Lecture 9: Curves – Review Questions

- Define the term 'continuity' as used to describe splines in computer graphics. What are C^0, C^1, C^n, C^∞ continuity? What is G^1 continuity? Give an example where G^1 continuity differs from C^1 continuity.
- How can you construct a C^∞ spline that interpolates a given set of control points? What are the advantages and disadvantages of such a spline for use in computer graphics?
- Describe the differences between Hermite splines, Bezier splines, and B-splines.
- Derive the expression for a Hermite spline as a function of its control points and normals.
- Write the matrix form for the Hermite spline (or Bezier spline, or B-spline).
- What is the geometry matrix for this spline?
- What are the blend functions?
- How can we tell if a curve will stay within the convex hull of the control points? Which of the cubic splines we study have this property?
- Demonstrate that a cubic B-spline has C^2 continuity at the join point between two sequential cubic segments.