

Practice Assignment 5

Andrew Johnson

1) if all we know is how to minimize $g(x)$ we have to do is minimize the reciprocal of the function to find the maximum.

$$2) \max x-y \text{ s.t. } \begin{aligned} x+y &= 5 \quad \text{or} \quad x+y \leq 5 \\ |x+2y| &\leq 10 \quad x+2y \leq 10 \\ x = 20 \quad y = -15 & \quad -x-2y \geq 10 \end{aligned}$$

$$\max = 35$$

$$3) \min (\max \{x, y\} \text{ s.t. } x+2y \geq 2)$$

From how I see if it is solved as a linear program it would be the same as just

$$\max \{x, y\} \text{ s.t. } x+2y \geq 2$$

solution $\{0, 1\}$

$$4) \text{minimize } \max_{1 \leq i \leq n} |y_i - mx_i - b|$$

$$(1, 3)(2, 5)(3, 7)(5, 11)(7, 14)(8, 15)(10, 19)$$

LCD want largest y with smallest x

$y \approx 2x + 1$ but further it drops down.
so a good line to represent it as
 $y - 2x + 1$ so we need to find the minimum of its absolute value.

$$2, 2, 2, 2, 1, 0, 0 \text{ so } \min(y - 2x + 1) = 0$$