Graph the feasible region for the system of inequalities.

1) \[2x + y \leq 4\]
   \[x - 1 \geq 0\]

2) \[3y + x \geq -6\]
   \[y + 2x \leq 8\]
   \[y \leq 0\]
   \[x \geq 0\]

Use graphical methods to solve the linear programming problem.

3) Maximize \[z = 6x + 7y\]
   subject to:
   \[2x + 3y \leq 12\]
   \[2x + y \leq 8\]
   \[x \geq 0\]
   \[y \geq 0\]

Use the graphic method to find the ordered pair \((x,y)\) where the maximum or minimum occurs.

4) A company makes two kinds of engineering pencils, Type I and Type II (deluxe). Type I needs 2 min of sanding and 5 min of polishing. Type II needs 6 min of sanding and 9 min of polishing. The sander can run no more than 102 hours per week and the polisher can run no more than 49 hours a week. A $2 profit is made on Type I and $12 profit on Type II. How many of each type should be made to maximize profits? Let \(x\) represent the number of Type I pencils and \(y\) represent the number of Type II pencils.