

Assignment 1 for MAT4170

Spline methods, Spring 2022

To be completed by Tuesday 8 February. Please send your solution as a single pdf file (including plots/figures) to michaelf@math.uio.no.

1. Do Problem 1.3(a) in the compendium. Then implement the de Casteljau algorithm (repeated convex combinations) for cubic Bezier curves in Matlab or Python (or some other programming language). Choose a sequence of four control points and plot both the control polygon and the Bezier curve. Optional: make a curve consisting of two (or more) cubic Bezier curves joined together with G^1 continuity (like the letter S in Figure 1.10).
2. Problem 2.1(h) of the compendium.
3. Problem 2.5 of the compendium. Hint: use induction.