# Finite Mathematics (Math 10120), Spring 2016

Quiz 5, Friday April 8

Solutions

1. (5 pts) Which of the following points is in the feasible region for the following system of inequalities (note that the first constraint has a $<$ rather than a $\leq$)?

$$3x - 2y < 4, \qquad 8x + 4y \leq 24, \qquad x \geq 0, \qquad y \geq 0.$$

   (a) $(-1, -2)$

   (b) $(2, 1)$

   (c) $(2, 2)$ (Correct answer)

   (d) $(1, 5)$

   (e) $(1, -2)$

   **Solution**: We immediately rule out a) and e) because we are not allowed negative values in the feasible set. We rule out d) because $8(1) + 4(5) = 28 > 24$. We rule out b) because $3(2) - 2(1) = 2$, and we want it to be $<$. That leaves c), which we can easily check satisfies all four inequalities, so that is our solution.

2. (5 pts) On the grid below, draw the constraint lines corresponding to the following system of linear inequalities (note that the second constraint has a $<$ rather than a $\leq$):

$$x \geq 1, \qquad x - y < 0, \qquad x + 3y \leq 10.$$

   Then shade the feasible region where all three inequalities are satisfied simultaneously.



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