Name:_____


# LINEAR PROGRAMMING -- ALGEBRA 2

*Complete each linear programming problem.* ***Make a labeled graph for each problem and include any other work.*** *List what the variables represent, the constraints (**including the hidden ones**), the objective function, the vertices, and finally the ordered pair and value of the optimal solution.*

**Problem 1: She's Got the "Write" Stuff**

Jamie has just finished writing a research paper. She has hired a typist who will type the paper on the computer for her. The typist charges $3.50 per page if no charts or graphs are used and $8.00 per page if a chart or graph appears on the page. Jamie knows there will be at most 40 pages having no charts or graphs. There will be no more than 16 pages with charts or graphs, and the paper will be 50 pages or less. What is the greatest possible cost to have the paper typed? How many pages with graphs and how many without graphs would cause this greatest cost?

**Variables** (*in words*): $x$ = pages with graphs $y$ = pages without graphs

**Constraints:**

$x + y \leq 50$ → $y \leq -x + 50$

$x \leq 16$ $x \geq 0$

$y \leq 40$ $y \geq 0$

**Objective Function:**

$C = 3.50y + 8x$

**Vertices: of Feasible Region:**

(0,0) (0,40) (16,0) (16,34) (10,40)

**Ordered Pair of Optimal Solution:**

greatest cost → $C = 3.50y + 8x$

(16,34)

**Maximum Cost of the Paper:**

$C = 3.5(34) + 8(16)$

$C =$ $247