University of Sallahadin
College of Engineering
Electrical Engineering Dept.

Electrical CAD
Lecture Three
Advanced Drawing commands I

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Contents of This Lecture

- Construction commands
- Modify Commands

Construction commands

AutoCAD provides various drawing commands that make it possible to create geometric figures more easily and accurately.
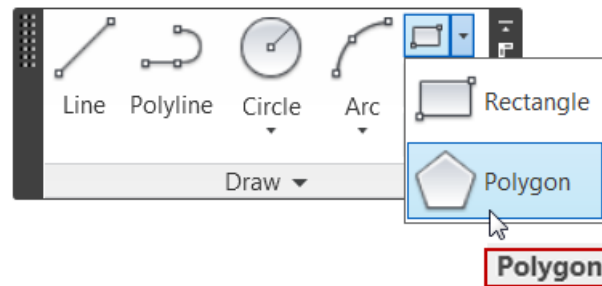
Polygon

Ellipse

Polygon

POLYGON command draws 2D polygons (edges with equal length).

The number of sides can be anywhere from 3 (which forms an equilateral triangle) to 1024.
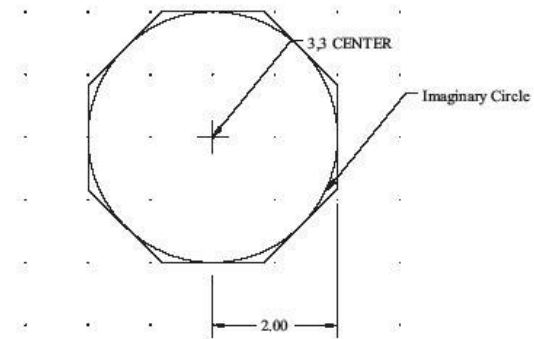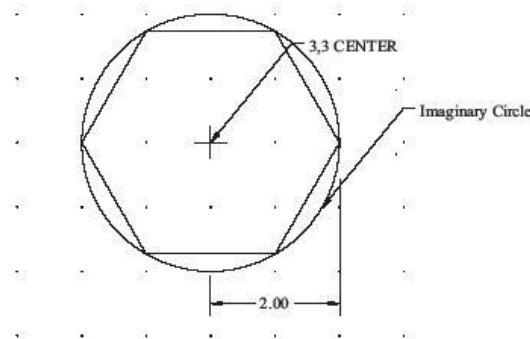
Invoke the POLYGON command from the Draw panel.

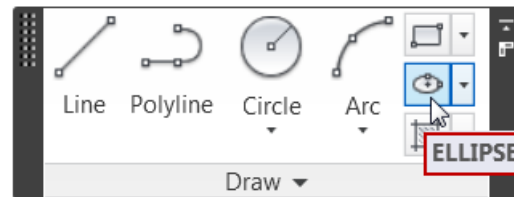SU-Erbil- Engineer Collage – Sarkar Jawhar

Polygon

Options :

- **Inscribed in circle** selection draws polygon of equal length for all sides inscribed inside an imaginary circle having the same diameter as the distance across opposite polygon corners.

- **Circumscribed about circle** selection draws polygon circumscribed around the outside of an imaginary circle having the same diameter as the distance across the opposite polygon sides.

- **Edge** selection allows you to draws polygon by specifying the endpoints of the first edge.
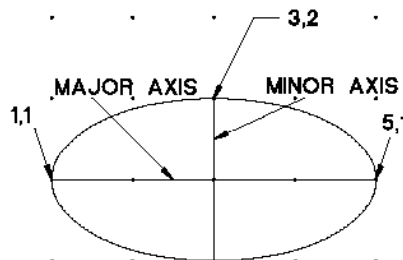
Ellipse

ELLIPSE command draws an ellipse or an elliptical arc. Invoke the ELLIPSE command from the Draw panel.

Options :

- **Ellipse by Defining Axis Endpoints (**specifying the endpoints of the axes)
- **Ellipse by Defining the Center of the Ellipse** (center point and axis end-points)
- **Ellipse by Specifying the Rotation Angle** (specifying a rotation angle after defining two endpoints of one of the two axes)

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CREATING OBJECTS FROM EXISTING OBJECTS

AutoCAD not only allows to draw objects easily, but also allows to create additional objects from existing objects.
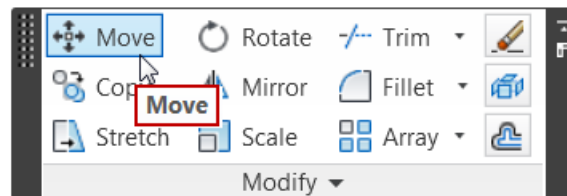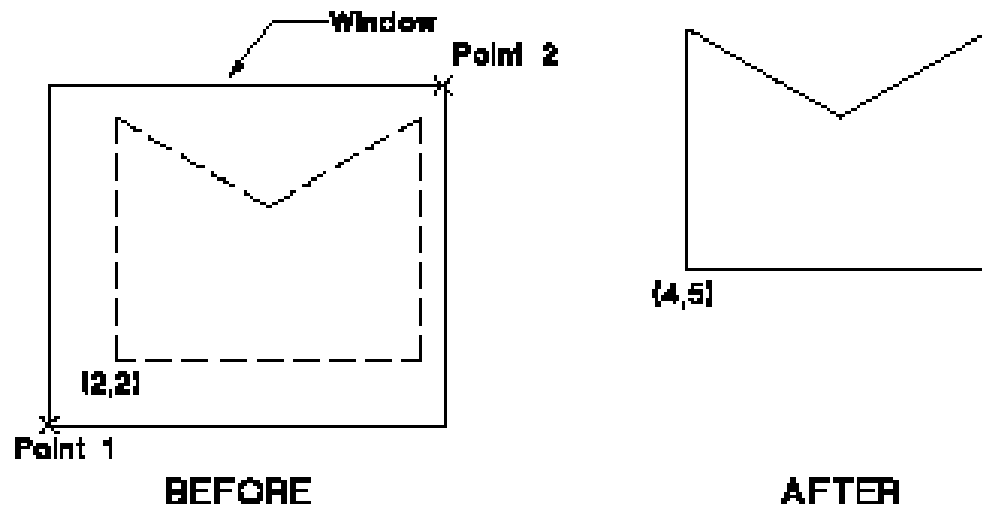
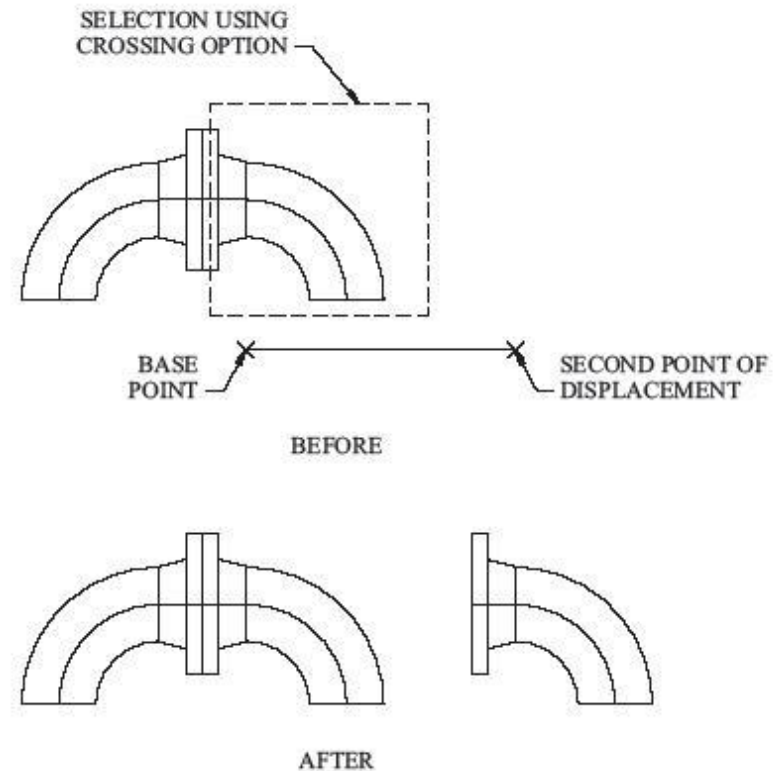Move

Copy

Stretch

Rotate

Mirror
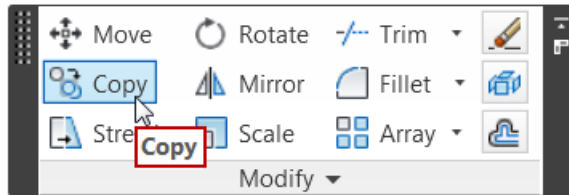
Scale

Trim &Extend

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Moving Objects

The MOVE command moves one or more objects from their present location to a new one without changing orientation or size.

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Copying Objects

The COPY command places copies of the selected objects at the specified displacement, leaving the original objects intact.
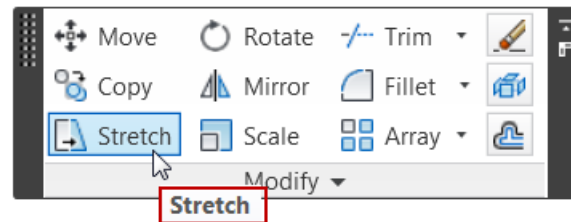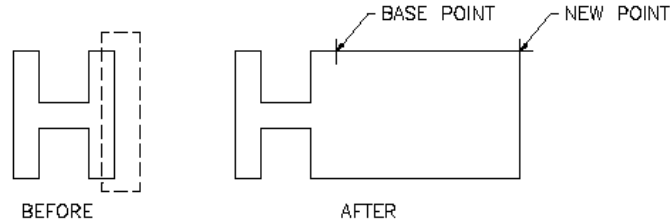
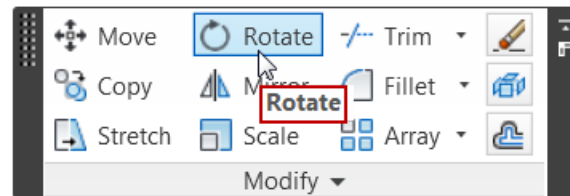The copies are oriented and scaled the same as the original.

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Stretch

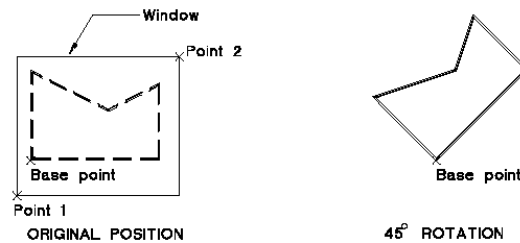The STRETCH command stretchs the shape of an object without affecting other crucial parts that remain unchanged.

The STRETCH command moves the endpoints that lie inside the window, leaving those outside the window unchanged.
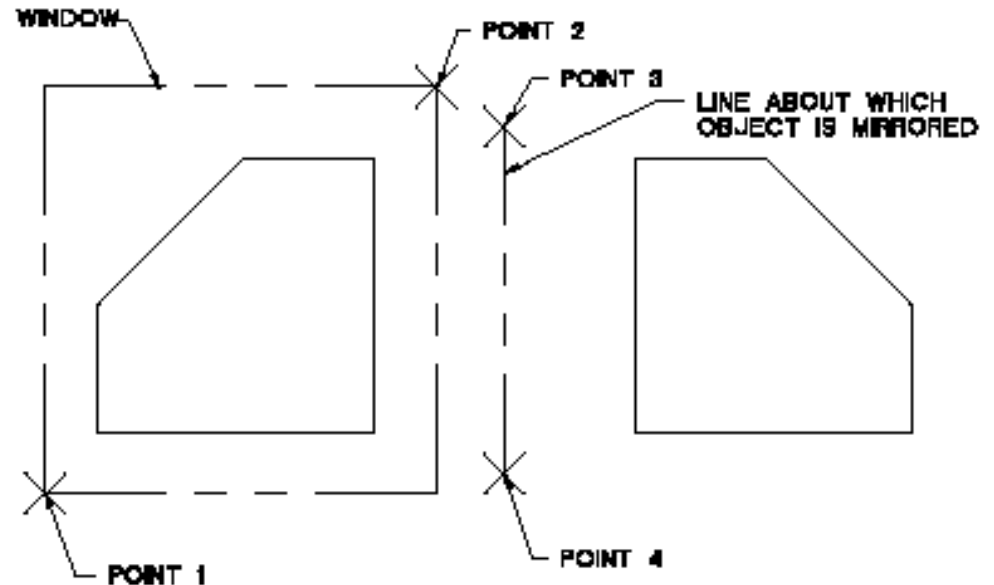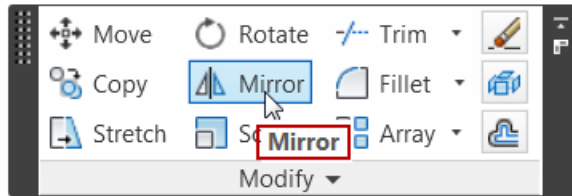
Rotate

The ROTATE command changes the orientation of existing objects by rotating them about a specified point, labeled as the base point. By default, a positive angle rotates the object in the counterclockwise direction, and a negative angle rotates in the clockwise direction.

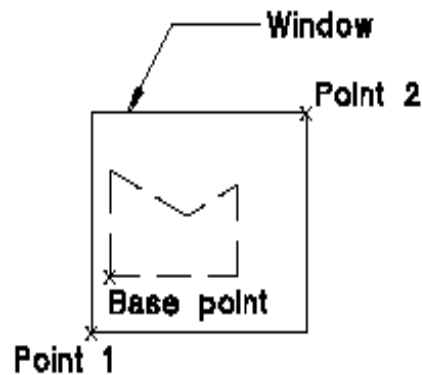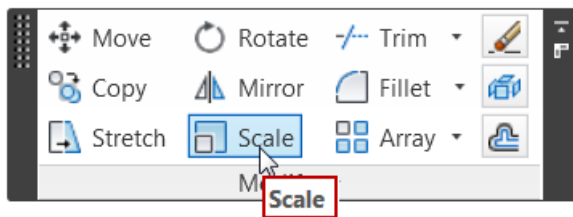SU-Erbil- Engineer Collage – Sarkar Jawhar

Mirror

The MIRROR command creates a copy of selected objects in reverse, that is, mirrored about a specified line.
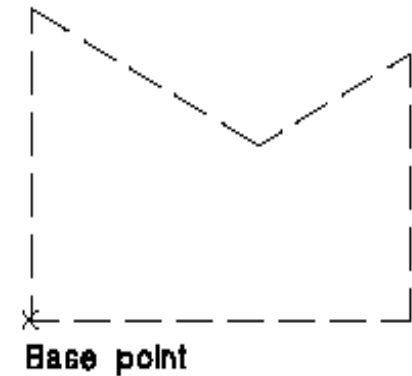
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Scale

The SCALE command lets you change the size of selected objects or the complete drawing.

Scale factor is applied to the X, Y directions. To enlarge an object, specify a scale factor greater than 1. To reduce the size of an object, use a scale factor between 0 and 1.
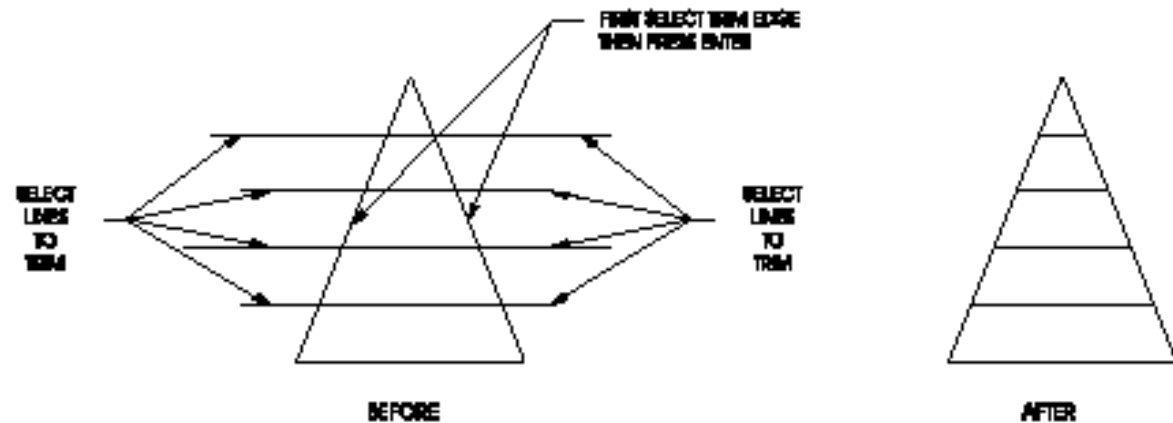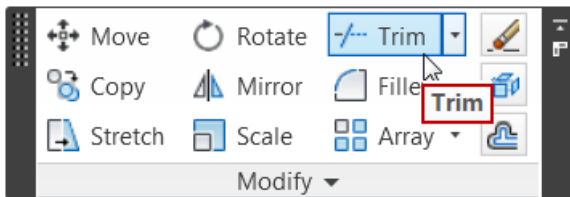

ORIGINAL OBJECT

SCALE 3

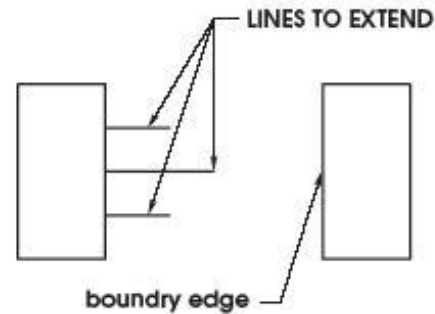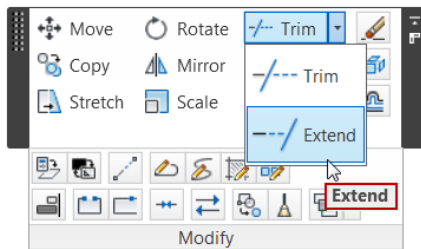SU-Erbil- Engineer Collage – Sarkar Jawhar

Trimming Objects

The TRIM command is used to trim the portion of the object that is drawn past a cutting edge or from an implied intersection defined by other objects.

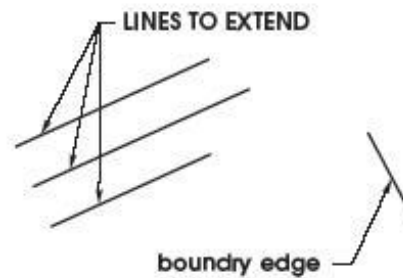Objects that can be trimmed include lines, arcs, elliptical arcs, circles, polylines.

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Extending Objects to meet Another Object

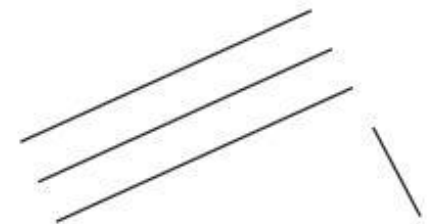The EXTEND command is used to change one or both endpoints of selected lines, arcs, elliptical arcs, open polylines.

Next Lecture

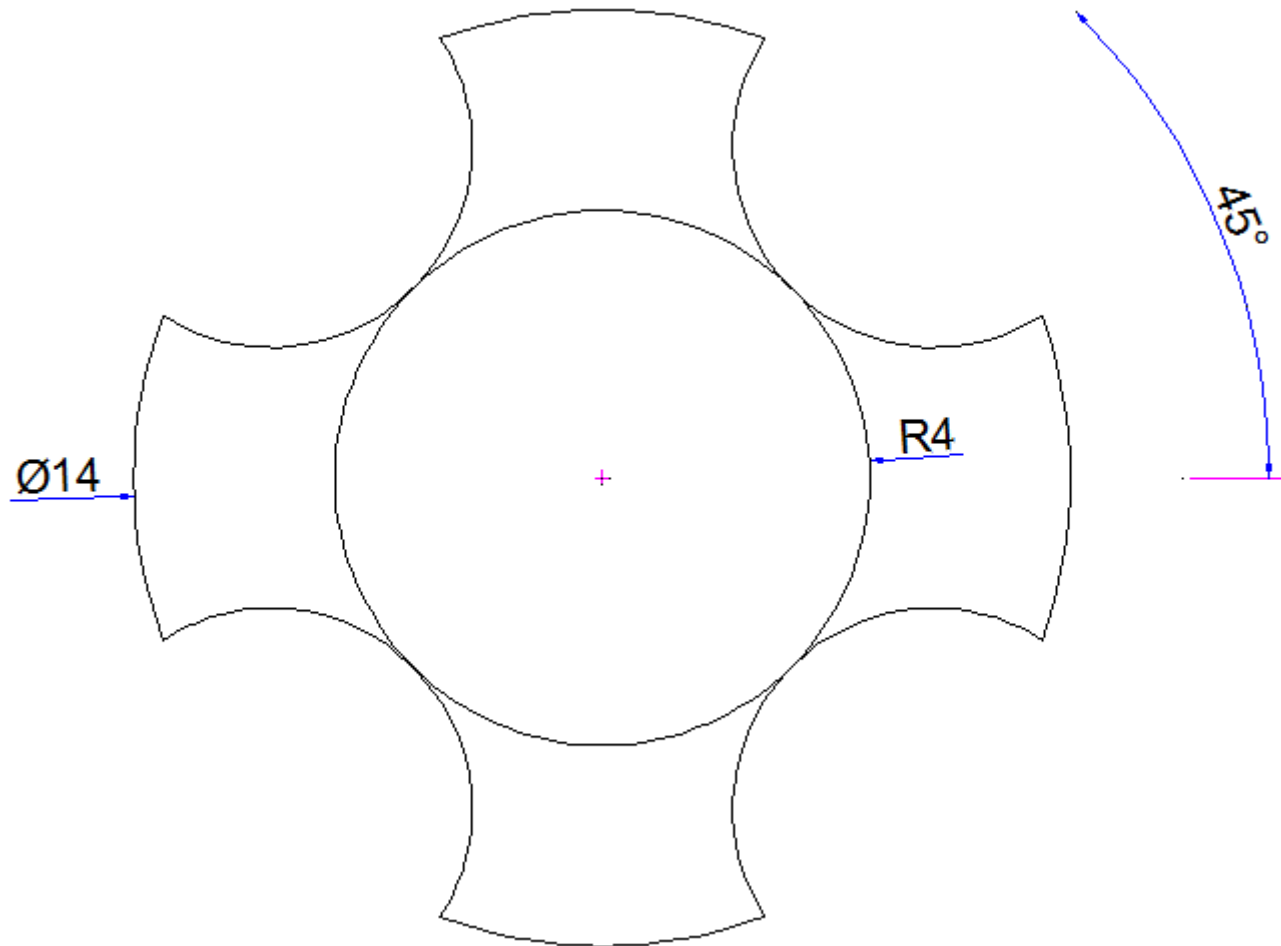- Advanced Drawing commands II

Assignment

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Questions and Thank you

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