**Carson Stapler Linear Programming**

The Carson Stapler Manufacturing Company produces the basic components to assemble staplers. The products that Carson sales are: base, staple cartridge, and handle. Each product must go through three different departments. The production time requirements (in hours) per unit are as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | Department A | Department B | Department C |
|  | Base | 0,03 | 0,04 | 0,05 |
| Product | Cartridge | 0,02 | 0,02 | 0,04 |
|  | Handle | 0,05 | 0,03 | 0,01 |
|  |  |  |  |  |

The daily production capacity of each department is as follows:

Department A: 500 hours

Department B: 700 hours

Department C: 400 hours

The basic materials used for the three products are plastic and metal. The consumption of each material (in grams) for each unit of product is the following:

|  |  |  |
| --- | --- | --- |
| Product | Direct costs $ | Sales price $ |
| Base | 0,75 | 1,2 |
| Cartridge | 0,4 | 0,5 |
| Handle | 1,1 | 1,4 |

**What should the optimal production be in order to reach the maximum profit?**