

Quiz 5

First Name:

Last Name:

Student Number:

Suppose that $[3.2, 0, 0.8]$ is the optimal solution of the following LP problem:

$$\min 2x_1 + 10x_2 + 12x_3$$

$$\begin{array}{ll} \text{subject to} & x_2 + 5x_3 \geq 4 \\ & 3x_1 - 2x_3 \geq 8 \\ & x_1, x_2, x_3 \geq 0 \end{array}$$

- (a) Using the principle of complementary slackness and the duality theorem, Determine the optimal solution of the dual problem [5 points].
- (b) Confirm the mentioned optimal solution via dual simplex method [4 points].
- (c) If one constraint $x_1 + x_3 \leq 2$ is added to the LP problem in (b), find the optimal solution to the LP [2 points].