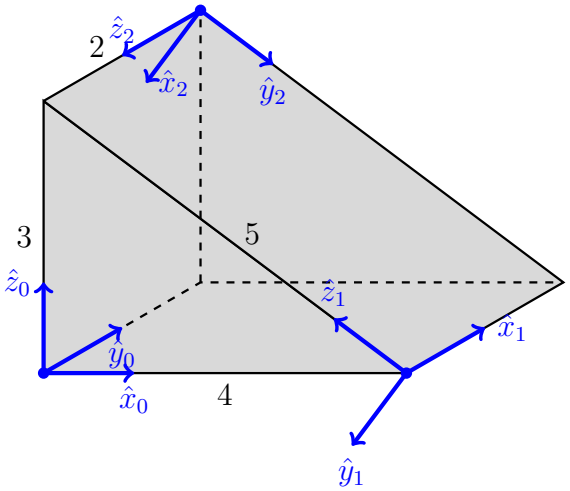
1. Compute the homogeneous transformation matrix that represents the following sequence of operations:
   (a) translate a coordinate frame away from the initial/fixed frame by 5 units along the z-axis,
   (b) rotate the resulting coordinate frame by an angle of $\frac{\pi}{2}$ about the current y-axis,
   (c) translate the resulting coordinate frame by -3 units along the fixed x-axis.

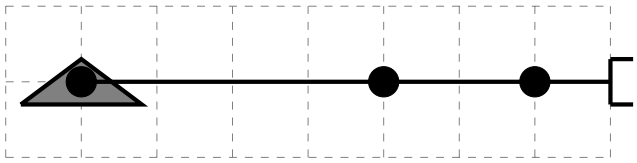
   Also, sketch the resulting frame relative to the initial/fixed frame.

2. Consider the figure shown below with coordinate frames as labeled.



   Find the following homogeneous transformation matrices
   (a) A_1^0
   (b) A_0^1
   (c) A_2^0
   (d) A_1^2

3. Find the DH table and associated parameters, and direct (forward) kinematics for the following manipulators.
   (a) Planar RRR manipulator shown below



   (b) Stanford manipulator presented in section 2.9.6. Assign frames 0 and 6 in the same way as the book to get the same answer, but feel free to assign intermediate frames in any appropriate manner.
   (c) Anthropomorphic arm with spherical wrist presented in section 2.9.7. Assign frames 0 and 6 in the same way as the book to get the same answer, but feel free to assign intermediate frames in any appropriate manner.
   (d) Cylindrical arm of problem 2.12 with spherical wrist.
   (e) SCARA manipulator of problem 2.13.