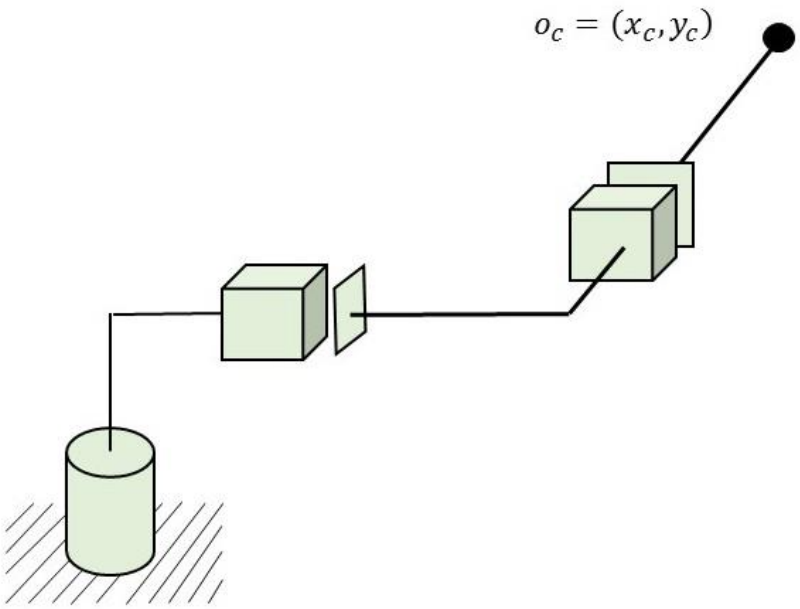
ECE 5397/6397: Introduction to Robotics, Spring 2016

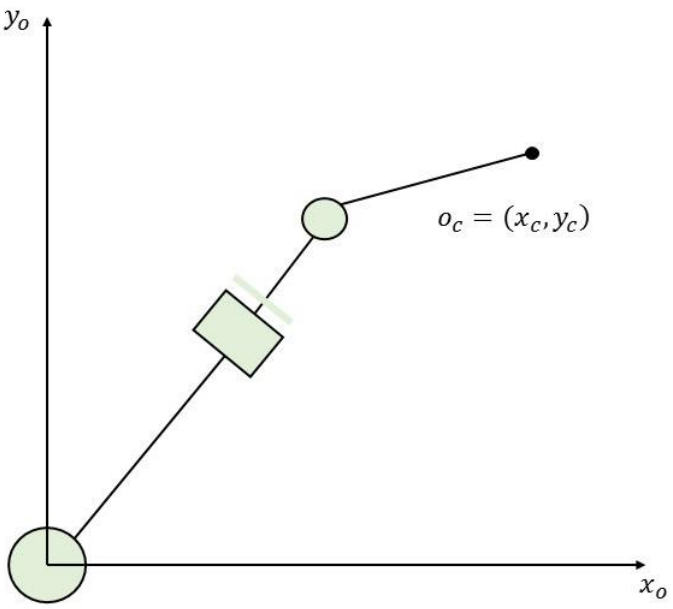
HW #3 due Feb. 23

Discrete Grading Policy. 5 points for each: 2 points for trying, 3 points if partial answer, 5 point if correct.
Parameters and variables are generally defined by DH convention.

1. Given a wrist center o_c , find the inverse position kinematics ($d_2, d_3 \geq 0,\ 0 \leq \theta_1 \leq 90^\circ$).



2. Given a wrist center o_c , how many solutions are there to the inverse position kinematics? Where does the number of solutions change? ($0 \leq \theta_i \leq 360^\circ, d_2 \geq 0, r_2 > r_3$)



3. Given a wrist center o_c , with $r_1 = 5, r_2 = 3, r_3 = 1$, how many solutions are there to the inverse position kinematics? Where does the number of solutions change? ($0 \le \theta_i \le 360^\circ$, *i*=1, 2, 3)