

# [Department of mechanical and industrial engineering](https://assignbuster.com/department-of-mechanical-and-industrial-engineering/)

[Engineering](https://assignbuster.com/essay-subjects/engineering/)

Milling machine Lathe Grinder Available Time (in Machine Hours per Week) 350 150 The number of machine hours required for each unit of the respective products is as follows: Product 1 9 5 3 Product 2 4 Product 3 2 The sales department indicates that the sales potential for products 1 and 2 exceeds the maximum production rate and that the sales potential for product 3 is 20 units per week. The unit profit would be $50, $20, and $25, respectively, on products 1, 2, and 3.

The objective is to determine how much of each product the firm should reduce to maximize profit. Formulate a linear programming model for this problem. Problem No. 2. A television manufacturing company has to decide on the number of 27 and 20-inch sets to be produced at one of its factories. Market research indicates that at most 40 of the 27-inch sets and 10 of the 20-inch sets can be sold per month. The maximum number of work hours available is 500 per month. A 27-inch set requires 20 work hours, and a 20-inch set requires 10 work hours.

Each 27-inch set old produces a profit of $120, and each set produces a profit of $80. A wholesaler has agreed to purchase all the television sets produced if the numbers do not exceed the maximum indicated by the market research. Formulate a linear programming model for this problem. Problem No. 3. Solve the following linear programming problem graphically.