Attendance Quiz for Lecture 14

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. Suppose that $x_1 = 0$, $x_2 = 2$, $x_3 = 0$ is an optimal solution to the linear programming problem

Maximize $x_1 + 3x_2 + x_3$

subject to

$$x_1 + x_2 + 2x_3 \leq 3$$

$$x_1 + 2x_2 + x_3 \leq 4$$

$$2x_1 + x_2 + x_3 \leq 5$$

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

Using the principle of complementary slackness and the duality theorem, find an optimal solution to the dual problem. What value will the objective function of the dual problem have at this optimal solution?