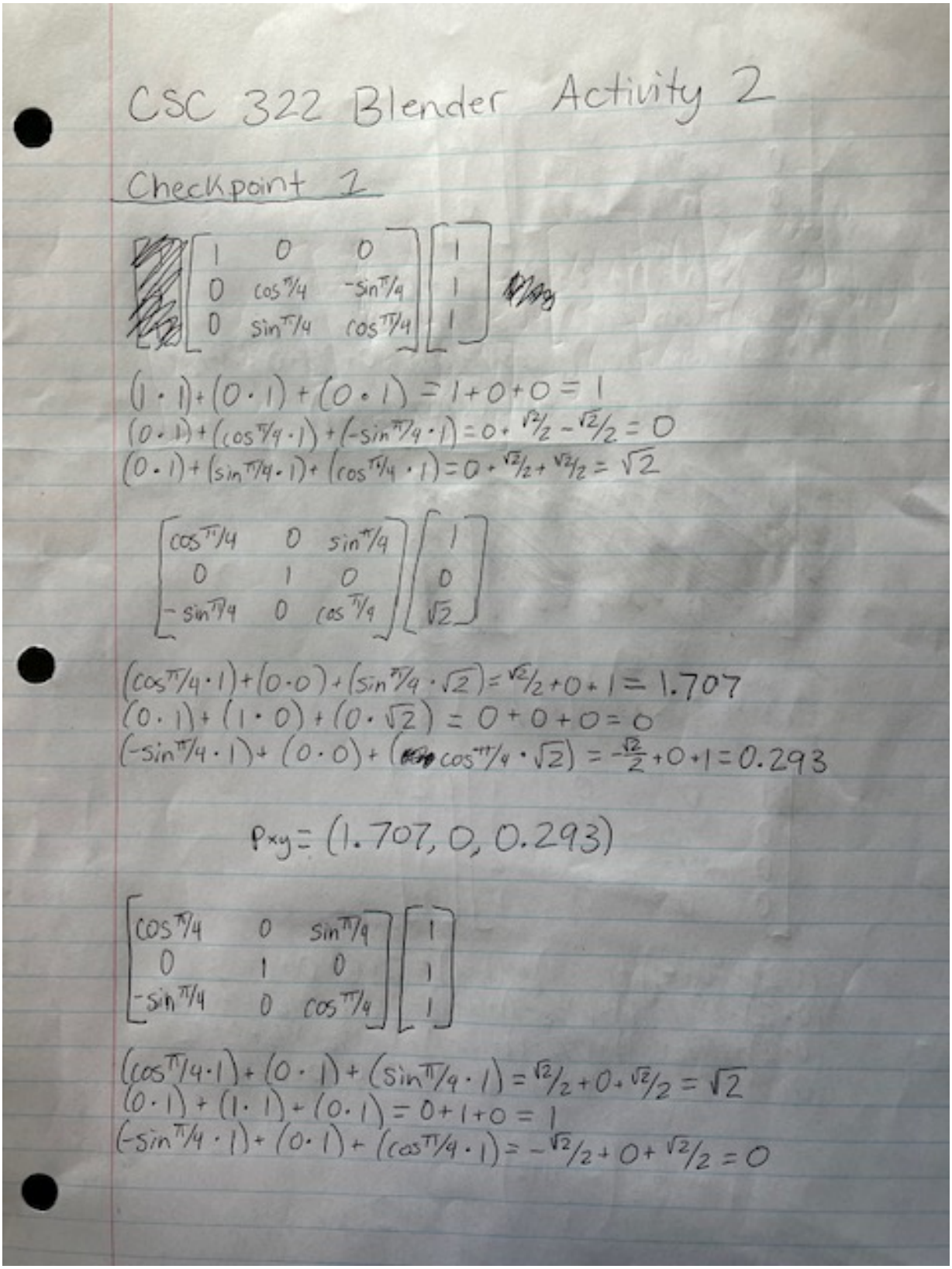
Checkpoints 1 and 2: Order of Rotations



CSC 322 Blender Activity 2

Checkpoint 1

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos\pi/4 & -\sin\pi/4 \\ 0 & \sin\pi/4 & \cos\pi/4 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$$

$(1 \cdot 1) + (0 \cdot 1) + (0 \cdot 1) = 1 + 0 + 0 = 1$

$(0 \cdot 1) + (\cos\pi/4 \cdot 1) + (-\sin\pi/4 \cdot 1) = 0 + \sqrt{2}/2 - \sqrt{2}/2 = 0$

$(0 \cdot 1) + (\sin\pi/4 \cdot 1) + (\cos\pi/4 \cdot 1) = 0 + \sqrt{2}/2 + \sqrt{2}/2 = \sqrt{2}$

$$\begin{bmatrix} \cos\pi/4 & 0 & \sin\pi/4 \\ 0 & 1 & 0 \\ -\sin\pi/4 & 0 & \cos\pi/4 \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ \sqrt{2} \end{bmatrix}$$

$(\cos\pi/4 \cdot 1) + (0 \cdot 0) + (\sin\pi/4 \cdot \sqrt{2}) = \sqrt{2}/2 + 0 + 1 = 1.707$

$(0 \cdot 1) + (1 \cdot 0) + (0 \cdot \sqrt{2}) = 0 + 0 + 0 = 0$

$(-\sin\pi/4 \cdot 1) + (0 \cdot 0) + (\cos\pi/4 \cdot \sqrt{2}) = -\frac{\sqrt{2}}{2} + 0 + 1 = 0.293$

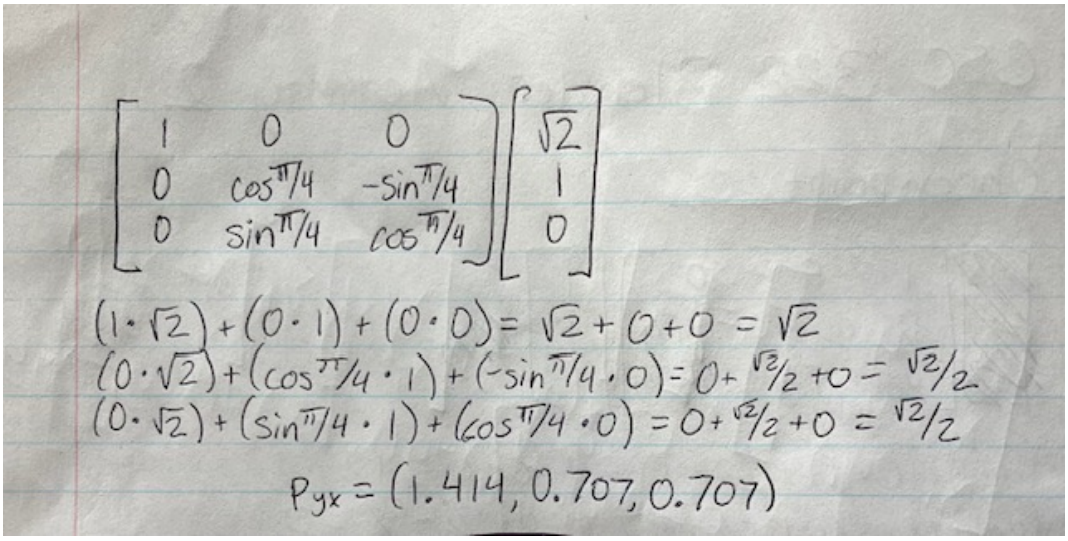
$P_{xy} = (1.707, 0, 0.293)$

$$\begin{bmatrix} \cos\pi/4 & 0 & \sin\pi/4 \\ 0 & 1 & 0 \\ -\sin\pi/4 & 0 & \cos\pi/4 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$$

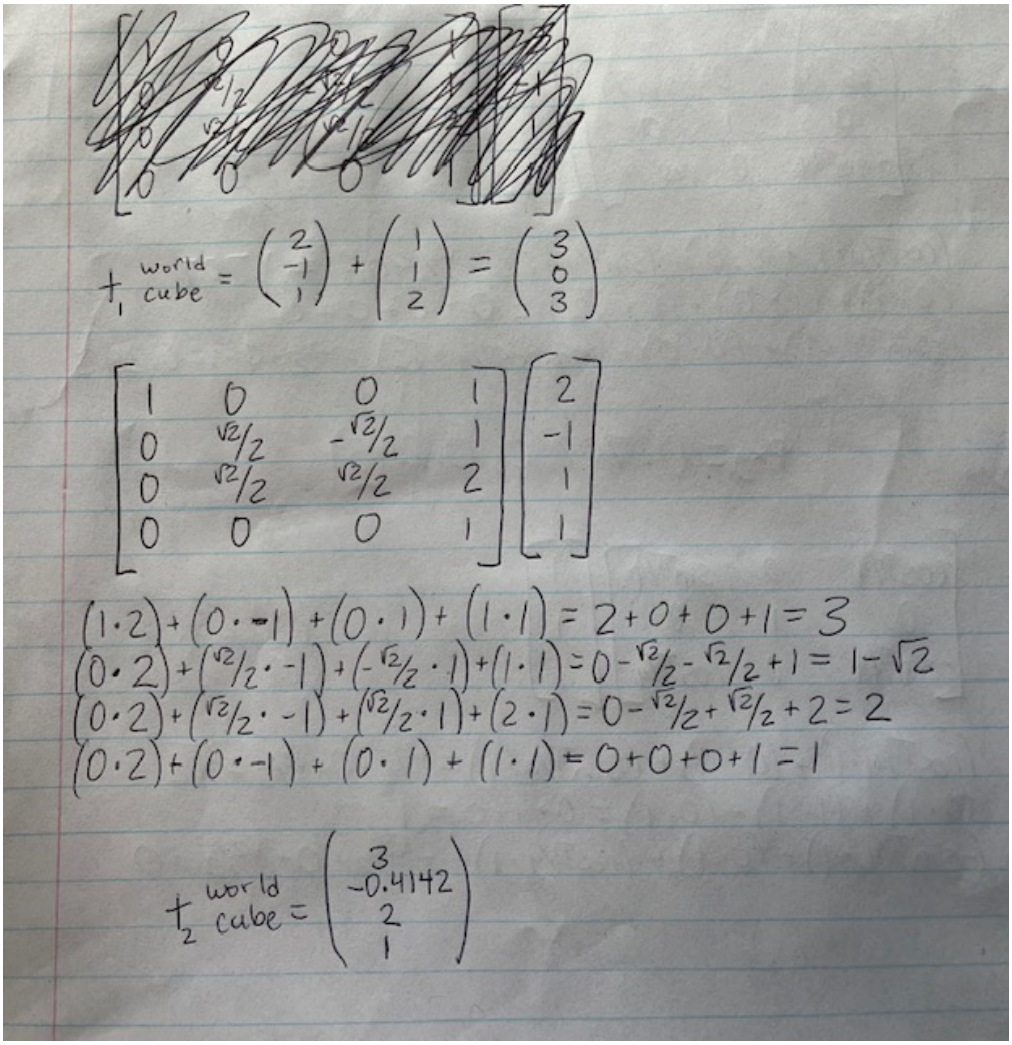
$(\cos\pi/4 \cdot 1) + (0 \cdot 1) + (\sin\pi/4 \cdot 1) = \sqrt{2}/2 + 0 + \sqrt{2}/2 = \sqrt{2}$

$(0 \cdot 1) + (1 \cdot 1) + (0 \cdot 1) = 0 + 1 + 0 = 1$

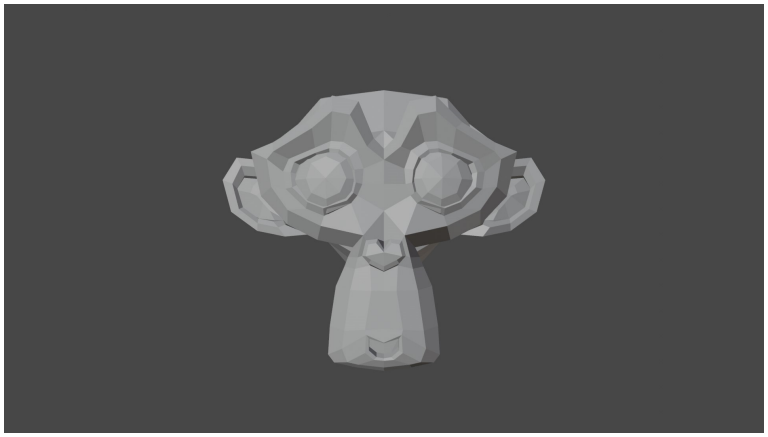
$(-\sin\pi/4 \cdot 1) + (0 \cdot 1) + (\cos\pi/4 \cdot 1) = -\sqrt{2}/2 + 0 + \sqrt{2}/2 = 0$

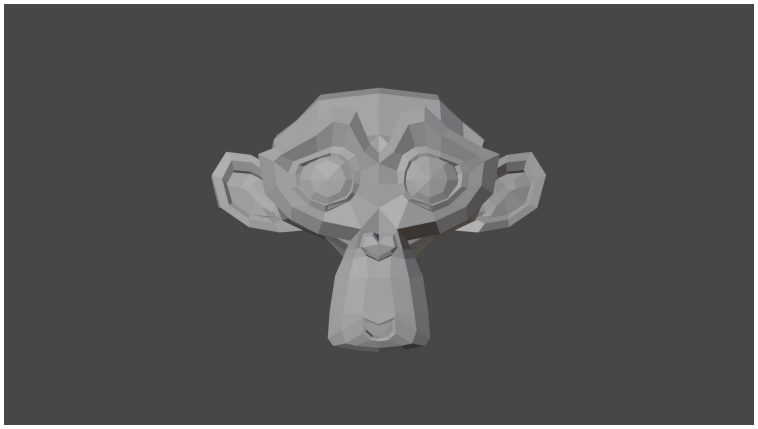


Checkpoints 3 and 4: Parenting Objects



Checkpoints 5 and 6: Camera





Increasing the focal length made the face of the monkey appear farther away, so that you are able to see more of the ears. The monkey's face even seemed to shrink a little bit. This is because there is a narrower angle of view and higher magnification.

Checkpoint 7: Flat Shading