

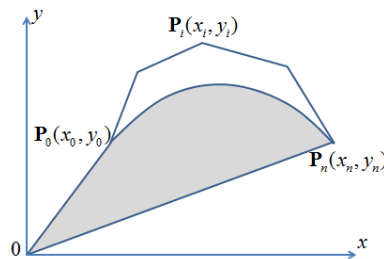
Computer Aided Geometric Design

Assignment 3

ID: 01 Name: Zhang San

October 9, 2025

1. Prove: The arc length of a Bézier curve is not greater than the perimeter of its control polygon.
2. Prove: A circular arc cannot be represented exactly by a Bézier curve.
3. Try to calculate the area of the region enclosed by a planar n -degree Bézier curve, its first and last control points, and the origin (as shown in the gray area in the figure below). Express the result using the coordinates of the control points.



Written Assignment Requirements

Learn to use LaTeX to edit mathematical documents (LaTeX will be used to write research papers in the future). You only need to modify based on the LaTeX template, no need to learn everything. Complete this assignment using TeX/LaTeX.

Please use the unified LaTeX template, which can be downloaded from the following link:

<http://staff.ustc.edu.cn/~renjiec/tex-sample.zip>

TeX installation software (the latest version includes Chinese support):

<https://miktex.org>

TeX learning tutorials or materials:

<https://pan.baidu.com/s/1pLr5q2J>

Deadline: Tuesday evening, October 14, 2025
