Exercise *Computer Vision (CSCI 4220U)*

Please hand in this paper to the instructor before the end of the lecture.

Name: _____

Student number: _____ Date: _____

Q. Consider a camera whose rotation and translation is

$$\begin{pmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ -1 & 0 & 0 \end{pmatrix}$$

and $(11, 2, 1)$, respectively.

Let's assume that the principle axis of this camera is along its z-direction. Further assume that the focal length of the camera is 3. Express the world point $(4, 3, 0)$ in image plane coordinates.

Hint: Begin by writing down the x, y, and z axis (expressed in the world coordinate) of the camera coordinate system. Next, transform the world point into camera coordinate systems. Lastly, apply the pinhole model to compute the location in the image plane coordinates.