ME 465 Homework #6 9/14/01

Due: Wednesday, 9/19/01

The first 3 links for a "Stanford" arm are shown below, along with the assignment of the Z axes. The D-H table of parameters is also given.

1. Sketch the robot in the following configurations - use $d_1 = 5$, $d_2 = 2$ as constants
   a) $\theta_1 = 0°$, $\theta_2 = 270°$, $d_3 = 4$ (drawn in the top-front-right side view below)
   b) $\theta_1 = 90°$, $\theta_2 = 60°$, $d_3 = 4$
   c) $\theta_1 = 180°$, $\theta_2 = 135°$, $d_3 = 4$
2. Derive the Jacobian matrix for the Stanford arm robot in symbolic form (i.e keep the joint variables).
3. Check the values in the Jacobian matrix at the configurations listed in #1 above - do they match?

Joint	q_i	d_i	a_i	α_i
1	q_1	d_1	0	270°
2	q_2	d_2	0	270°
3	0	d_3	0	0