**Week12 Tutorial Questions**

11.0 Verify the C2 continuity of the cubic B-spline.

**In order to prove this we need to show that: c0: p(1) = q(0), c2 = p’(1) = q’(1), c3 = c3 = p’’(1) = q’’(0)**

**Where p(u) = b(u)^t p**

**P =b(u) \***

**q =b(u) \***

**where b(u) = p**

**therefore:**

**Now do**

**Thus C2 continuity holds**

11.10 Suppose that you use a set of spline curves to describe a path in time that an object will take as part of an animation. How might you notice the difference between G1 and C1 continuity in situation?

**C1 both sections of the line have the same tangents however, G1 can be in the same direction but have different tangents. G1 may change speeds in animation when two curves join**

11.18 For a 1024 X 1280 display screen, what is the maximum number of subdivisions that are needed to render a cubic polynomial surface?

**11 because of 1024 = 2^10 and 1280 < 2^11 and so at this point it would be smaller than pixel size**

11.21 What happens in the cubic Bézier curve if the values of the control points P0 and P1 are the same?

**A normal curve is still drawn however it acts as if there are only three points**