

Setting Up Linear Programming Problems

Here are some steps you can do to help you set up linear programming problems. They don't need to be done in the order presented. And they might not all be helpful. But this is a good start.

1. Write down the "number pieces" of the problem. In other words, get rid of the extra words.
2. Write down the units in the problem. These are the things that are being measured - like dollars, grams of items, quantities of items, pounds. Each of these could help you get one of the *constraints*.
3. Write down the question you're trying to answer. Not all the pieces in the original problem, but just the question. This could help you get the *variables*.
4. Write down what you're trying to achieve. Usually it's maximizing or minimizing something. This could help you get the *objective function*.
5. Write down 3 or more situations with real numbers (you make them up) to get a feel for how the problem works.

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6. Ask yourself some questions about each situation: Did they get enough _____? Did they stay under the amount of _____? What did it cost? Was it too much, not enough or just right?
7. For each of the situational questions you asked and answered, ask yourself, "How did I figure it out?" (You can look at the work you did to see or write it out in regular words.) This will help you get the *constraints* and the *objective function*.
8. Look at everything you've done and thought about. This will help you write down the equations. Use the variables you decided in #3. The *objective function* is the one you want to optimize (from #4) - it usually has an equal sign. The *constraints* are the ones you graph and shade - they have inequality signs.