Name:
Date:
School:
Facilitator:

**4.02 Determining Maximum and Minimum Values Given a Set of Constraints**

Graph each system of constraints to find the vertices of the feasible region using GeoGebra. Then find the values of x and y that maximize or minimize the objective function. Find the maximum or minimum value.

1. Constraints:

 $x+y \leq 12$

 $y \leq 2x+3$

 $x \geq 0$

 $y \geq 0$

 Vertices:

 A(     ,     )

 B(     ,     )

 C(     ,     )

 D(     ,     )

 Maximum for: $P=3x+2y$

 Maximum value of       at x =       and y =

2. Constraints:

$$3 \leq x \leq 9$$

$$4x+3y \geq 48$$

$$y \leq 16$$

 Vertices:

 A(     ,     )

 B(     ,     )

 C(     ,     )

 D(     ,     )

 Minimum for: $P=40x+25y$

 Minimum value of       at x =       and y =

3. Constraints:

 $2x+3y \leq 60$

 $x+y \geq 25$

 $x\geq 0$

 $y \geq 0$

 Vertices:

 A(     ,     )

 B(     ,     )

 C(     ,     )

 Maximum for: $P=5x+20y$

 Maximum value of       at x =       and y =

4. Constraints:

 $x+3y \leq 15$

 $4x+y \leq 16$

 $x \geq 0$

 $y \geq 0$

 Vertices:

 A(     ,     )

 B(     ,     )

 C(     ,     )

 D(     ,     )

 Maximum for: $P=4x+7y$

 Maximum value of       at x =       and y =