ASSIGNMENT 4 CHE 5480

DUE: March 29: Send through e-mail. Include the GAMS and Excel files and a narrative explaining what was done and how.

#Problem 1

Consider the following problem:

Min $(x-3)^2+(y-2.5)^2$

Subject To:

$x \cdot y \leq 4$

$0.64X \leq y$

$0 \leq x \leq 4$

$0 \leq y \leq 8$

1- ***Show the image region {f(x,y) vs max {g_i(x,y}. In Bazaraa you have only one g. Here you have more than one. Then your region includes tha maximum of all the constraint values.***
2- ***Solve using GBD v1 and v2. Show all the optimization problems generated and all the solutions.***

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#Problem 2

Consider the following problem:

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\begin{aligned}
\min \quad & 7.5y_1 + 5.5y_2 + 7v_1 + 6v_2 + 5x \\
s.t. \quad & z_1 = 0.9[1 - \exp(-0.5v_1)]x_1 \\
& z_2 = 0.8[1 - \exp(-0.4v_2)]x_2 \\
& x_1 + x_2 - x = 0 \\
& z_1 + z_2 = 10 \\
& v_1 \leq 10y_1 \\
& v_2 \leq 10y_2 \\
& x_1 \leq 20y_1 \\
& x_2 \leq 20y_2 \\
& y_1 + y_2 = 1 \\
& x_1, x_2, z_1, z_2, v_1, v_2 \geq 0 \\
& y_1, y_2 \in \{0,1\}^2
\end{aligned}
$$

1- ***Solve using GBD v1 and v2. Show all the problems generated and all the solutions. Is the solution global? Why?***
2- ***Solve using OR. Show all the problems generated and all the solutions. Is the solution global? Why?***

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