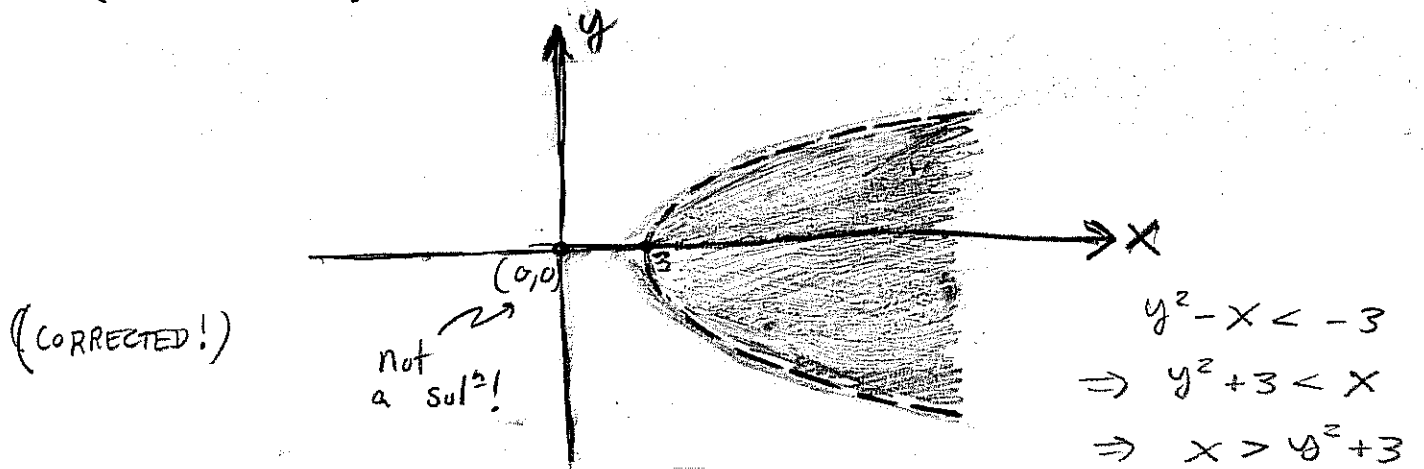


MATH 121: QUIZ ON SYSTEMS OF INEQUALITIES

4/21/2010 & LINEAR PROGRAMMING (QUIZ 8)

PROBLEM 1 Graph the inequality $y^2 - x < -3$.

(Use shading to indicate the location of solutions)

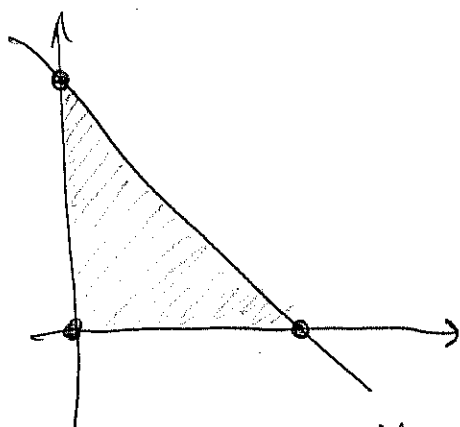


Notice $0 \neq 0^2 + 3 \Rightarrow$ shade to RIGHT of $x = y^2 + 3$.

PROBLEM 2 What (x, y) maximizes $z = 4x + 5y$ if we constrain the possible answers by

$$x \geq 0, \quad y \geq 0 \quad \text{and} \quad 3x + y \leq 9.$$

(Use linear programming technique to solve this problem.)



$$y \leq 9 - 3x$$

$$(0, 9) \rightarrow z = 45 \text{ max.}$$

$$(0, 0) \rightarrow z = 0$$

$$(3, 0) \rightarrow z = 12$$

\therefore max

is 45

at $x = 0, y = 9$.