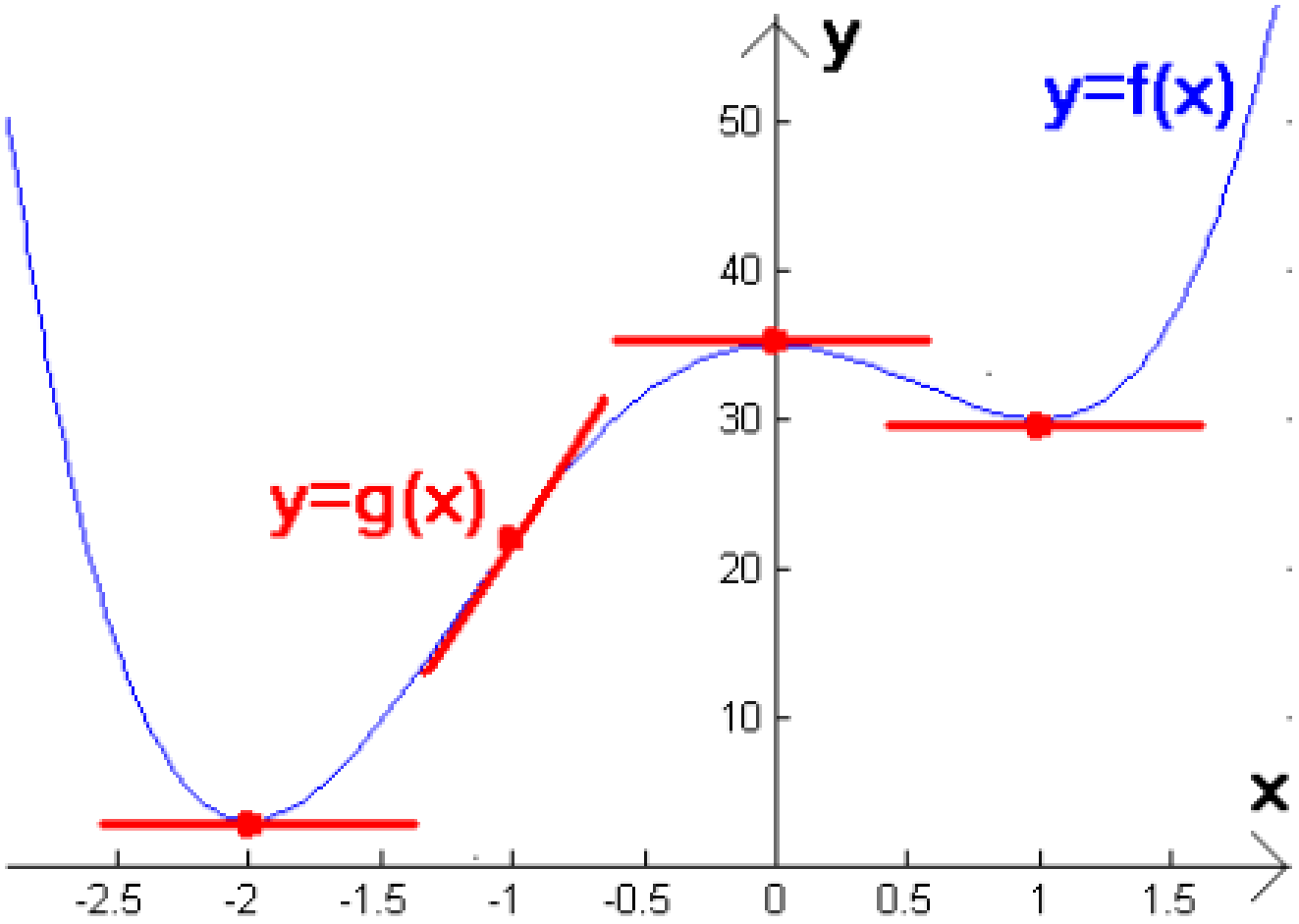
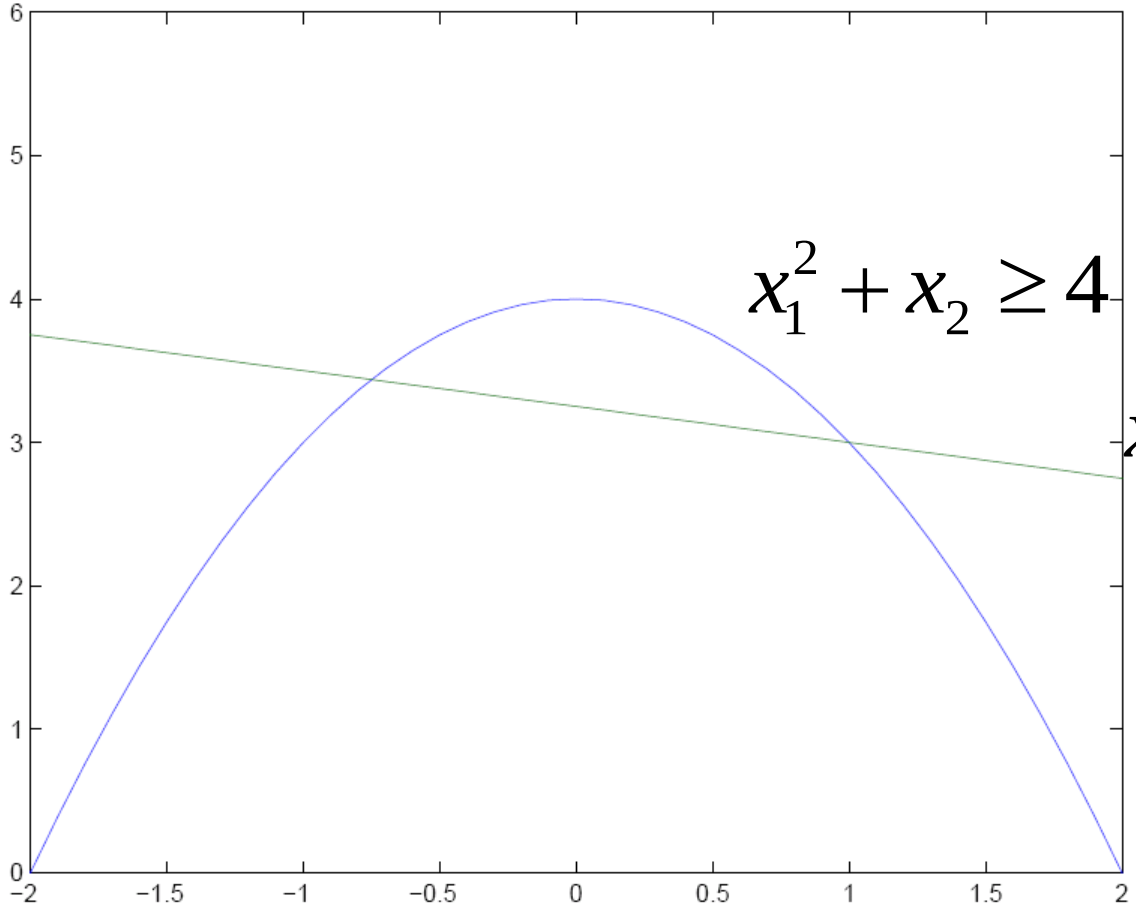


Example:
Nonlinear constrained optimization

$$\begin{aligned} \min \quad & x_1^2 + x_2^2 \\ s.t. \quad & x_1^2 + x_2 \geq 4 \\ & x_1 + 4x_2 \geq 13 \end{aligned}$$

Example:
Nonlinear constrained optimization



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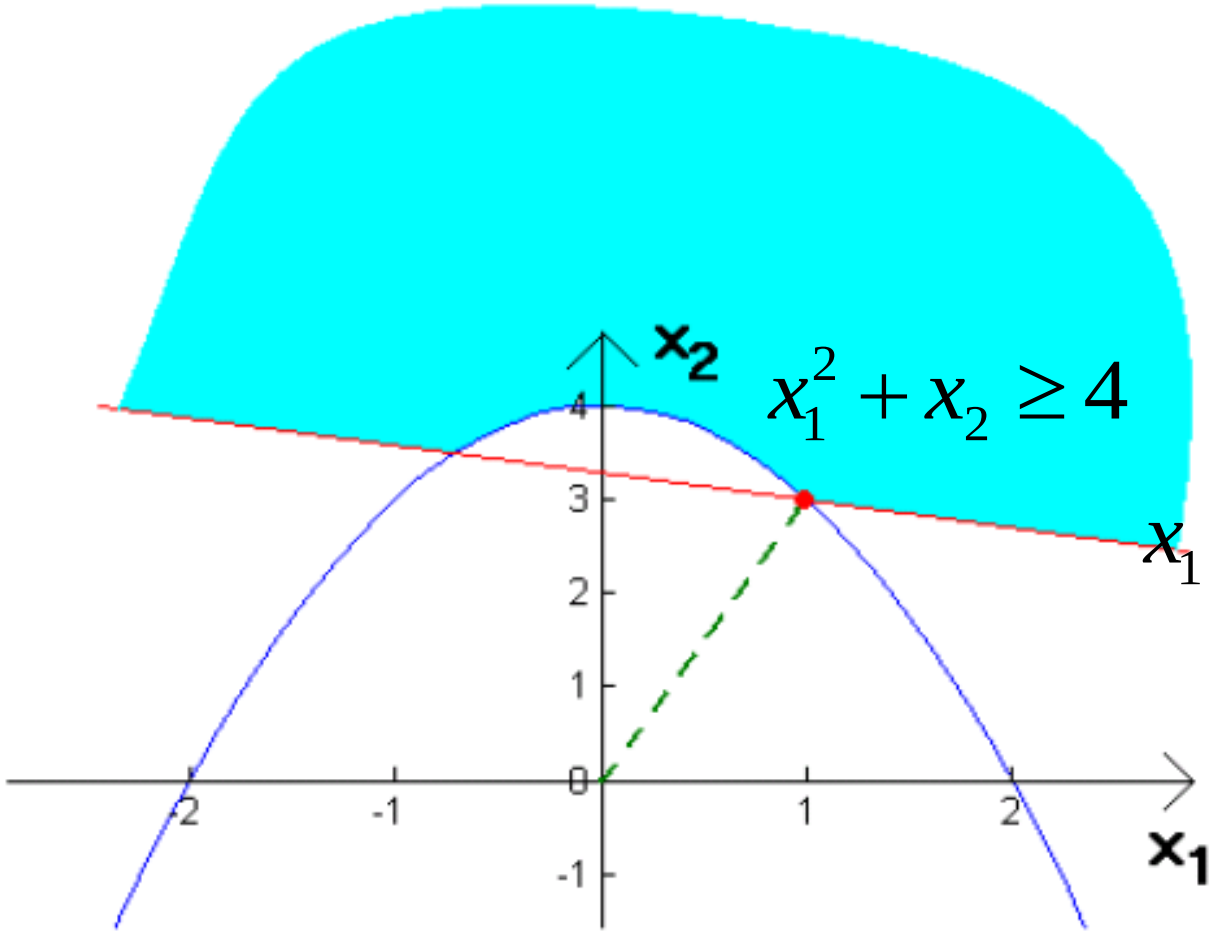
Nonlinear constrained optimization



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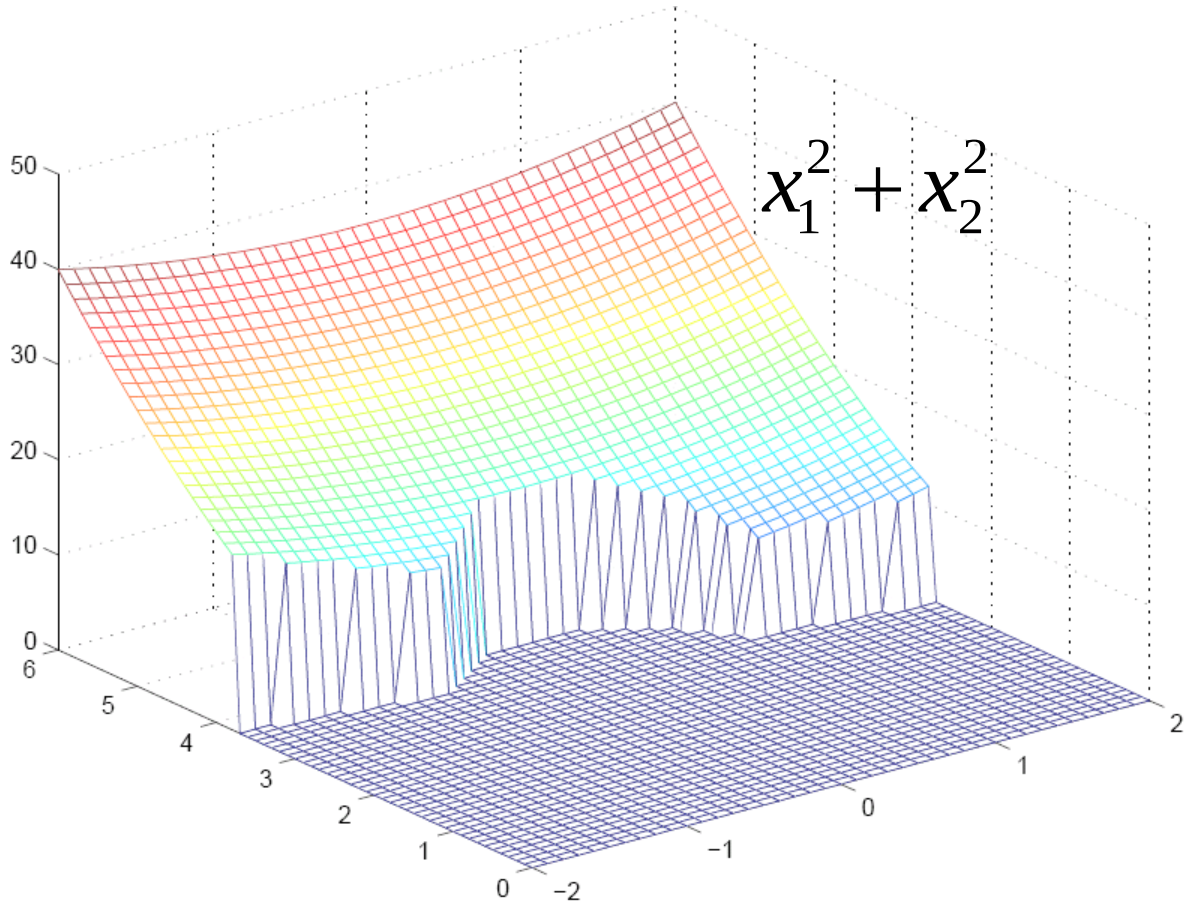
Nonlinear constrained optimization



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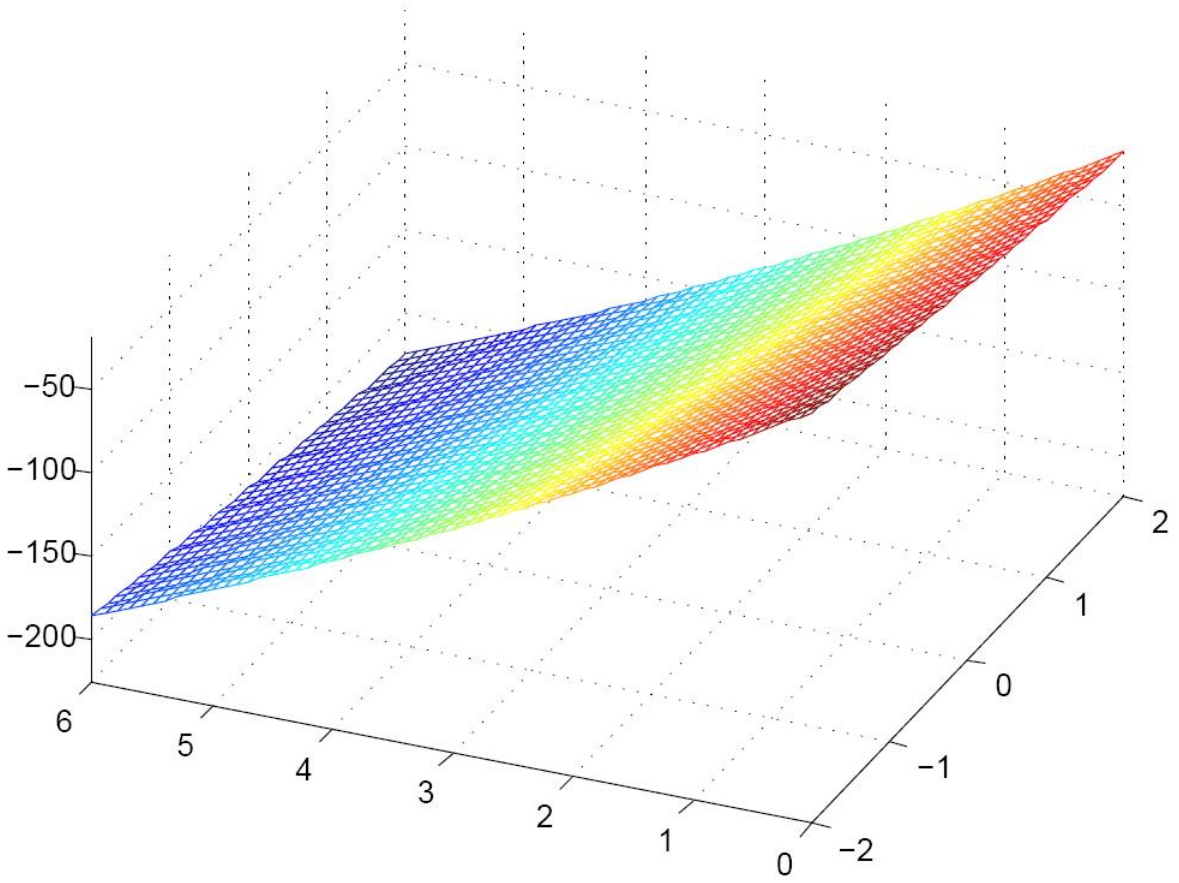

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Q: For x = (1, 3), solve for y_1, y_2 such that $\nabla L_y(x) = 0$

A. $y_1 = 0.5$, $y_2 = 0.5$

B. $y_1 = 0.5$, $y_2 = 10$

C. $y_1 = 1/3$, $y_2 = 5/3$

D. $y_1 = 10/7$, $y_2 = 2/7$

E. $y_1 = 2/7$, $y_2 = 10/7$

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