

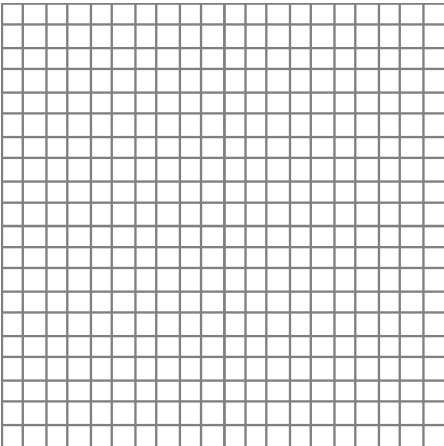
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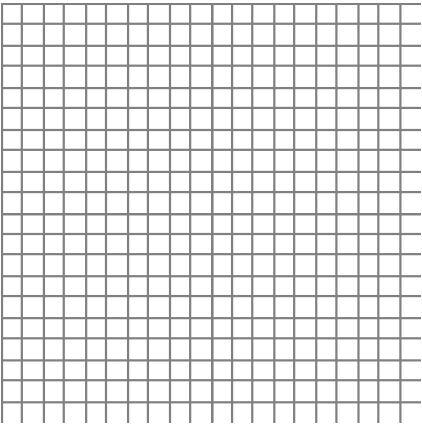
Linear Programming Word Problems

List the inequalities and objective function needed to answer the problem. Graph the inequalities and list the found vertices. Answer the problem.

1. Trees in urban areas help keep air fresh by absorbing carbon dioxide. A city has \$2100 to spend on planting spruce and maple trees. The land available for planting is 45,000 square feet. Spruce trees cost \$30 to plant and require 600 square feet of space. Maple trees cost \$40 to plant and require 900 square feet of space. Spruce trees absorb 650 lb/yr of carbon dioxide and maple trees absorb 300 lb/yr of carbon dioxide. How many of each tree should the city plant to maximize carbon dioxide absorption?



2. A toy manufacturer wants to minimize her cost for producing two lines of toy airplanes. Because of the supply of materials, no more than 40 Flying Bats can be built each day, and no more than 60 Flying Falcons can be built each day. There are enough workers to build at least 70 toy airplanes each day. It costs \$12 to manufacture a Flying Bat and \$8 to build a Flying Falcon. What is the minimum possible cost each day?

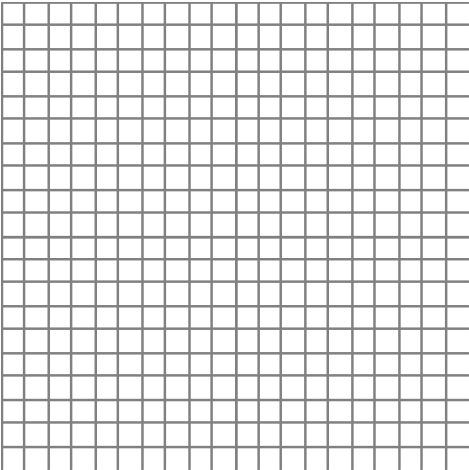


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3. A seafood restaurant owner orders at least 50 fish. He cannot use more than 30 amberjack or more than 35 flounder. Asian carp costs \$4 each and flounder costs \$3 each. How many of each fish should he use to minimize his cost?



4. Jermaine makes two types of wood clocks to sell at local stores. It takes him 2 hours to assemble a pine clock, which requires 1 oz of varnish. It takes 2 hours to assemble an oak clock, which takes 4 oz. of varnish. Jermaine has 16 oz. of varnish in stock, and can work 20 hours. If he makes \$3 profit on each pine clock and \$4 on each oak clock, how many of each type should he make to maximize his profits?

