

Candles

Difficulty level: beginner

Keywords

- Production
- Linear Programming
- Graphical method

Problem description

A craftsman produces white candles and blue candles. It takes eighteen and twenty minutes to make a white candle and a blue candle, respectively. The production costs of each white candle are equal to 1 €, while those of each blue candle are equal to 2 €. Every day, the craftsman works at most eight hours. Based on his experience and on customers' demand, the craftsman knows that every day he must make no less than ten but no more than fifteen white candles, and no less than eight but no more than twelve blue candles. Knowing that the selling price of each white candle is 6 € and that the one of each blue candle is 8 €, how many candles of each type should he produce daily, in order to maximize his profit?

Tasks

1. Formulate the mathematical model by applying Linear Programming.
2. Find an optimal solution to the problem by using the graphical method.
3. Is the solution found realistic? Why?