

Answer on Question #66485, Math, Combinatorics | Number Theory

A company produces their products P,Q and R from raw materials A,B and C . To produce one unit of the product P, 2 units of A, 5 units of B and 4 units of C are required. To produce one unit of the product Q, 1 unit of A, 1 unit of B and 2 units of C are required. To produce one unit of the product R, 1 unit of A, 1 unit of B and , 1 unit of C are required. Profits per unit of the products P,Q and R are Rs.10, Rs 5 and Rs. 4 respectively. The company has 10 units of A, 20 units of B and 20 units of C. Formulate the problem of maximization of profit as a LPP.

Solution.

$$\text{Profit} = 10x + 5y + 4z \rightarrow \max$$

where x, y, z is the number of products P, Q, R respectively.

Constraints:

$$\text{material A : } 2x + y + z \leq 10$$

$$\text{material B : } 5x + y + z \leq 20$$

$$\text{material C : } 4x + 2y + z \leq 20$$

$$x \geq 0 ; y \geq 0 ; z \geq 0$$

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