University of Sallahadin
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Electrical Engineering Dept.

Electrical CAD
Lecture Two
Fundamentals

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Contents of This Lecture

- Draw Arcs
- Drafting Settings
- Dynamic Input
- Display Control Commands
- Undo and Redo

Drawing Arcs

The **ARC** command offers different options for drawing arcs:

- Three-point (3 points)
- Start, center, end (S,C,E)
- Start, center, included angle (S,C,A)
- Start, center, length of chord (S,C,L)
- Start, end, included angle (S,E,A)
- Start, end, direction (S,E,D)
- Start, end, radius (S,E,R)
- Center, start, end (C,S,E)
- Center, start, included angle (C,S,A)
- Center, start, length of chord (C,S,L)
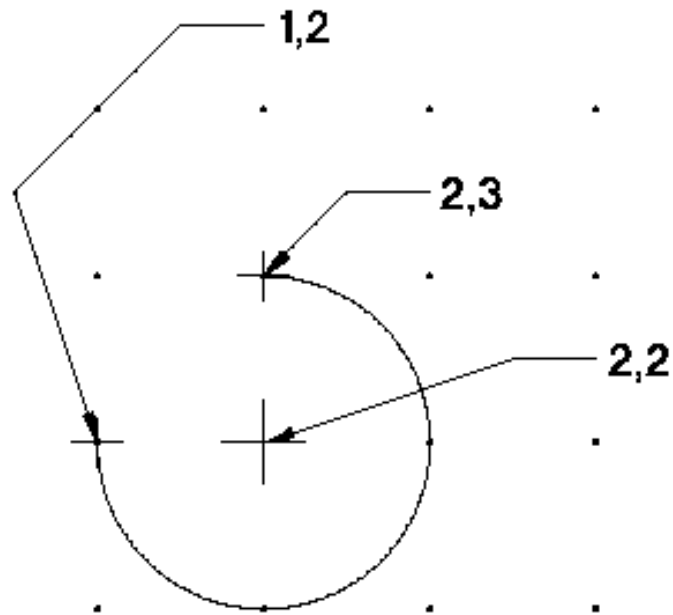- Continuation from line or arc (LinCont or ArcCont)

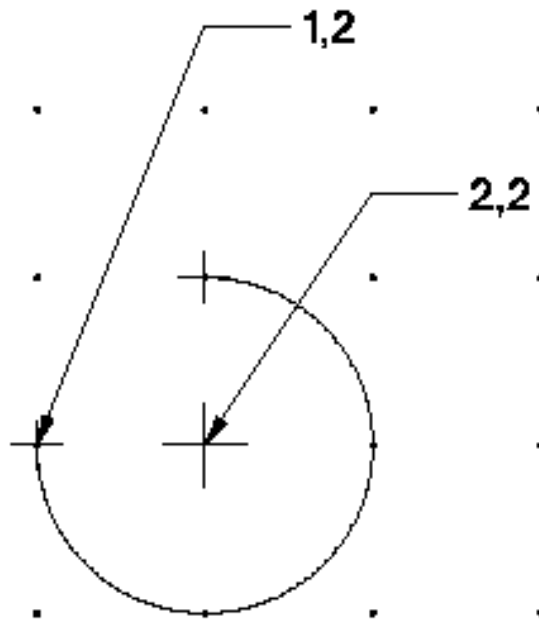# Drawing Arcs

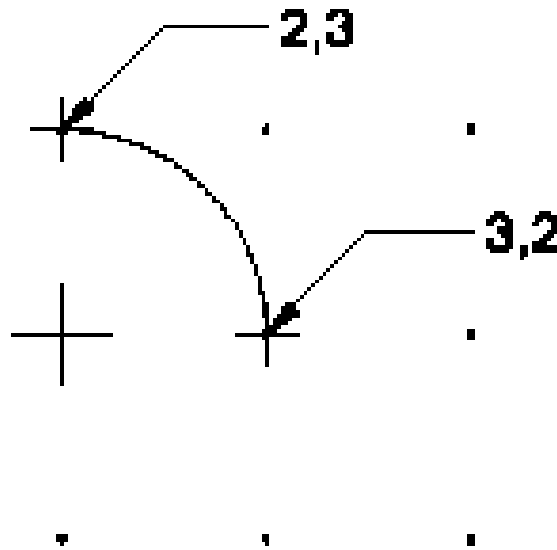**Three-point (3 points)**
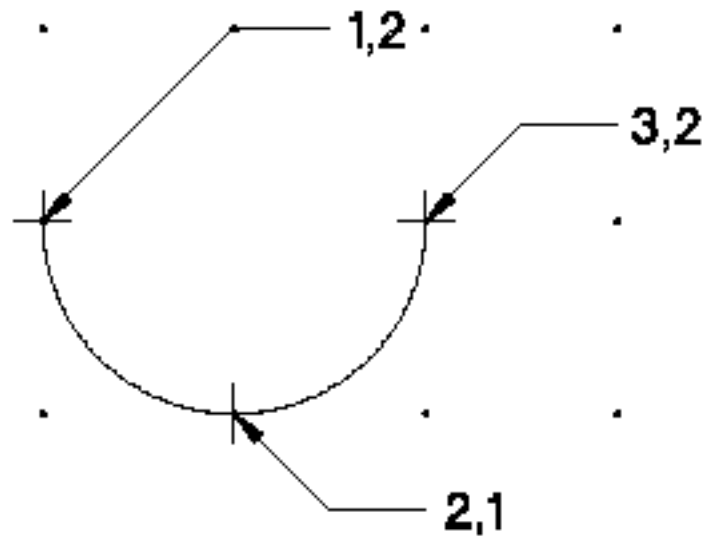
Drawing Arcs

Start, center, end (S,C,E)
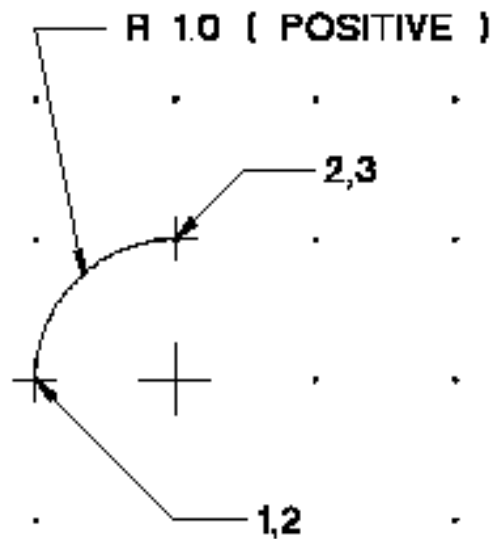
Drawing Arcs

Start, center, included angle (S,C,A)

Drawing Arcs

Start, end, included angle (S,E,A)

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Drawing Arcs

Start, end, radius (S,E,R)

A 1.0 (POSITIVE)

Drafting Settings

AutoCAD provides various tools that make it possible to create and modify objects more easily and accurately.
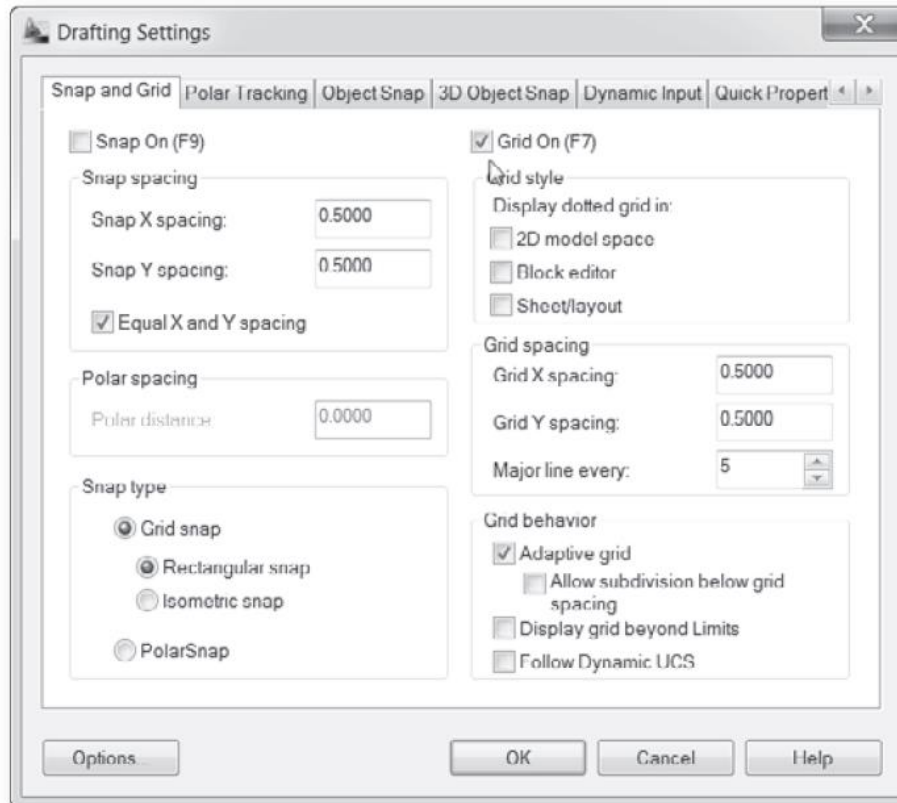
Snap
Grid
Ortho
Object Snap

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Drafting Settings

Tools Menu	Choose Drafting Settings…
Shortcut Menu	Right-click Snap on the status bar and choose Settings…
On-Screen prompt	dsettings (ENTER)

Drafting Settings

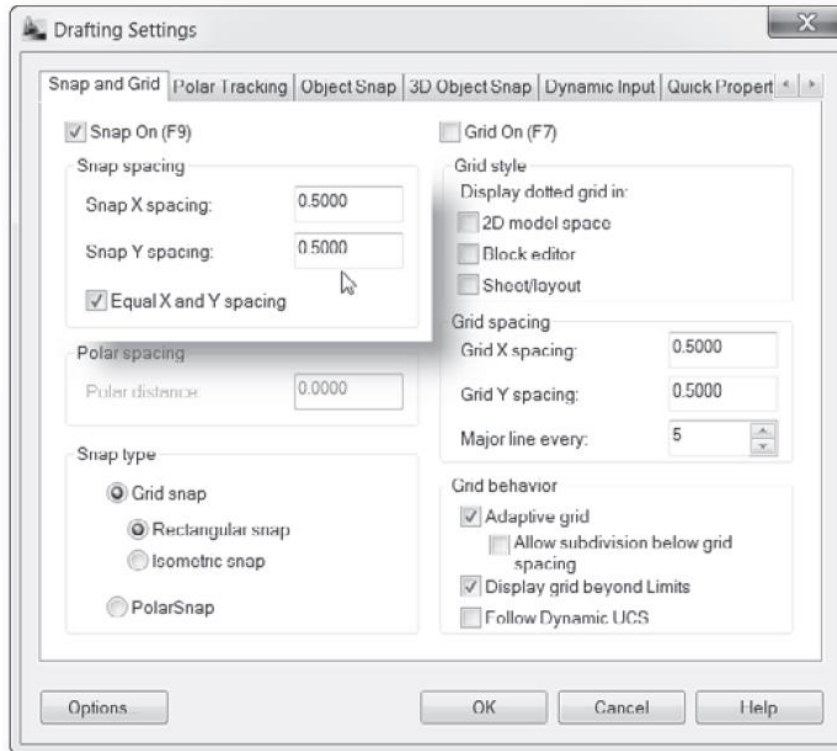**Grid** Settings related to Grid in the Drafting Settings dialog box

grid (ENTER)

To toggle **Grid** feature ON/OFF, press the **F7** function key.

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Drafting Settings

Snap

Settings related to Snap in the Drafting Settings dialog box

snap (ENTER)

To toggle snap feature ON/OFF, press the **F9 function key**.

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Drafting Settings

Ortho

The ORTHO feature lets you draw lines and specify point displacements that are parallel to either the *X* or *Y* axis.

ortho (ENTER)

In addition you can toggle Ortho feature ON/OFF by pressing the **F8 function key**.
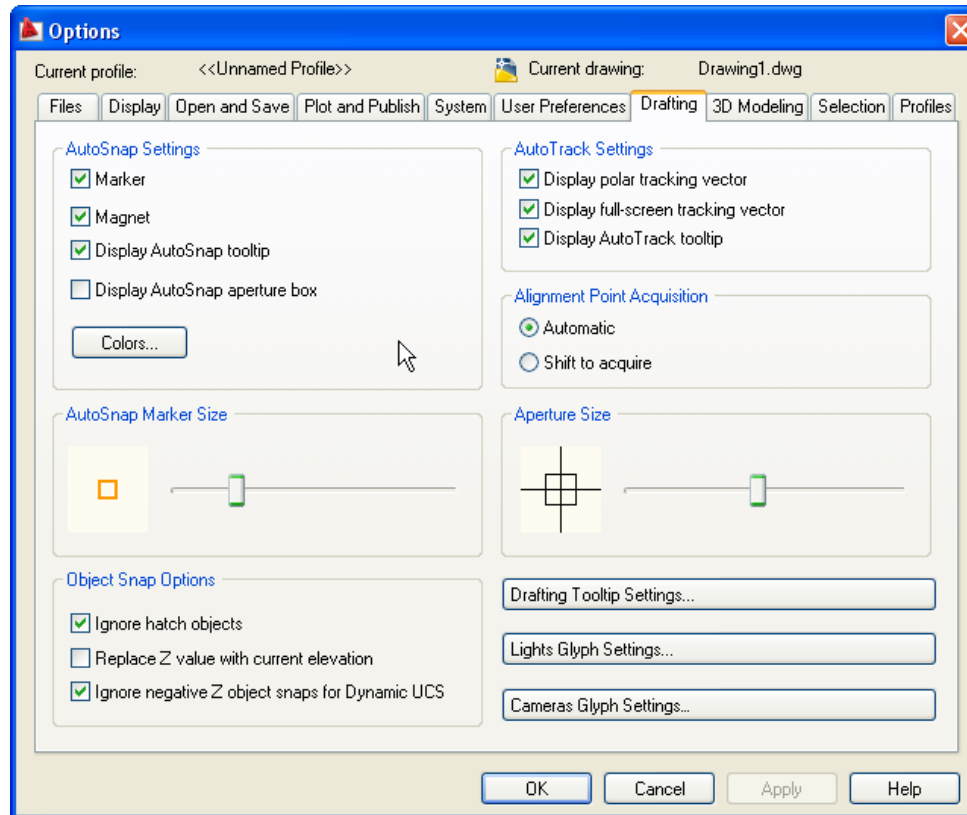
Drafting Settings

Object Snap

The Object Snap (or Osnap, for short) feature lets you specify points on existing objects in the drawing, such as endpoint, center, midpoint, etc.

Object snap modes can be choose while executing an AutoCAD command that prompts for a point.
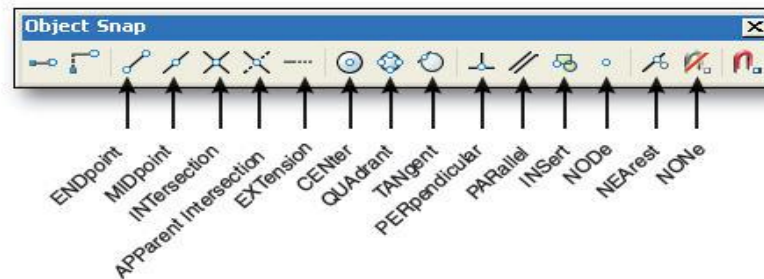
Drafting Settings

Object Snap Markers and Tooltips

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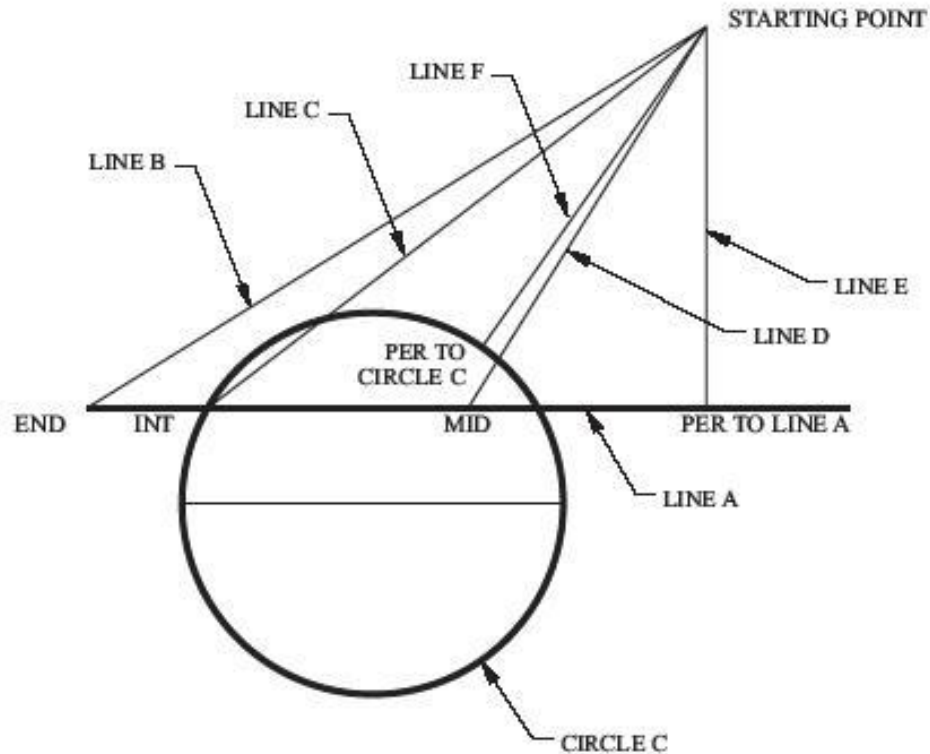
Drafting Settings

Following are the various Object Snap modes available:

- ✓ENDpoint
- ✓MIDpoint
- ✓CENter
- ✓NODe
- ✓QUAdrant
- ✓INTersection
- ✓EXTension
- ✓INSertion

- ✓PERpendicular
- ✓TANgent
- ✓NEArest
- ✓APParent Intersection
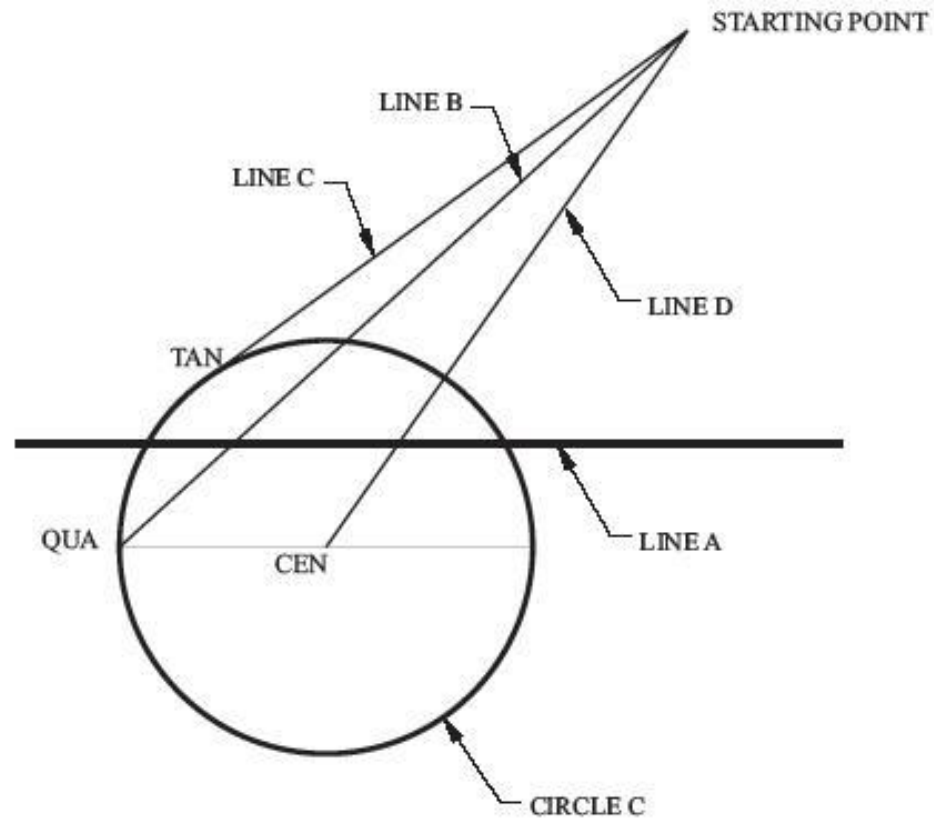- ✓PARallel
- ✓SNAp From
- ✓MTP
- ✓NONe

Drafting Settings
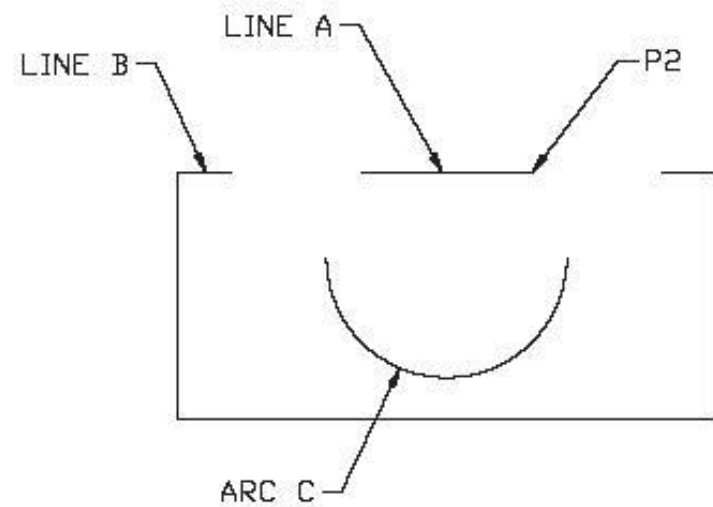
Endpoint, Intersection, Midpoint, and Perpendicular

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Drafting Settings

Drafting Settings

Apparent Intersection, Extension, and Parallel

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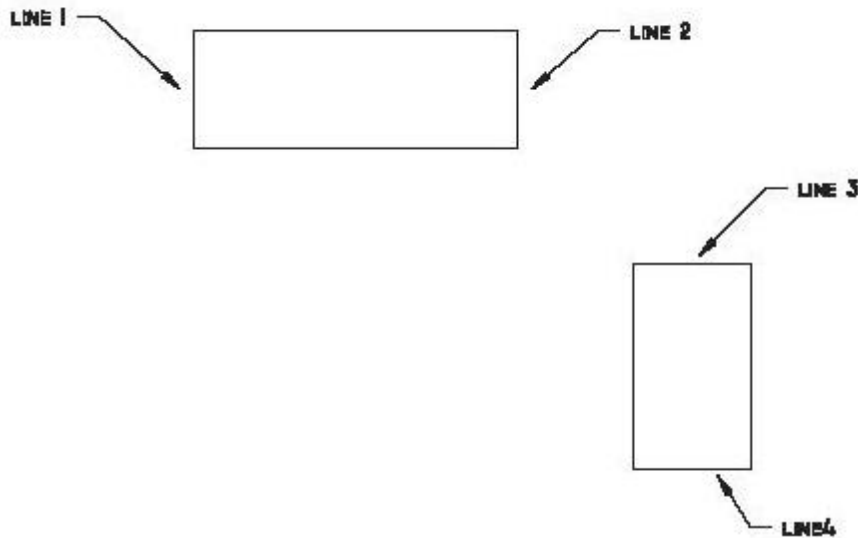
Dynamic Input

Dynamic Input provides a command interface near the cursor to help you keep your focus in the drafting area.

Dynamic Input can be toggled ON/OFF by choosing **DYN** on the status bar or press **F12**.

Display Control Commands

AutoCAD provides various tools that allows to view the drawing in different ways which in turn will allow to create the drawing faster and more efficiently.

Zoom

Pan

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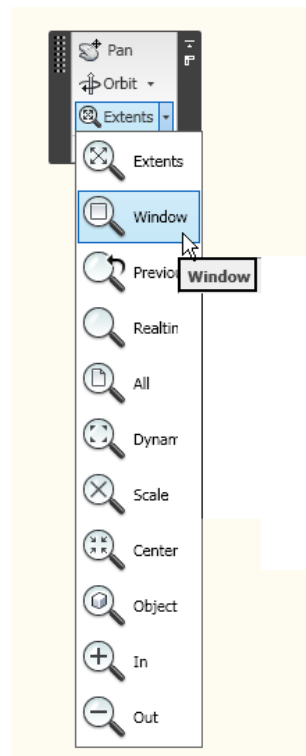
Display Control Commands

Zoom

The ZOOM command allows to control the viewing area of the drawing. You can increase or decrease the viewing area, although the actual size of objects remains constant.

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Display Control Commands

Following are the available options for ZOOM command:

Window – (default) specify two points represent diagonally opposite corners of a rectangle and the view in the rectangle is enlarged to fill the drawing area.

Realtime – lets you zoom interactively to a logical extent.

All – displays the entire drawing. In a plan view, it zooms to the drawing's limits or current extents, whichever is larger.

Center - select a new view by specifying its center point and the magnification value or height of the view in current units.

Display Control Commands

Dynamic – lets you see entire drawing and allows to select the location and size of the next view by means of the cursor manipulation.

Extents – displays the entire drawing extent immaterial of the limits of the drawing.

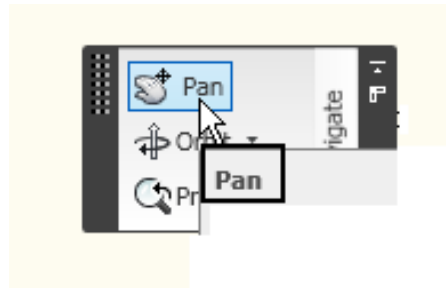**Previous** – displays the last displayed view. Restores up to last 10 views.

Scale – displays to the set scale (or magnification) factor.

Display Control Commands

Pan

The PAN command allows to view a different portion of the drawing in the current view without changing the magnification.

Pan Realtime pan interactively to the logical extent (edge of the drawing space).

Display Control Commands

Redraw and Regen

The **REDRAW** command is used to refresh the on-screen image and to remove the blip marks from the screen. A redraw is considered a screen refresh as opposed to database regeneration.

The **REGEN** command is used to regenerate the drawing's data on the screen and it goes through the drawing's entire database and projects the most up-to-date information on the screen. The REGEN command displays the most accurate image possible.

Undo and Redo

The UNDO command undoes the effects of the previous command or group of commands, depending on the option employed. The U command reverses the most recent Operation.

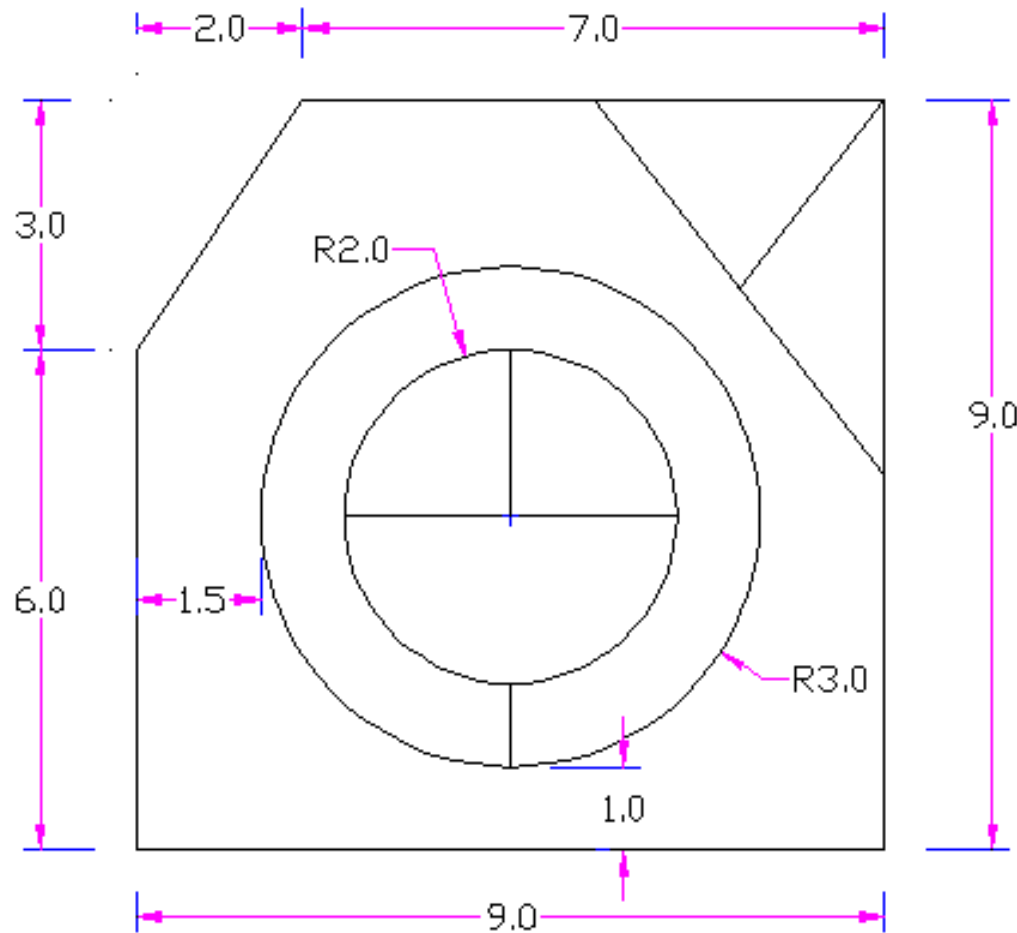The REDO command is reversal of the effects of the previous U and UNDO commands.
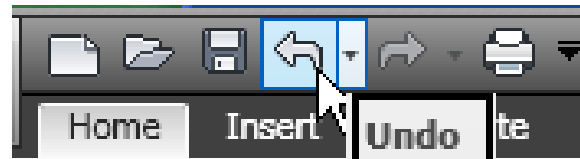
Next Lecture

- Advanced Drawing commands

Assignment

- Draw the following diagram using AutoCAD.

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Questions and Thank you

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