



Andhra Pradesh State Skill Development Corporation



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AutoCAD(CIVIL)

Classification Of Coordinate System



WORKING ENVIRONMENT OF AUTOCAD

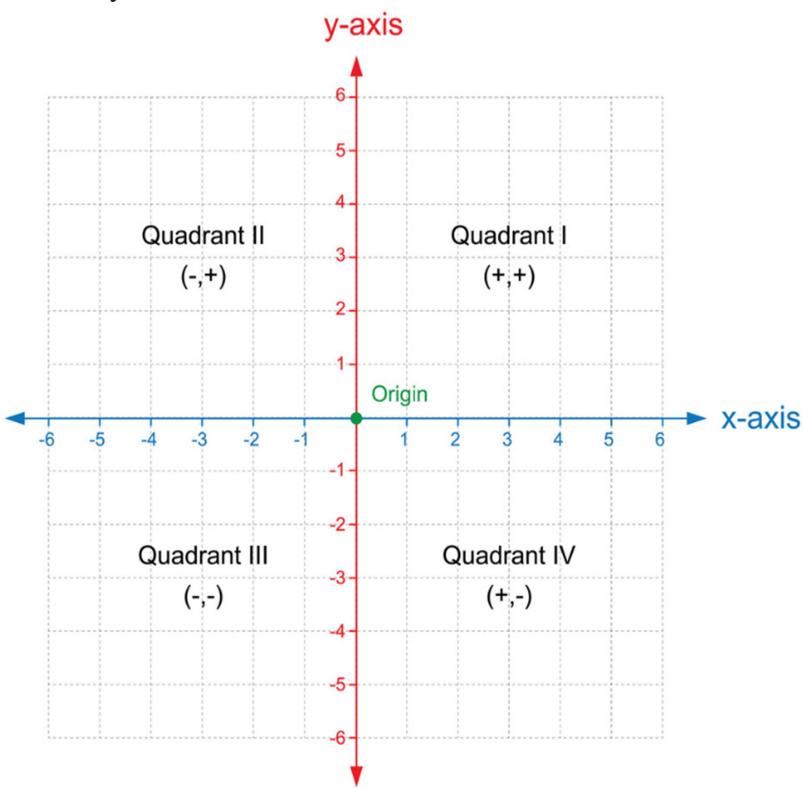
CLASSIFICATION OF COORDINATE SYSTEM

Coordinate System

To work in AutoCAD is necessary to know the coordinate system. Every point in an AutoCAD drawing file can be identified by its X, Y, and Z coordinates. (In most 2D drawings, the Z-coordinate value is 0.0.) This system of coordinates is referred to in AutoCAD as the world coordinate system, or WCS.

There are 2 ways used to draw the diagrams in AutoCAD. That is

- Cartesian Coordinate System
- Polar Coordinate System



- Cartesian coordinate system further divided into two types,

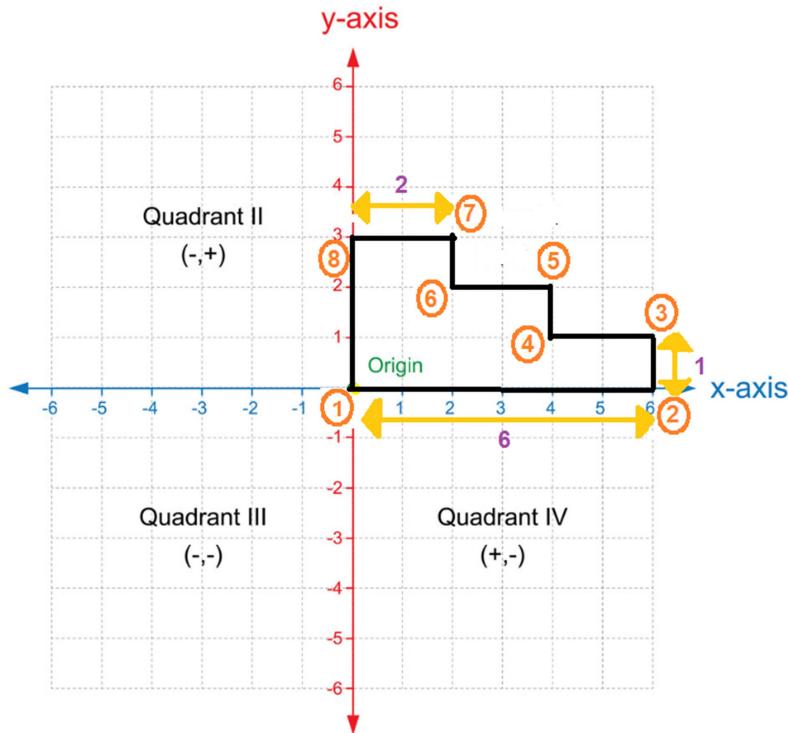
There are

1. Absolute Coordinate System
2. Relative Coordinate System

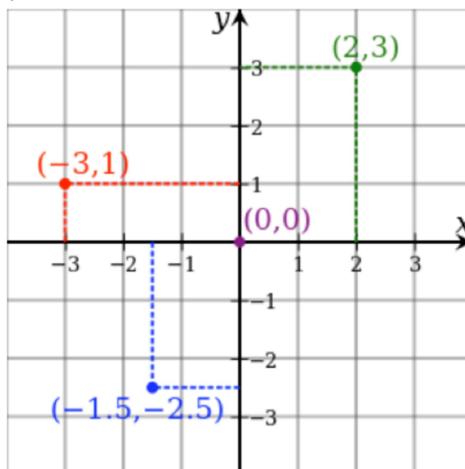


Example:

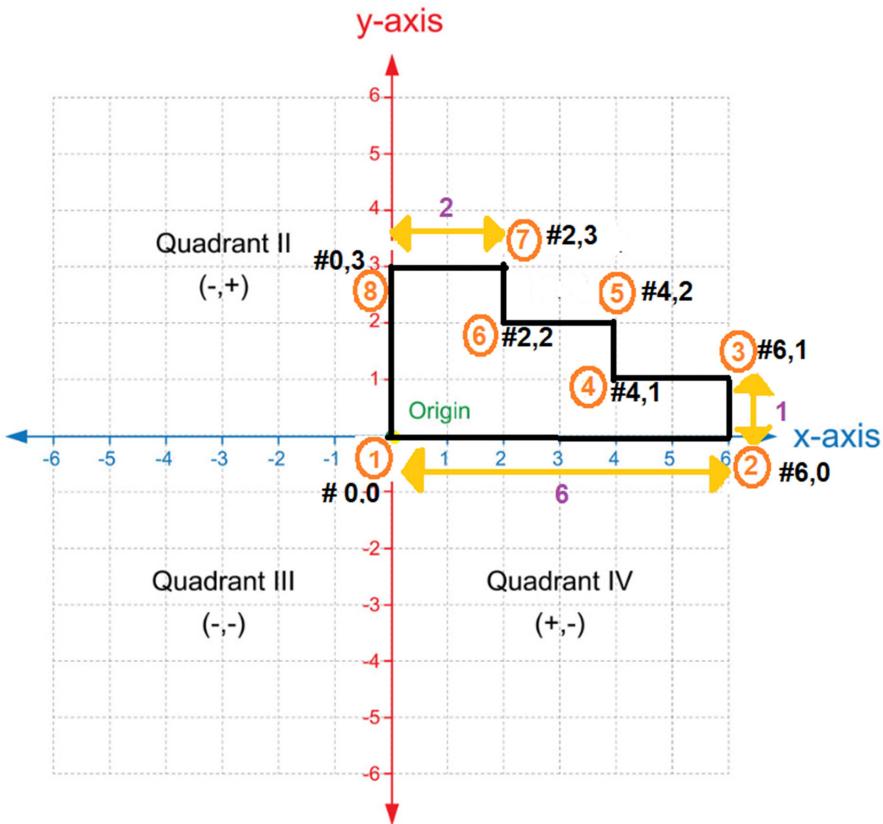
We take the steps like structure



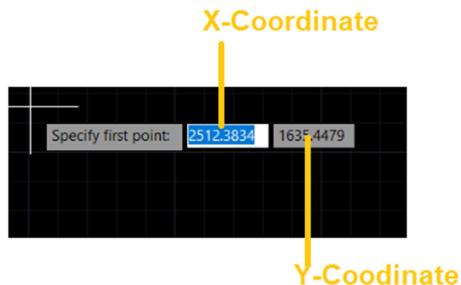
1. Absolute Coordinate System



- In this coordinate system we indicate the input values same as like graph It is similar to Graph
- Absolute coordinate system Syntax is #X,Y
- In this coordinate system the reference point always will be one, that is origin point of the object
- Take the origin point as a reference point to all points.



Follow the Steps for Absolute Coordinate System:



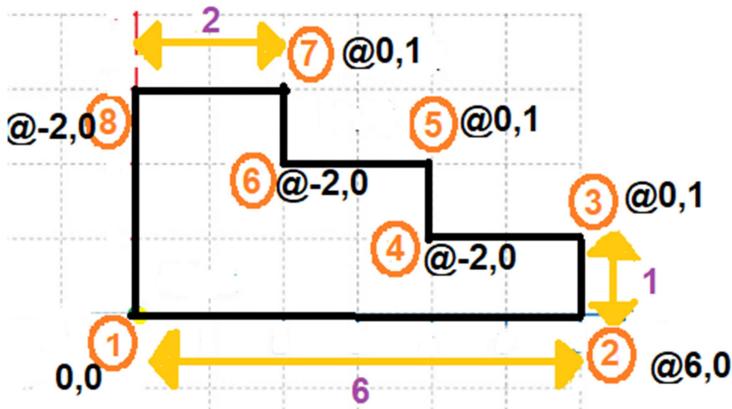
- Activate the line command
- Specify the first point # 0,0
- 1 Point is origin of the object and its located at origin point so the X coordinate is 0 and Y coordinate is 0
- #(Hold Shift key+3)then enter 0 value then enter comma(,) then enter 0
- Specify next point # 6,0
2nd point --X coordinate is 6(from 1 (origin) point to 2nd point X direction distance) and Y coordinate is 0 because that line lies on the X-axis.
- Specify next point # 6,1
3rd point--X coordinate is 6(from 1 point to 3rd point X direction distance) and Y coordinate is 1 (from 1point to 3rd point Y direction distance).
- Specify next point # 4,1
4th point--X coordinate is 4(from 1 point to 4th point X direction distance) and Y coordinate is 1 (from 1point to 4th point Y direction distance).
- Specify next point # 4,2
5th point--X coordinate is 4(from 1 point to 5th point X direction distance) and Y coordinate is 2 (from 1point to 5th point Y direction distance).



- Specify next point # 2,2
6th point--X coordinate is 2(from 1 point to 6th point X direction distance) and Y coordinate is 2 (from 1point to 6th point Y direction distance).
- Specify next point # 2,3
7th point--X coordinate is 2(from 1 point to 7th point X direction distance) and Y coordinate is 3 (from 1point to 7th point Y direction distance).
- Specify next point # 0,3
8th point--X coordinate is 0(from 1 point to 8th point X direction distance) and Y coordinate is 3 (from 1point to 8th point Y direction distance).
- C enter or you can give the coordinate value #0,0
Note: Don't come out from the command. If you come out from the command again you have to give that particular coordinate value.

2. Relative Coordinate System

- Relative Coordinate System syntax is @X,Y
- In this coordinate system the reference points are change
- We take the previous point to reference
- Here either X coordinate value or Y coordinate value will be zero.



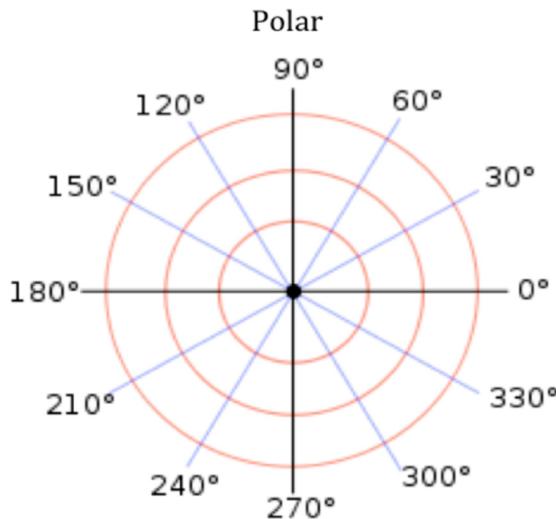
Follow the Steps for Relative Coordinate System:

- Activate the line command
- Specify the first point 0,0
- Specify next point @ 6,0
2nd point --X coordinate is 6(from 1 (origin) point to 2nd point X direction distance) and Y coordinate is 0 because that line lies on the X-axis.
- Specify next point @ 0,1
3rd point--X coordinate is 0(from 2nd point to 3rd point X direction distance) and Y coordinate is 1 (from 2 point to 3rd point Y direction distance).
- Specify next point @ -2,0
4th point--X coordinate is -2(from 3rd point to 4th point X direction distance) and Y coordinate is 0 (from 3rd point to 4th point Y direction distance).
- Specify next point @ 0,1
5th point--X coordinate is 0(from 4th point to 5th point X direction distance) and Y coordinate is 1 (from 4th point to 5th point Y direction distance)
- Specify next point @ -2,0
6th point--X coordinate is -2(from 5th point to 6th point X direction distance) and Y coordinate is 0 (from 5th point to 6th point Y direction distance).

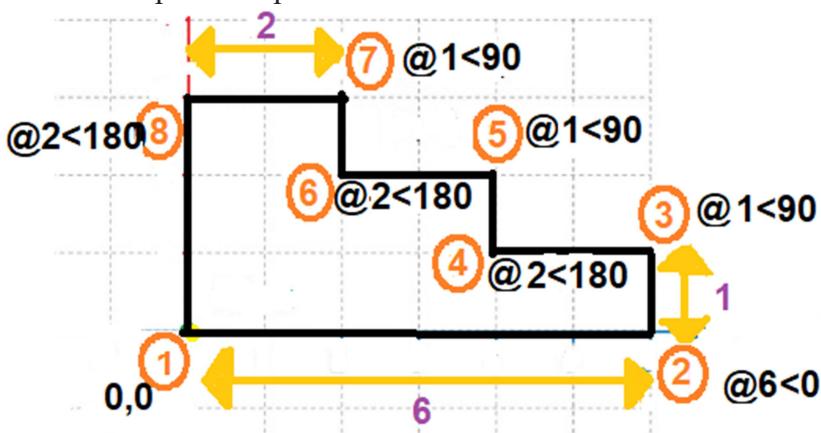


- Specify next point @ 0,1
7th point--X coordinate is 0 (from 6th point to 7th point X direction distance) and Y coordinate is 1 (from 6th point to 7th point Y direction distance).
- Specify next point @ -2,0
8th point--X coordinate is -2 (from 7th point to 8th point X direction distance) and Y coordinate is 0 (from 7th point to 8th point Y direction distance)
- C enter or you give coordinate values @0,-3..

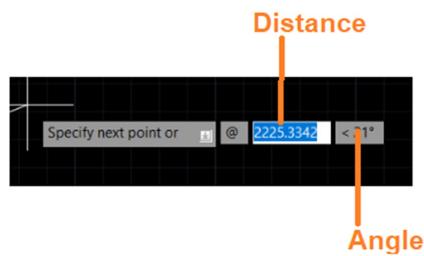
Polar Coordinate System



- Polar Coordinate System syntax is @Distance < Angle.
- In this coordinate system the reference points are change.
- We take the previous point to reference .



Follow the Steps for Polar Coordinate System:





- Activate the line command
- Specify the first point 0,0
- Specify next point @ 6<0
2nd point --Distance is 6(from 1 (origin) point to 2nd point line distance) and Angle is 0 because that line lies on the positive (+) X-axis.
- Specify next point @1<90
3rd point--Distance is 1(from 2nd point to 3rd point line distance) and Angle is 90 because that line lies on the positive (+) Y-axis.
- Specify next point @ 2<180 or @-2<0
4th point--Distance is 2(from 3rd point to 4th point Line distance) and Angle is 180 because that line lies on the negative (-) X-axis
- Specify next point @1<90
5th point--Distance is 1(from 4th point to 5th point line distance) and Angle is 90 because that line lies on the positive (+) Y-axis.
- Specify next point @ 2<180
6th point--Distance is 2(from 5th point to 6th point Line distance) and Angle is 180 because that line lies on the negative (-) X-axis.
- Specify next point @ 1<90
7th point--Distance is 1(from 6th point to 7th point line distance) and Angle is 90 because that line lies on the positive (+) Y-axis.
- Specify next point @ -2,0
8th point--Distance is 2(from 7th point to 8th point Line distance) and Angle is 180 because that line lies on the negative (-) X-axis.
- C enter or you give coordinate values @0<270.