

CS 557
Homework 23
 Due Tuesday, 8 December 2009

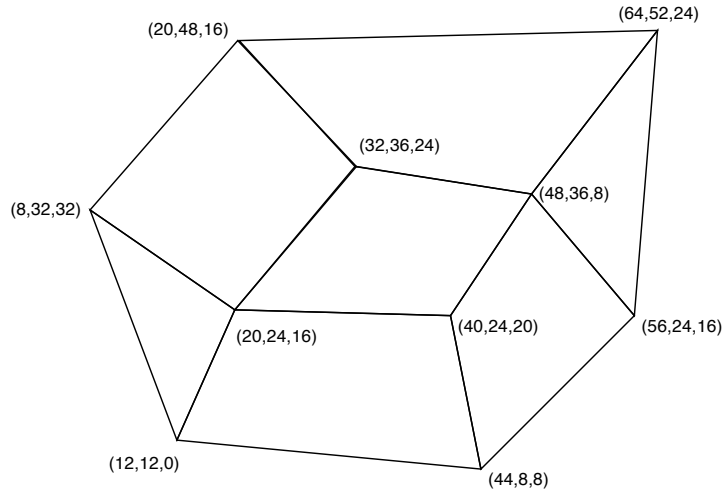


Figure 1: Catmull-Clark Control Grid.

Perform one level of refinement for the Catmull-Clark control grid in Figure 1. Sketch the refined control grid and show the Cartesian coordinates for the face, edge, and vertex points corresponding to the three faces in the lower right corner of the control grid.

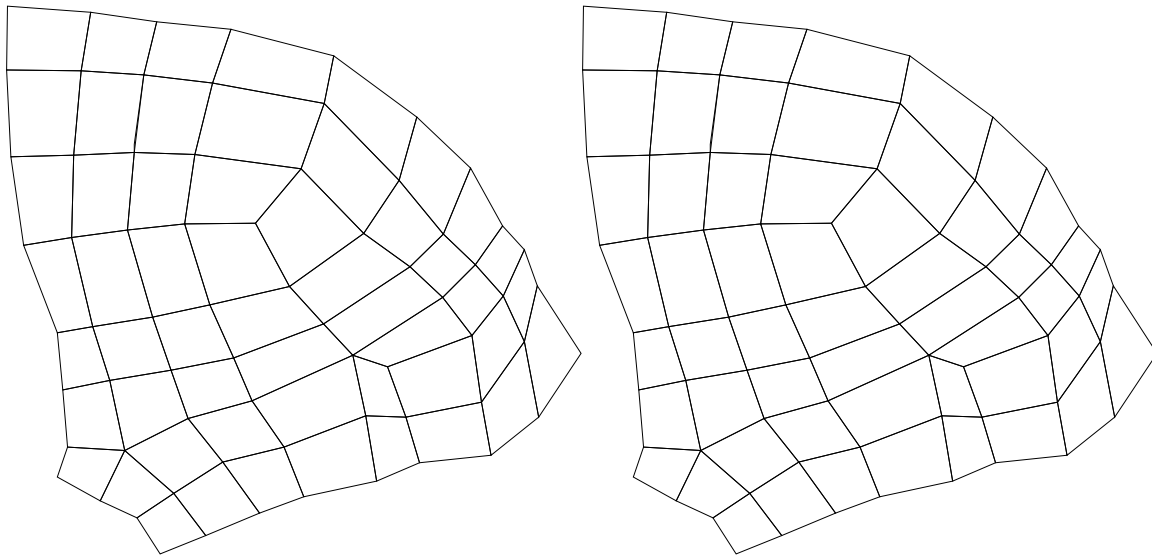


Figure 2: Catmull-Clark Control Grid.

Which faces in the Catmull-Clark control grid in Figure 2 map to a single Bézier patch? Put an X in each such face (in the left-hand image). After one level of refinement, how many total faces in the refined control grid would map to a single Bézier patch? Sketch the refined mesh on the right, and place an X in each such face.