

- [10] **3.** Consider the LP: maximize $x_1 + 18x_2$ subject to $x_1 + x_2 \leq 5$, $x_1 + 9x_2 \leq 9$, $3x_1 + x_2 \leq 9$, and $x_1, x_2 \geq 0$.
- (a) Write down the dual linear program.
 - (b) Use complementary slackness to check if $x_1 = 3$, $x_2 = 0$ is an optimal solution for this linear program.
 - (c) Use complementary slackness to check if $x_1 = 0$, $x_2 = 1$ is an optimal solution for this linear program.