

Lab 1: Inventing algorithms

1 Length of a curve

In X-Y plane there is a curve described by the following parametric equation:

$$\mathbf{r}(t) = \begin{cases} x(t) \\ y(t) \end{cases}$$

where $x(t)$ and $y(t)$ are continuous functions of parameter t . Assuming that parameter t changes from t_0 to t_1 describe an algorithm to find approximate curve length.

2 Do It Yourself

You are given the following things: pencil, compass (up to 50 cm), paper, saw, two slats, 100 cm and 20 cm, respectively. Describe, how to cut off a slat of the length of $10\sqrt{5}$ using only these things. Find a way to cut the slat as precisely as possible.

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