

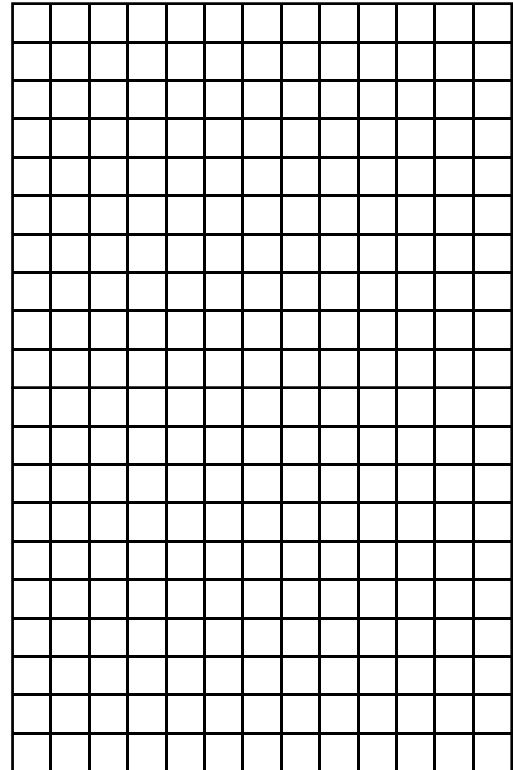
Linear Programming Practice Friday Week 6

A ski manufacturer makes two types of skis and has a fabricating department and a finishing department. A pair of downhill skis requires 6 hours to fabricate and 1 hour to finish. A pair of cross-country skis takes 4 hours to fabricate and 1 hour to finish. The fabricating department has 108 hours of labor available per day. The finishing department has 24 hours of labor available per day. The company makes a profit of \$40 on each pair of downhill skis and a profit of \$30 on each pair of cross-country skis.

- a) How many of each kind of skis should they make to maximize the profit?
- b) What is the maximum profit?
- c) **Step #1:** Write the constraints (the inequalities)

Step #2: Write the objective function.

Step #3: Graph the constraints



Step #4: State the coordinates of each vertex.

Step #5: Test the coordinates of each vertex in the objective function.

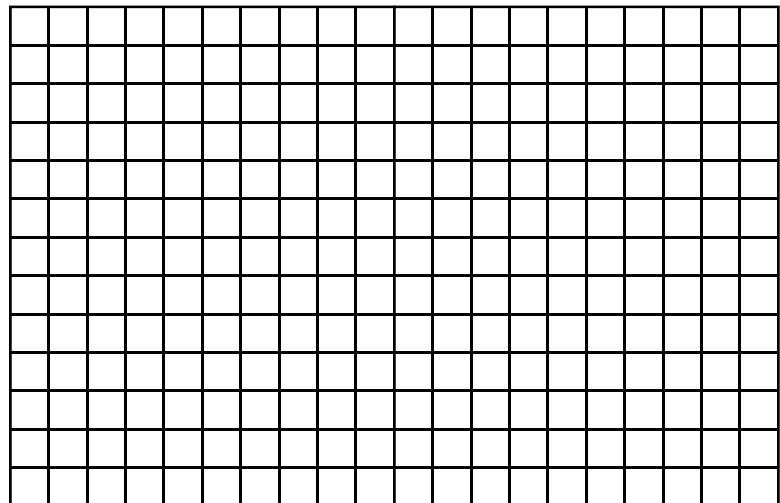
Step #6: Answer the question.

Trenton, Michigan, as small community, is trying to establish a public transportations system of large and small vans. It can spend no more than \$100,000 for both sizes of vehicles and no more than \$500 per month for maintenance. The community can purchase a small van for \$10,000 and maintain it for \$100 per month. The large vans cost \$20,000 each and can be maintained for \$75 per month. Each large van carries a maximum of 15 passengers, and each small van carries a maximum of 7 passengers.

- a) How many of each kind of van should they buy to maximize the number of people that can be transported?
- b) What is the maximum number of people?
- c) **Step #1:** Write the constraints (the inequalities)

Step #2: Write the objective function.

Step #3: Graph the constraints



Step #4: State the coordinates of each vertex.

Step #5: Test the coordinates of each vertex in the objective function.

Step #6: Answer the question.