University of Toronto at Scarborough
Department of Computer and Mathematical Sciences

Linear Programming and Optimazation

MATB61 Winter 2020

Selected answers to the assignments #6

Section 3.1

#2 Maximize $z' = 3w_1 + 8w_2$
Subject to $w_1 + 2w_2 \leq 6$
$2w_1 + w_2 \leq 6$
$w_1 + 4w_2 \leq 8$
$w_1 + 9w_2 \leq 9$
$w_1 \geq 0, w_2 \geq 0.$

#4 Maximize $z' = 10w_1 - 5w_2 - 8w_3 + 15w_4 + 20w_5$
Subject to $4w_1 - 4w_2 - 3w_3 + 3w_4 + w_5 \geq 2$
$2w_1 - 2w_2 - 5w_3 + 5w_4 + w_5 \geq 1$
$5w_1 - 5w_2 - 4w_3 + 4w_4 + w_5 \geq 3$
$5w_1 - 5w_2 - w_3 + w_4 + w_5 \geq 4$
$w_i \geq 0$, i = 1, 2, 3, 4, w_5 unrestricted.

#6 Maximize $z' = 12w_1 - 6w_2$
Subject to $4w_1 - 3w_2 \leq 5$
$2w_1 - 2w_2 \leq 2$
$w_1 - 3w_2 = 6$
$w_1 \geq 0, w_2 \geq 0.$

#8 Maximize $z' = 320w_1 - 12w_2$
Subject to $30w_1 - w_2 \leq 15000$
$50w_1 - 2w_2 \leq 20000$
$w_1 \geq 0, w_2 \geq 0.$