

COMP566
Homework 4

Discrete Optimization - I
Due: Tuesday, November 9

1. Primal-Dual Interior Point Methods handout, ex. 1.
2. Primal-Dual Point Methods handout, ex. 2.
3. Use the primal dual method PD (p.8-9 handout) to perform 3 complete iterations for the problem:

$$\min 10x_1 - 4x_2$$

$$s. t. 2x_1 - x_2 = 4$$

$$x_1 \geq 0, x_2 \geq 0,$$

initiated at $x_1 = 5, x_2 = 6$ and dual variable $y = 4.5$.

Choose the parameters to include at least one centring step (e.g. $\tau > 0$) and try to get as close to optimality as possible. Show all calculated quantities and plot your values of $x_1 s_1, x_2 s_2$.