1. Exercise VII.1, page 158.

2. Exercise VII.3, page 160.


4. A particle is animated in $\mathbb{R}^2$ so that it starts at time $u = 0$ at the origin, with initial velocity $\langle 3, 0 \rangle$, and ends at $\langle 2, 0 \rangle$ with final velocity $\langle -3, 0 \rangle$ at time $u = 1$. If we model the particle’s motion with a degree three Bézier curve $q(u)$, what are the four control points for $q(u)$?

5. Let $p_0 = \langle -1, 0 \rangle$, $p_1 = \langle 0, 0 \rangle$, $p_2 = \langle 2, 0 \rangle$, $p_3 = \langle 2, 2 \rangle$, $p_4 = \langle 0, 1 \rangle$, and $p_5 = \langle -1, 1 \rangle$. A Catmull-Rom curve is created with these points — so it interpolates $p_1, p_2, p_3, p_4$. This is a $C^1$-continuous curve made of three degree three Bézier curves. Compute the control points for all three Bézier subcurves. Sketch the Catmull-Rom curve and the control points and the control polygons for the Bézier subcurves.