

This Homework is due in class on Friday October 16th. It will be graded. Make sure you include your name and section number on your answer sheet.

1. Suppose you were given the following endpoint conditions for a cubic spline: $p(0)$, $p(1)$, $p'(1)$ and $p''(1)$. Compute basis polynomials $D_0(u)$, \dots , $D_3(u)$ such that

$$p(u) = D_0(u)p(0) + D_1(u)p(1) + D_2(u)p'(1) + D_3(u)p''(1)$$

2. Give an example of a curve which is G^1 but not C^1 continuous.
3. A cardinal spline is defined by 4 control points. It passes through the middle two. If you continued it outside that range by increasing the range of u values, would it pass through the other two control points? Explain or given an example.
4. Sketch or plot (e.g. with Matlab or Mathematica) the Bernstein basis polynomials for degree 5.