

# METR4202 -- Robotics

## Tutorial 3 – Week 3: Forward Kinematics

The objective of this tutorial is to explore homogenous transformations. The MATLAB robotics toolbox developed by Peter Corke might be a useful aid<sup>1</sup>.

### Reading

Please read/review Please read/review chapter 7 of Robotics, Vision and Control.

(<http://goo.gl/T3DJ0>)

### Review

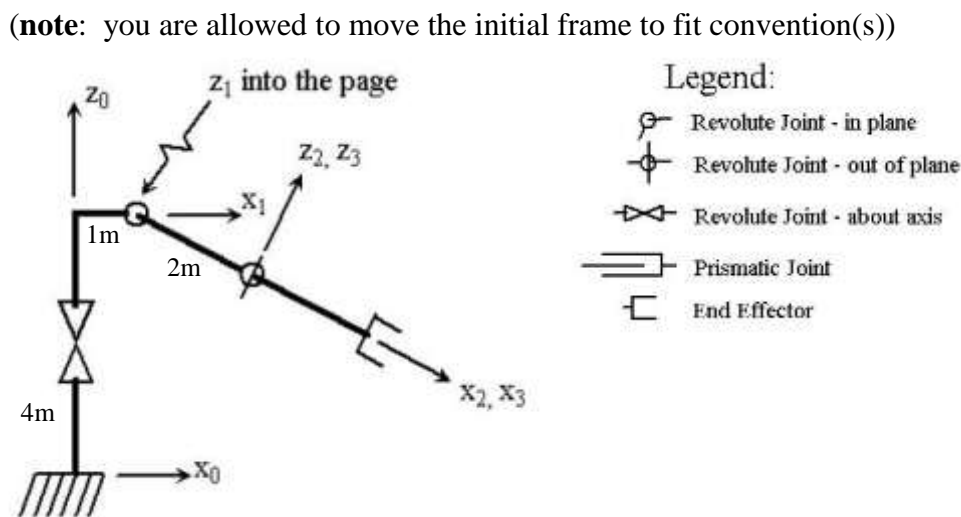
Useful commands:

Transl, trotx, troty, trotz, rotx, roty, rotz, tr2eul, DHFactor

Familiarise yourself with the link class

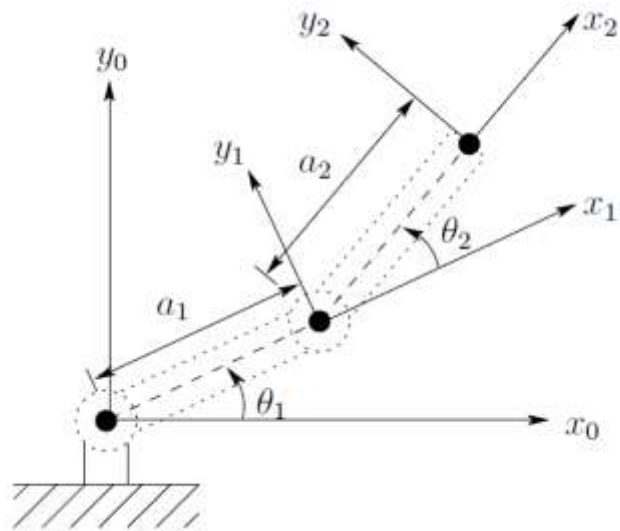
### Questions

1. For the robot shown in the following figure, find the table of DH parameters according to “Standard” DH conventions.



<sup>1</sup> [http://petercorke.com/Robotics\\_Toolbox.html](http://petercorke.com/Robotics_Toolbox.html)

2.



**Figure 1: Two-link Planar Robot**

- a.) Determine the joint angles of the two-link planar arm.
- b.) If  $a_1 = 2$  and  $a_2 = 3$  what are the joint angles corresponding to an end effector position of  $(x,y)=(1, 1)$ .