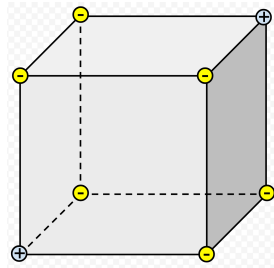
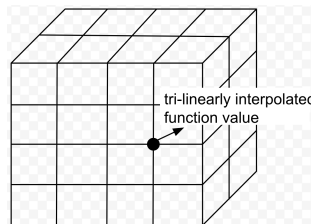


Assignment 4: Corner Table Data Structure

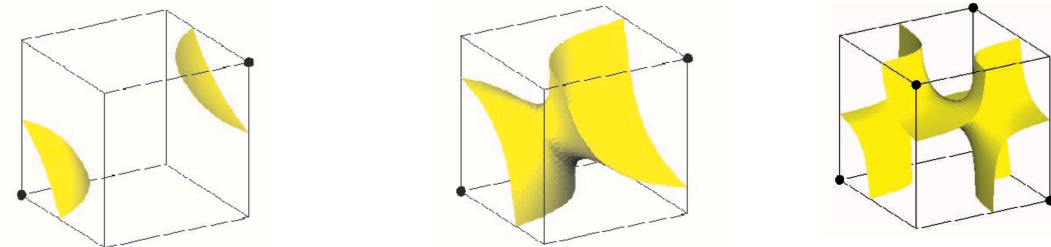
Consider a cube and a function defined on the corners of the cube as depicted in figure below. The function has positive values in two diagonally opposite corners and negative values in the remaining corners.



Subdivide each dimension of the cube n subintervals, giving rise to a grid as illustrated in the figure below. For each point of the generated grid interpolate the function given in the corners of the original cube using trilinear interpolation.



Use the marching cubes code shown in class (and in the Lab) to extract the isosurface of value 0 of the trilinear interpolation. The result should be similar to the image depicted below on the left. Varying the value of the function in the corners of the original grid and re-computing the isosurface you should produce surfaces like the one presented in the middle and right images below. You can also change the number of positive and negative corners in the original cube.



Write a *jupyter notebook* with your codes, including some text (markdown cells in the notebook) explaining each of the experiments you have performed. The jupyter notebook should be uploaded in NYU Classes.