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Q1. I Started by calculating the Transform matrix to get the point V4 from (-.5,-.5,-.5) to (0,0,0). The result was

1	0	0	.5
0	1	0	.5
0	0	1	.5
0	0	0	1

Then I multiplied it by the scaling Matrix

4.5	0	0	0
0	4	0	0
0	0	4.5	0
0	0	0	0

To get:

4.5	0	0	.5
0	4	0	.5
0	0	4.5	.5
0	0	0	1

I Then checked my work by multiplying the Transformation Matrix T by the 4x8 matrix mentioned in Piazza (the combination of all the point locations in Homogeneous form)

0	1	0	1	0	1	0	1
0	0	1	1	0	0	1	1
1	1	1	1	0	0	0	0
0	0	0	0	0	0	0	0

This produced:

0	4.5	0	4.5	0	4.5	0	4.5
0	0	4	4	0	0	4	4
4.5	4.5	4.5	4.5	0	0	0	0
0	0	0	0	0	0	0	0

Which is the matrix where every column corresponds to a 3D point of the cube, scaled, and translated.

Therefore, the answer Matrix is:

4.5	**0**	**0**	**.5**
0	**4**	**0**	**.5**
0	**0**	**4.5**	**.5**
0	**0**	**0**	**1**

Q2.

{V0,V1,V2} = {[0,0,4.5],[4.5,0,4.5],[0,4,4.5]}

{V1,V3,V2} = {[4.5,0,4.5],[4.5,4,4.5],[0,4,4.5]}

{V2,V3,V7} = {[0,4,4.5],[4.5,4,4.5],[4.5,4,0]}

{V2,V7,V6} = {[0,4,4.5],[4.5,4,0],[0,4,0]}

{V3,V1,V7} = {[4.5,4,4.5],[4.5,0,4.5],[4.5,4,0]}

{V1,V5,V7} = {[4.5,0,4.5],[4.5,0,0],[4.5,4,0]}

{V5,V4,V7} = {[4.5,0,0],[0,0,0],[4.5,4,0]}

{V4,V7,V6} = {[0,0,0],[4.5,4,0],[0,4,0]}

{V4,V6,V5} = {[0,0,0],[0,4,0],[0,4,4.5]}

{V4,V2,V6} = {[0,0,0],[0,4,4.5],[0,4,0]}

{V4,V1,V0} = {[0,0,0],[4.5,0,4.5],[0,0,4.5]}

{V4,V5,V1} = {[0,0,0],[4.5,0,0],[4.5,0,4.5]}