

Constraints Worksheet

After you have decided which cereals you want to combine, fill in this table.

| | Name of cereal | Mg of Potassium per serving | Mg of Iron per serving | Price per serving |
|----------|----------------|-----------------------------|------------------------|-------------------|
| Cereal A | | | | |
| Cereal B | | | | |

1. Use the following information to create your system of constraints.

- Total Potassium content per serving must be at least 300 mg
- Total Iron content per serving must be at least 24 mg

2. Write your systems of constraints:

3. Rewrite your constraints in slope-intercept form:

4. Graph your constraints. If the lines do not intersect in the 1st quadrant you must choose two other cereals! Think about why. After graphing the constraints, list each point of intersection (there should be three, if you consider the intersections with the axes). Think about why you would not consider the two points on the axes as possible answers. **The point of intersection will need to be written in fraction form, not decimal.**

5. **Cost function:** Write the cost equation that you used to determine the cost per serving.

6. What is the minimum cost per serving of your new cereal? (Plug the points of intersection into the cost equation to find the answer.)

7. Now that you know the cost per serving, what would be a reasonable size box in which to package your cereal? What would be the cost of this box and approximately how many servings would it contain? (This could be a selling point for the board of directors!)