Linear Programming: Systems

Name: _____

Period:

Perform these steps for each problem: a) graph the system of inequalities, b) determine the feasible region, c) locate the vertices of the feasible region, d) calculate the profit for each vertex of the feasible region, and e) determine which vertex is the maximum profit. Visit MATHguide's online lesson for assistance.

1) $\begin{cases} 2x + y \leq 100 \\ x + y \leq 80 \\ x \geq 0 \\ y \geq 0 \\ P(x,y) = 300x + 50y \end{cases}$

2) $\begin{cases} 2x + 5y \leq 16 \\ x \leq 5 \\ y \geq 0 \\ P(x,y) = 2x + 3y + 15 \end{cases}$

3) $\begin{cases} x + y \geq 200 \\ x \geq 100 \\ x \leq 200 \\ y \geq 80 \\ y \leq 170 \\ P(x,y) = 50x + 50y - 20 \end{cases}$

4) $\begin{cases} 3x + 4y \leq 36 \\ x + 2y \leq 14 \\ x \geq 0 \\ y \geq 0 \\ P(x,y) = 4x + 2y - 3 \end{cases}$