Due Friday, 23 March

Implement the command

> **INTE**rsect
> **n1, n2, tol**
> Intersect Bézier curves $n1$ and $n2$, with an accuracy such that the distance between the actual intersection and the computed value is less than *tol*. Plot a circle around the intersection. Also, print to a file the results of the intersection, including (x, y) coordinates of each intersection point and the corresponding parameter value on each curve.

Use the convex hull/subdivision algorithm. Subdivide until the deviation between the curve segment and a straight line is small enough so that the intersection of the two straight lines will be less than *tol*. Note that you must also take into account the angle between the two line segments in computing an error bound.

Use your curve intersector to compute the intersections for Figures 1 – 3. Hand in also a discussion of how to perform the last steps of the intersection algorithm:

1. Find the equation of a straight line segment which approximates a curve segment.
2. Find a bound on the maximum deviation of the curve and the line segment.
3. Find a bound on the distance from the intersection between the two line segments and the two curve segments.
4. How to compute the point of intersection between two line segments.

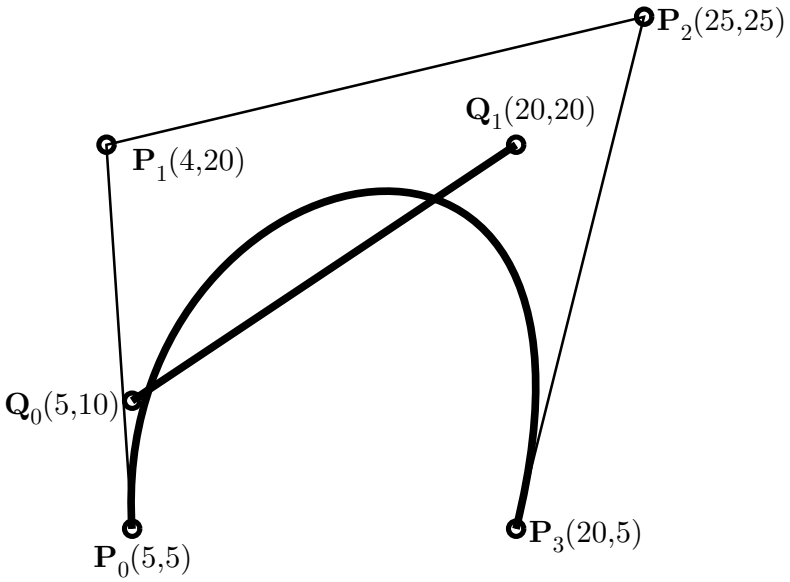

Figure 1: Intersect to a tolerance of 0.5

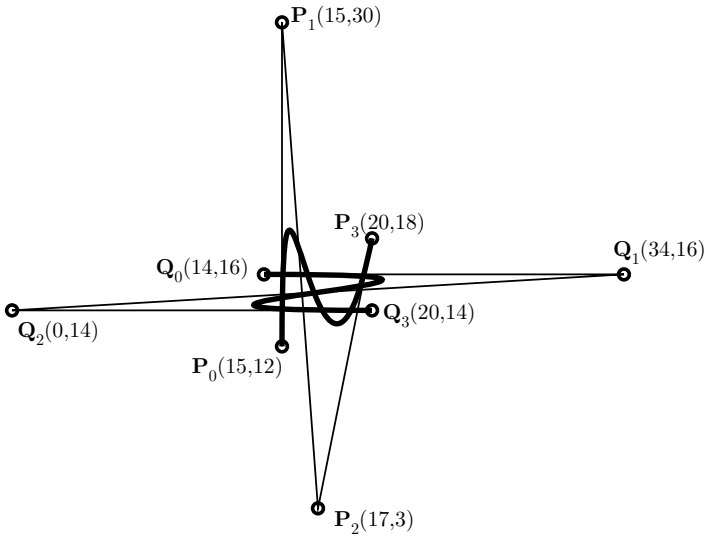

Figure 2: Intersect to a tolerance of 0.1

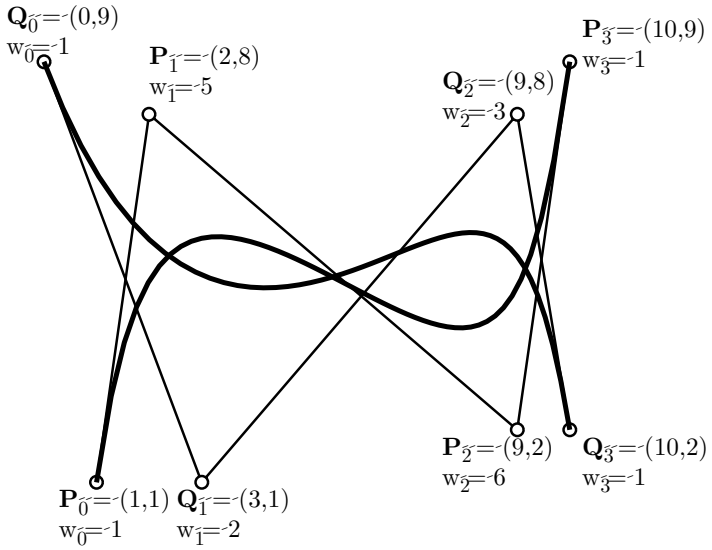

Figure 3: Intersect to a tolerance of 0.01