BLENDING. Corless Chemical Company can purchase up to 1000 gallons of each of three pesticide compounds, which it blends to make two different commercial products, which it blends to make two different commercial products: Bugoff, a plant pesticide, and Weedaway, a lawn pesticide. Bugoff sells for $5 per *quart* and Weedaway for $4 per *quart*. The number of gallons each of the pesticides required to make a gallon of each commercial product and the cost per gallon are summarized in the following table.

Requirements per Gallon

Pesticide Xylothon Diazon Sulferious

Bugoff .25 .50 .25

Weedaway .60 .10 .30

Cost per gallon $12.00 $8.00 $9.00

Corless wants to produce at least 1000 quarts of each product. The cost of the quart bottle container for Bugoff is $0.20; for Weedaway it is $0.30.

1. How many gallons of each commercial product should be blended to yield the maximum net profit to Corless?
2. How much of the 1000 gallons of each of the pesticides will be used? How much of each will Corless *not* purchase?