**Linear Programming**

**School Beautification Project**

Your team has decided to volunteer to clean up West Mecklenburg school grounds and plant some bushes and trees. You determine that the bushes you want to plan average $15 each and each tree costs $25. You will definitely buy both bushes and trees. You realize that you cannot plant more than 18 trees. Mr. Jones says that you should plant at least 12 plants total but no more than 30. The number of trees must be at least ½ the number of bushes.

1. On a poster, solve the above problem by completing the following:
   1. Define the variables.
   2. Determine the objective function.
   3. Write out the constraints.
   4. Show the graph and shade in the feasible region.
   5. Determine the vertices of the feasible region.
   6. Determine the cost for each vertex.
2. Under the given conditions, what is the minimum amount of money your team could spend on the plants?
3. Write at least 4 sentences describing all the combinations of the number of bushes and the number of trees you can purchase.
4. On the printout provided, sketch your team’s new planting design for both trees and bushes around West Meck. Be sure to distinguish your trees from bushes through use of color! Glue this on to your poster.
5. On the green sheet, describe how your team will obtain funding ($$) for this project. (creative component!

Be sure to include all 5 of the above on your poster for full credit!

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GRADING RUBRIC

|  |  |
| --- | --- |
| **Activity** | **Points Possible** |
| 1. Define variables | 5 |
| Objective Function | 10 |
| Constraints | 15 |
| Graph | 15 |
| Vertices | 10 |
| Cost for Each Vertex | 10 |
| 1. Minimum Amount of $ | 5 |
| 1. Sentences Describing Possible Combinations | 15 |
| 1. Plantings Design | 10 |
| 1. Funding | 5 |
| **Total** | **100** |

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