Instructor: Prof. A. Suciu **Name:** _____

MTH 1101 **Applications of Algebra** **Fall 2002**

QUIZ 2

Instructions: Put your name in the blanks above. Put your final answers to each question in the designated spaces on these pages. Show your work—if there is not enough room, use another sheet.

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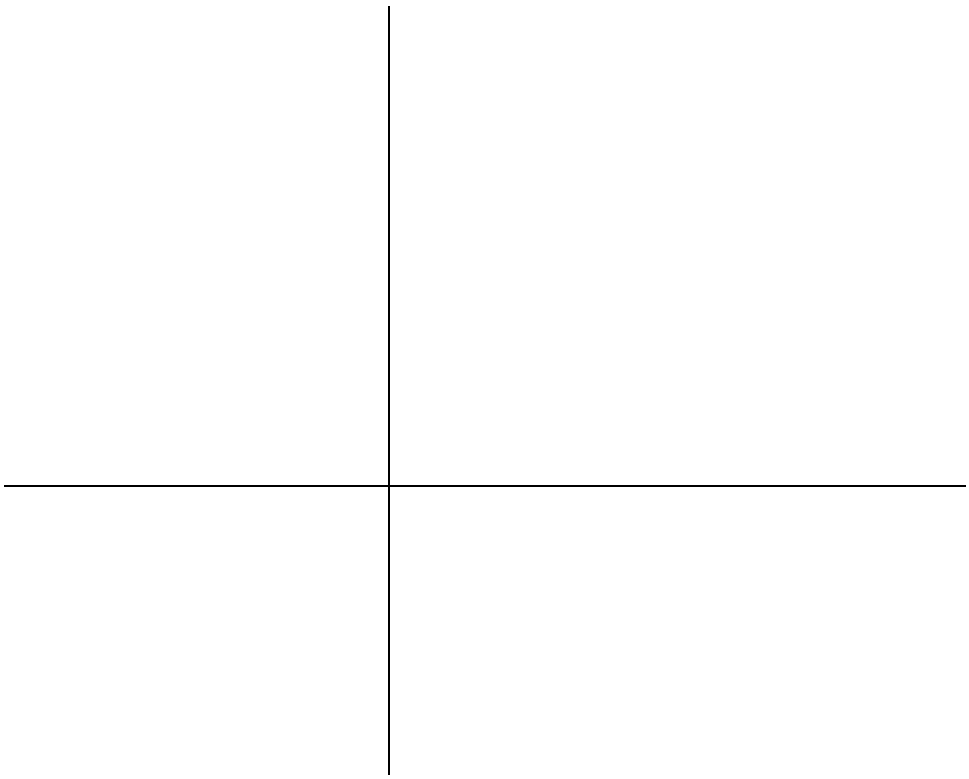
(1) Solve the following system of linear inequalities (shade the corresponding region, and indicate the coordinates of the corner points):

$$\begin{aligned} x &\leq 6, & y &\leq 5, \\ x &\geq 0, & y &\geq 0, \\ x + 2y &\geq 6, & x - y &\geq 0 \end{aligned}$$



(2) SET UP a linear program to solve the following problem. Be sure to identify the variables, **ALL** the constraints, and the objective function. **DO NOT SOLVE**.

A banker wants to invest up to \$50,000 in bonds. The banker has three choices: bonds rated A, which yield a profit of 3% per year on the amount invested, bonds rated B, which yield 6%, bonds rated C (also known as junk bonds), which yield 15%. He wants to invest at least twice as much in B bonds as in C bonds, at least \$18,000 in A bonds, at most \$20,000 in B bonds, and not more than \$30,000 in B and C bonds together. How much should the banker invest in each kind of bond in order to maximize the yearly profit?

- **Variables:**

- **Constraints:**

- **Objective:**