MeEn 537 Homework #4

1. Using the code provided called "robot_p3_8.m", and either using your own workspace esti-
   mation code from HW 2, problem 1h), or my solution code on Learning Suite "fk_workspace_generate_p3_8.m
   modify the code if needed and do the following:

   (a) Now either randomly or expressly pick 10 arm configurations (knowing your approx-
       imate work space may help here) and their corresponding position only and do the
       following for both a starting joint configuration of $q_1 = [0, 0, 0, 0, 0, 0]$ and then again
       for $q_2 = [\frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}, \frac{\pi}{2}]$:

       i. Use Method 2 (damped pseudo-inverse) to find an inverse kinematics solution for
          your 10 goal positions starting from q_1 and q_2

       ii. Use Method 3 (Jacobian transpose) to find an inverse kinematics solution for your
           10 goal positions starting from q_1 and q_2

       iii. Compare the solutions between your IK algorithms and the configuration that gave
            you the original position. How are they different? Are there specific positions that
            one or both algorithms failed to find from the given starting configurations? What
            could you do about this? Turn in at least one plot that shows the joint config-
            urations for all three (the original position joint angles and the two IK method
            solutions). Also turn in your code.

The reason for picking 10 poses you know you can get to, is because otherwise, you may pick a
pose outside of your reachable workspace. Also, please keep this code and/or data available as you
will use it again in future homework assignment.