



In a similar way one can verify that the derivatives are the same at  $t = 1$ . This means that the two polynomials are the same and therefore

$$B_{P_0 P_1 P_2 P_3}(t/2) = B_{P_0 P_{01} P_{012} P_{0123}}(t)$$

### 3 Problem 3

Draw the convex hulls of the control points. Can the curves stay within their hulls, start and end at the first and last control points without meeting each other somewhere in the middle?

### 4 Problem 4

Any point on the interval joining  $P_2$  and  $P_4$  will be OK. Use the fact that the tangent vector to the Bezier curve at the starting point points in the same direction as the vector from the first to the second control point. Similarly, the tangent vector at the endpoint points in the same direction as the vector from the second last to the last control point. Two curves join smoothly if the tangent vectors at the endpoint of the first curve and the starting point of the second curve point in the same direction.