Q1 b.

1. M follows the rotation order indicated in “axis”. [a,b,c] defines the angles to rotate the axis for each of the three axes in the order indicated.

Therefore M = Rx(a)Ry(b)Rz(c)

1. First we need to convert the point’s coordinates in B, to do this we apply M to p. Then we apply N to Mp( the point’s coordinates in B). Then we would need to convert the final coordinates back to A, which we can do by applying M inverse to NMp (the final coordinates in B)

Therefore N’ = M-1NM

1. d is a direction unit vector and l is the length of the bone in the direction of d, therefore p = ld.
2. First we have to convert to the parent coordinate system and then to the global coordinate system. Let M be the matrix to convert from the parent bone to the current bone. We would use M-1 to convert from the current to the parent. Let x denote the coordinates of p on the global coordinate system.  
   Therefore x = M0M-1N’ld

Link to part 2 video:   
<https://drive.google.com/file/d/1EpES-voOnO9q93IWH1s9nGUh0oO2z7Zr/view?usp=sharing>  
shared with uAlberta email