

You need to buy some filing cabinets. You know that Cabinet A costs \$10 per unit, requires six square feet of floor space, and holds eight cubic feet of files. Cabinet B costs \$20 per unit, requires eight square feet of floor space, and holds twelve cubic feet of files. You have been given \$140 for this purchase, though you don't have to spend that much. The office has room for no more than 72 square feet of cabinets. How many of each model should you buy, in order to maximize storage volume?

1. Define the variables and give all constraints in terms of them.
2. Graph the feasible region.
3. Use algebra to find the coordinates of each corner point that is not on one of the coordinate axes.
4. Make a table of storage volume at each corner point other than $(0, 0)$.
5. Write a sentence stating your conclusion.
6. Solve using the simplex method.