Dynamics Review - Coordinate Systems

ME3050 - Dynamics Modeling and Controls

May 29, 2020

Topic 5 - Coordinate Systems

Topic 5 - Coordinate Systems

- Using Different Coordinate Systems
- Cartesian
- Polar and Cylindrical
- Spherical
- Others ?

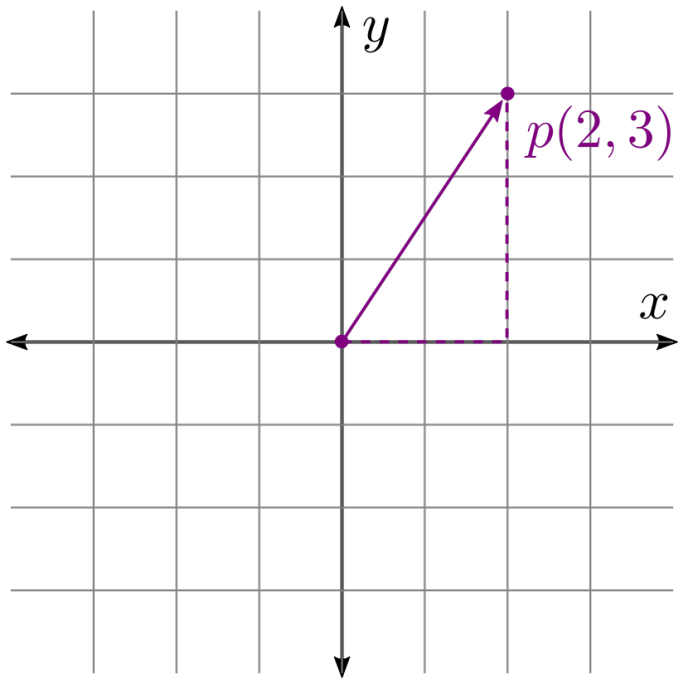
Using Different Coordinate Systems

It is often convienent to use different coordinate systems as a reference for different types of problems.

You, the engineer and designer must choose the coordinate system.

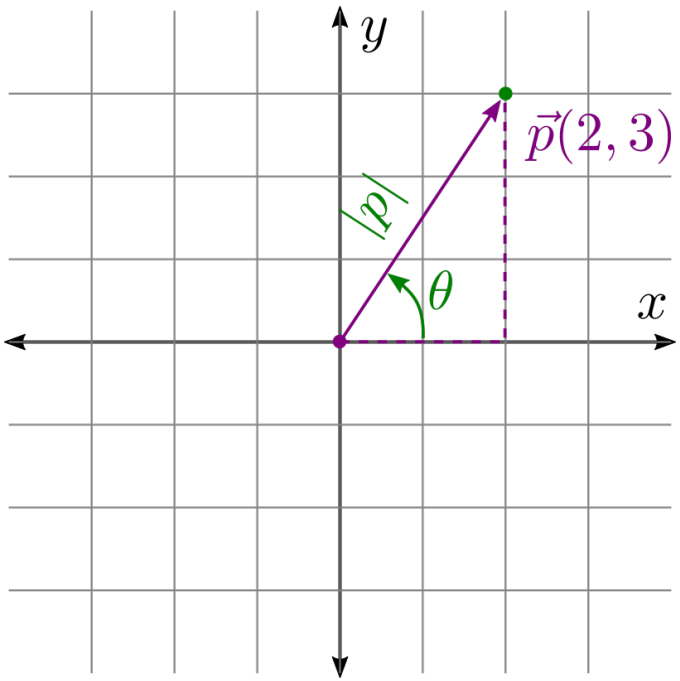
Cartesian

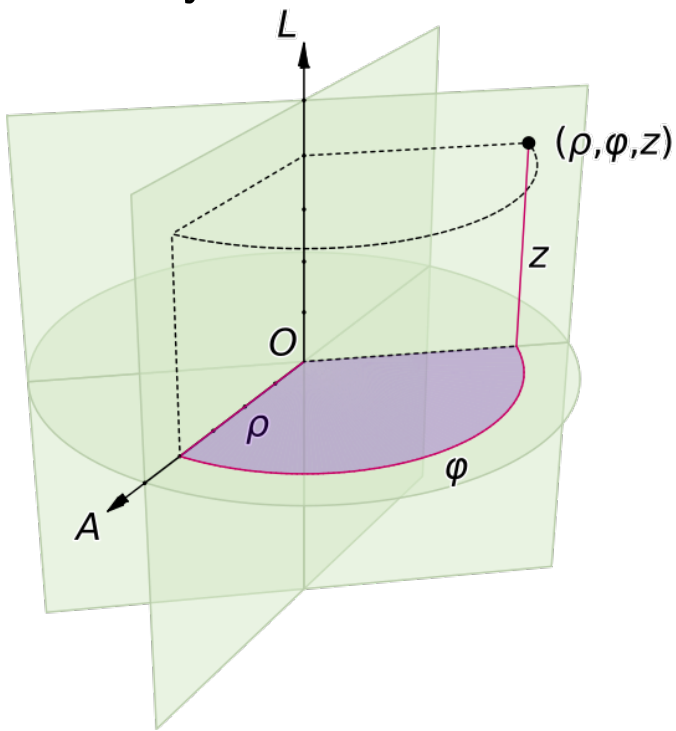
The Cartesian Coordinate System was invented by René Descartes in 1637. This intuitive coordinate system is still widely used today.



Polar and Cylindrical

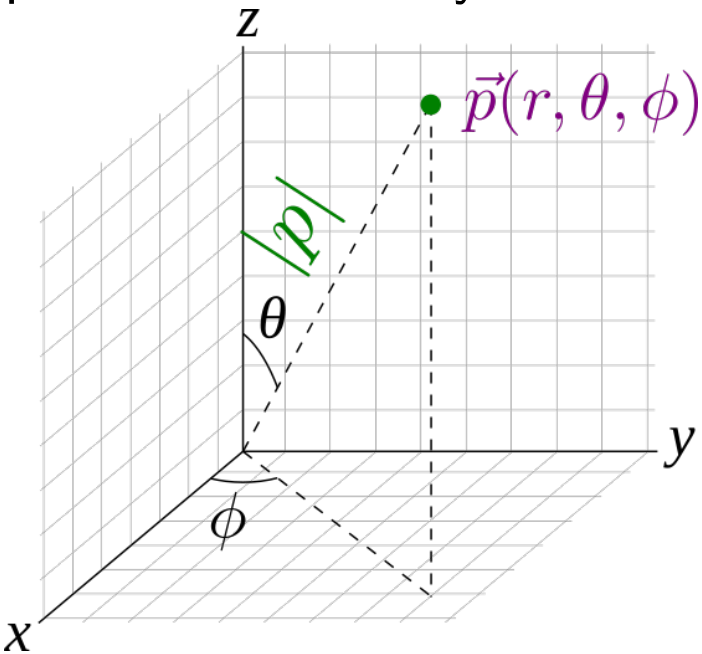
For problems involving rotation it is convient to use polar or cylindrical coordinate systems. Conversion from Cartesian to polar is straightforward using trigonometry.

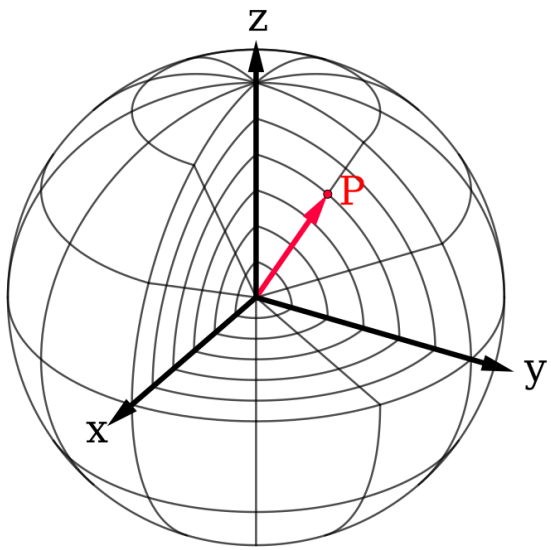




Spherical

"The spherical coordinate system generalizes the two-dimensional polar coordinate system..." Wikipedia





Others ?

Do of any other systems that are used?