Chapter 4 Graded Assignment 1:

Q1 – Determine the Representation of the Configuration of the End Effector

Rotation matrix is identity matrix and the position is the end position. The last row is 0001 as usual.

[[1,0,0,3.73],[0,1,0,0],[0,0,1,2.73],[0,0,0,1]]

Q2 – Determining Screw Representation from Geometry

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AI-generated content may be incorrect.

[[0,0,0,0,0,0],[0,1,1,1,0,0],[1,0,0,0,0,1],[0,0,1,-0.73,0,0],[-1,0,0,0,0,-3.73],[0,1,2.73,3.73,1,0]]

Essentially you take the screw axis first and then rotate around that screw axis (letting the space frame origin move) and determine the velocity of the point when the rotation is set to 1 (rad/s?). Converting to radians is probably required somewhere. Maybe not as I am not reporting distance in radians but instead in actual numbers.

Q3

[[0,0,0,0,0,0],[0,1,1,1,0,0],[1,0,0,0,0,1],[0,2.73,3.73,2,0,0],[2.73,0,0,0,0,0],[0,-2.73,-1,0,1,0]]

Correct

In this question we determine the screw axis in {b} vs. screw axis in {0} as in the prior question.