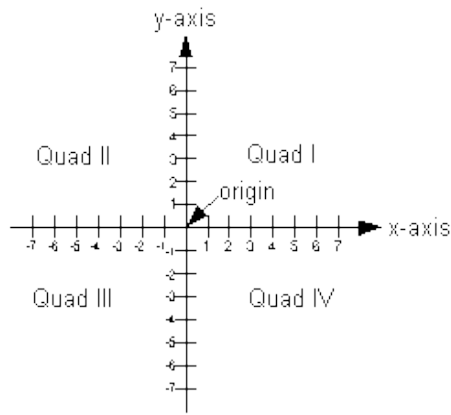


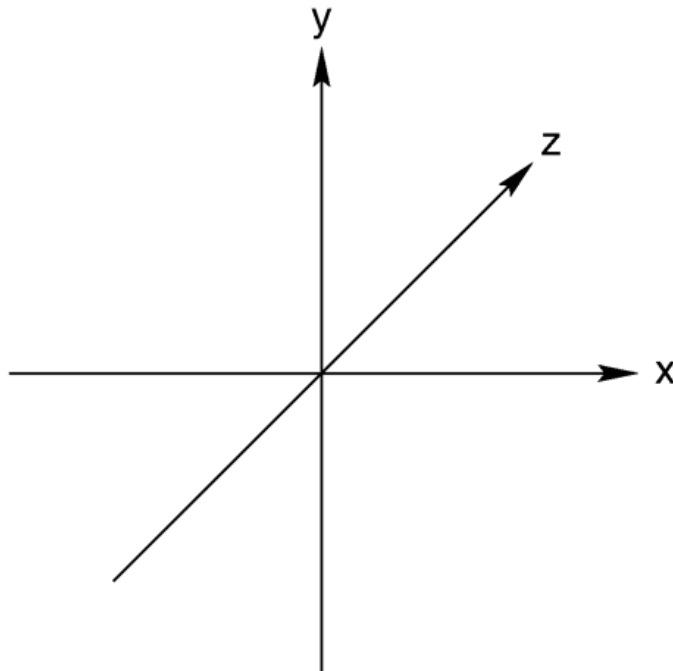
Kinematics-A Description of How Objects Move.

Reference Frames and Displacement

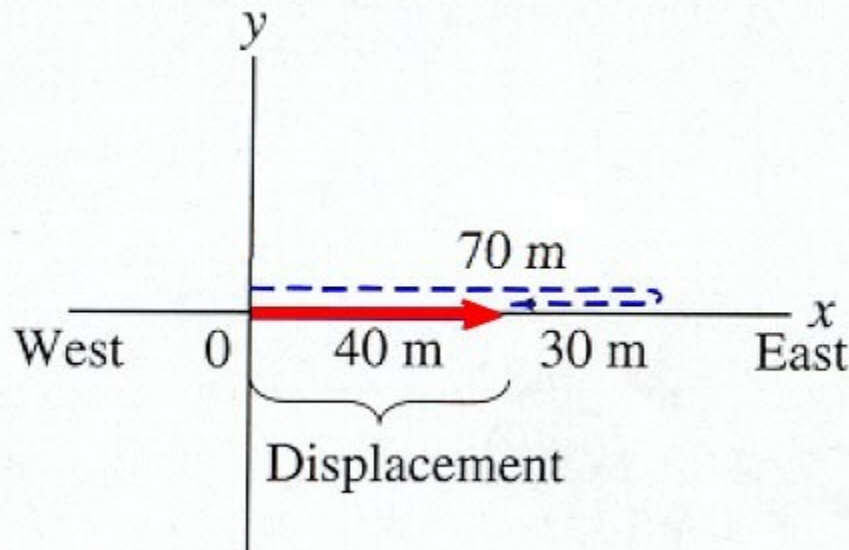
1. All measurements need to be made from a frame of reference.
2. A coordinate system is useful in specifying an objects motion since magnitude and direction can be indicated.



3. For one dimension the x-axis is used, for two the x and y-axis and for three the x, y and z-axis are used.



4. Displacement versus distance: Distance is a measure of the total distance traveled. Displacement is a measure of the straight line distance from the starting point as well as an indicated direction. Displacement is a quantity that has both magnitude and direction.



Distance traveled = 100m

Displacement = 40m East

5. To calculate the displacement in one dimension use the following formula:

$$\Delta X = X_2 - X_1$$

Where X_1 is the initial position and X_2 is the final position and ΔX literally means, "change in". Notice that both position and displacement are vectors and the symbols should have an arrow \rightarrow above it.

Examples on board