

Visualizing Quaternions

Conclusion

Can You See Quaternions Now??

Final Exam

Can you apply quaternion visualization?

- **Situation:** Rotate a palmed coffee cup.
- **Task:** Write down a quaternion description.

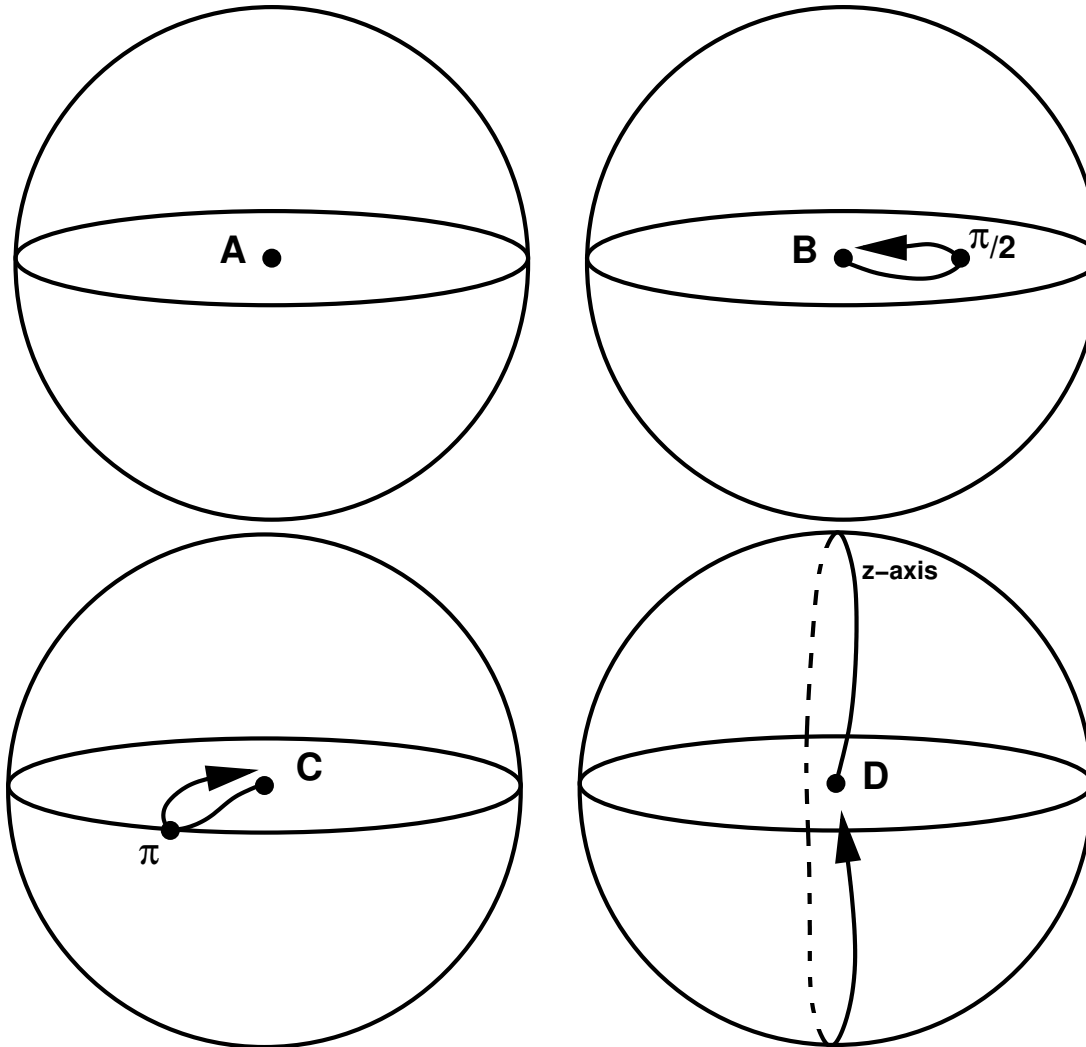
First, pick some angles...

- 0 degrees:
- 90 degrees:
- 180 degrees:
- 360 degrees:
- 540 degrees:
- 720 degrees:

Break into pieces...

- **A = Collarbone:** \Rightarrow FIXED.
- **Upper arm:** \Rightarrow INTERPOLATES Collarbone to Elbow.
- **B = Elbow:** \Rightarrow ROTATES 90 degrees CCW and Back.
- **Lower arm:** \Rightarrow INTERPOLATES Elbow to Wrist.
- **C = Wrist:** \Rightarrow ROTATES 180 degrees relative to Elbow and back.
- **D = Palm:** \Rightarrow ROTATES 720 degrees.

Quaternion plots for Collar, Elbow, Wrist, Palm



Connect them all together...

- You have a physical example of a rotation connecting **Identity = Collarbone** to the 720 degree rotation **Palm of Hand**.

*Go Forth and See Quaternions
Hidden Everywhere!*