

Math 294 Practice: LP dual problem

Consider the primal problem

$$\min(x_1 + 2x_2 + x_3)$$

subject to

$$x_1 + 4x_2 + 2x_3 \geq 0,$$

$$2x_1 + x_2 + x_3 \geq 2,$$

$$x_1, x_2, x_3 \geq 0.$$

1. Solve the primal problem and find the optimal value (can use R).
2. Write out the dual problem and sketch the feasible set in the y_1 - y_2 plane.
3. Solve the dual problem (symmetric form) and find the optimal value using your sketch of the feasible set to determine the extreme points.