Name and NetID:

Question 1. Provide a detailed graphical representation of the solution set to the following system of inequalities, and determine whether $(2, 3)$ lies within.   *[4]*

$$3x + 2y \leq 8, \quad x > 0, \quad y > 0, \quad 3y - x \geq 0.$$

Question 2. A supermarket sells chocolate and strawberry ice cream cones. Due to different membership cards, Alice and Bob pay according to the following table:

	Chocolate	Strawberry
Alice	$2.75	$2.00
Bob	$1.25	$2.00

assuming that both purchase x chocolate and y strawberry cones, solve for x and y the linear programming problem which arises if we wish to maximize the total amount spent, subject to the constraints: at least one cone of each flavor must be bought, the total number of cones purchased cannot exceed fifteen, and the number of chocolate cones bought must be at least as many as the number of strawberry cones bought.   *[6]*