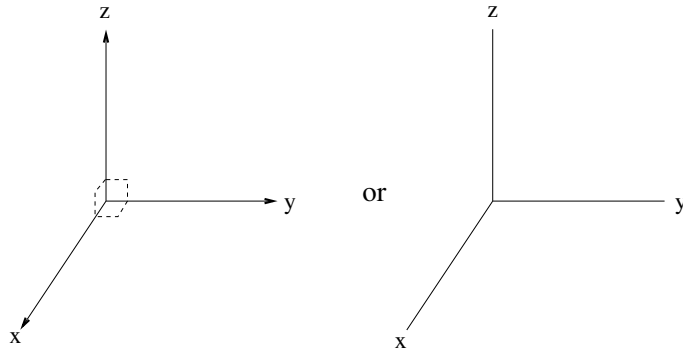# 12.1: 3D Coordinate Systems

■ **Three coordinate axes**



- **Coordinate axes are perpendicular**

- **Axes are oriented according to the right-hand rule**
  Fingers from $x$ to $y$ axis, then thumb points in direction of $z$-axis

■ **Points $(a, b, c)$ or $P(a, b, c)$**

- **Meaning:** $x$ coordinate has value $a$
  $y$ coordinate has value $b$
  $z$ coordinate has value $c$

- **Origin** $(0, 0, 0)$ is often denoted by $O$