Parameterization and Visualization of Rotations

1. Write a Matlab function `euler2r` to compute a rotation matrix given Euler ZYZ angles.

2. Write a Matlab function `r2euler` to compute the Euler ZYZ angles given a rotation matrix. Ensure that it works for all cases.

3. Write a Matlab function `angleaxis2r` to compute a rotation matrix given an angle and axis.

4. Write a Matlab function `r2angleaxis` to compute the angle and axis given a rotation matrix. Ensure that it works for all cases.

5. Write a Matlab function `displayframes` to display the coordinate frames represented by a rotation matrix. An example is shown below where the function has been called twice to display two frames.

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Turn in a print-out of your well-commented m-files (functions with comments above that display with help), results clearly presented for test cases (note using forward and inverse functions to test each other might be a good idea; also test special cases), and plot(s) from your 3D display of coordinate frames.