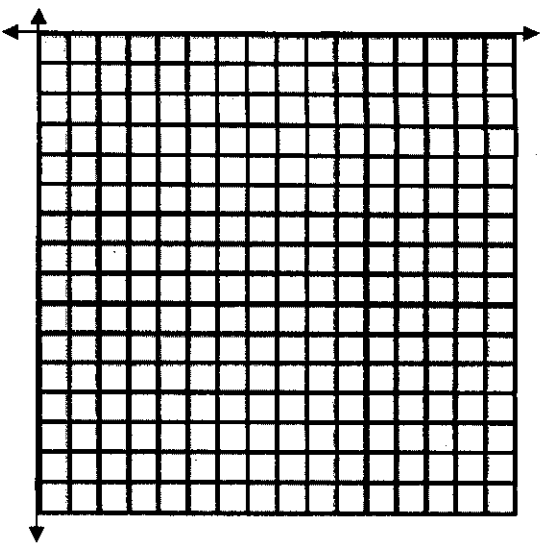


## Linear Programming Worksheet

1. A manufacturer of coats produces floor-length coats and three-quarter-length coats. It takes 2 hours to cut out the patterns of the full-length and takes 1 hour to cut out the three-quarter length patterns. The sewing time for the full-length coat is 1 hour per coat and 1 hour for the three-quarter-length coat. The manufacturer has enough employees to devote up to 40 hours to cutting patterns and up to 32 hours to sewing. The profit on a full-length coat is \$7 and \$5 on a three-quarter-length coat. Determine how many coats of each type should be made to maximize profit. What is the maximum profit?
2. A nutritionist is requested to devise a formula for a base for an instant breakfast meal. The breakfast meal must contain at least 12 grams protein and 8 grams carbohydrates. A tablespoon of protein powder made from soybeans has 5 grams protein and 2 grams carbohydrates. A tablespoon of protein made from milk solids has 2 grams protein and 4 grams carbohydrates. Soybean powder cost \$0.70 per tablespoon and milk protein powder costs \$0.30 per tablespoon. Determine the number of tablespoons of each type of protein powder that should be used as the base for this breakfast to meet the given requirements and minimize cost.
3. A company makes two types of window cleaner, CleanIt and TooDirty. The formula for a bottle of CleanIt contains 8 ounces of ammonia and 8 ounces of distilled water. The formula for a bottle of TooDirty contains 12 ounces of ammonia and 4 ounces of distilled water. The profit on a bottle of CleanIt is \$1 per bottle and for TooDirty is \$1.25 per bottle. If the manufacturer has 1200 ounces of ammonia and 800 ounces of distilled water, how many bottles of each type of cleaner should be made in order to maximize profit? What is the profit?
4. Suppose you make and sell skin lotion. A quart of regular skin lotion contains 2 cups oil and 1 cup cocoa butter. A quart of extra-rich skin lotion contains 1 cup oil and 2 cups cocoa butter. You will make a profit of \$10 per quart on regular lotion and a profit of \$8 per quart on extra-rich lotion. You have 24 cups oil and 18 cups cocoa butter. How many quarts of each type of lotion should you make to maximize your profit? What is the maximum profit?

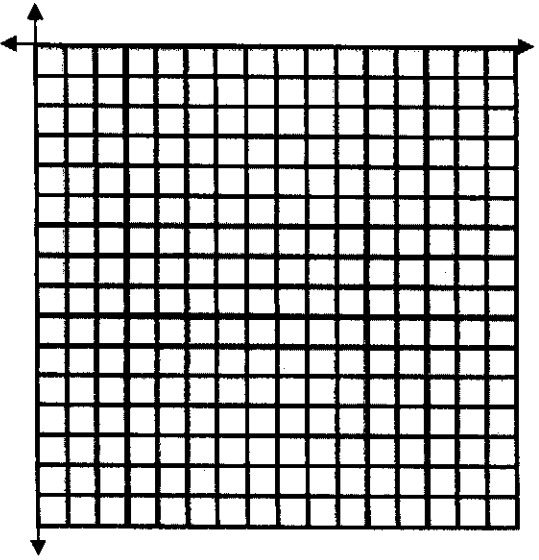
1.

		Total / Limits	inequality / constraints
# of (what is being produced?)			
limitation #1			
limitation #2			
objective function			



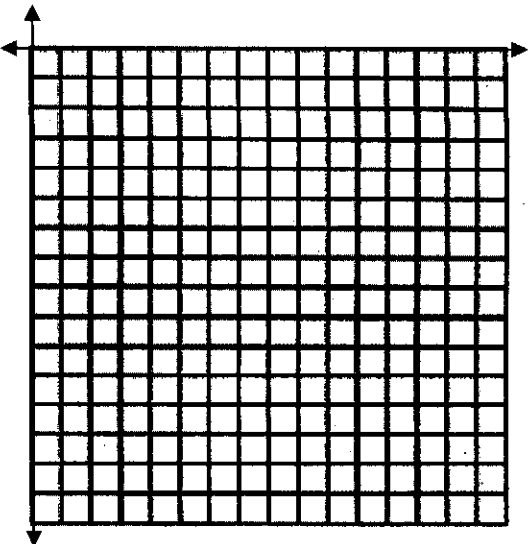
2.

		Total / Limits	inequality / constraints
# of (what is being produced?)			
limitation #1			
limitation #2			
objective function			



3.

# of (what is being produced?)	Total / Limits	Inequality / constraints
limitation #1		
limitation #2		
objective function		



4.

# of (what is being produced?)	Total / Limits	Inequality / constraints
limitation #1		
limitation #2		
objective function		

