EECS 442 Homework #1

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Problem 1

(a)

Suppose X_c and X_w are the same coordinates represented in Camera and World coordinates. Hence, we have the relation $X_c = PX_w$, P is the 4×4 combined rotation and translation matrix from homogeneous world coordinates to homogeneous camera coordinates. It is easy to get following relations:

$$W_x = -\cos(45°) \times C_x + 0 \times C_y - \cos(45°) \times C_z$$

$$W_y = C_y$$

$$W_z = \cos(45°) \times C_x + 0 \times C_y - \cos(45°) \times C_z$$

Hence, the transformation matrix:

$$P =$$