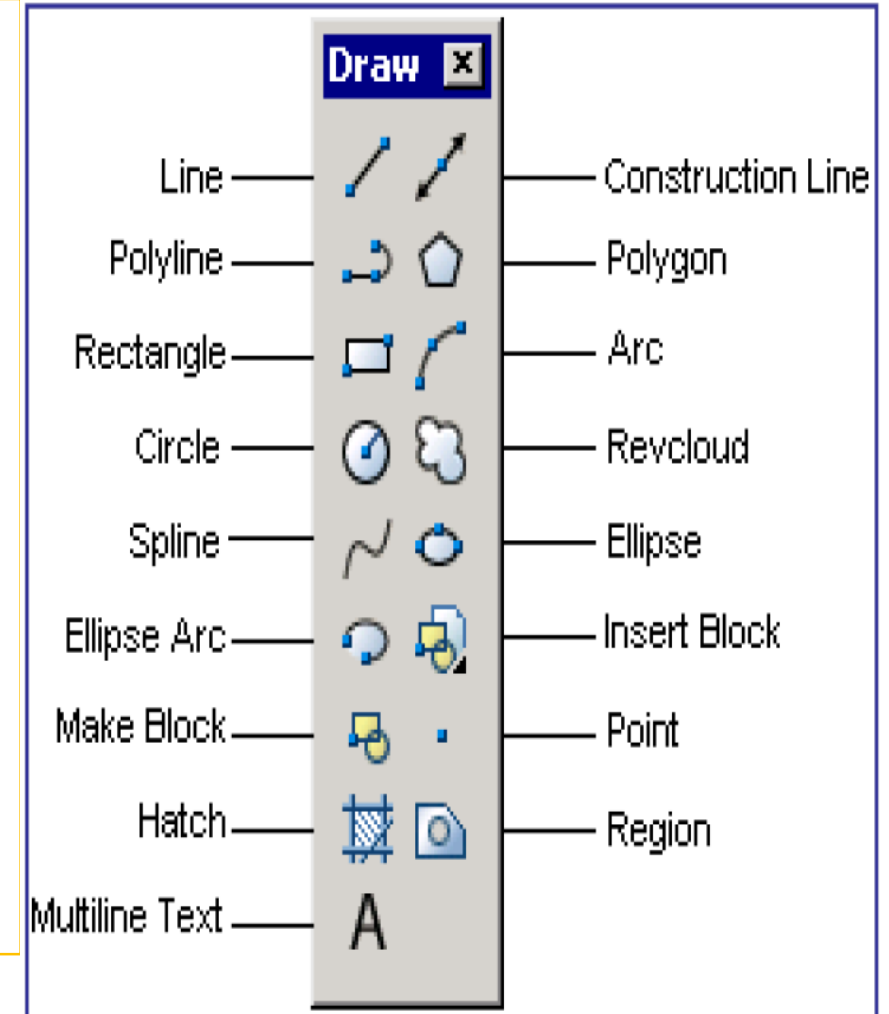# AUTODESK
AUTOCAD

CAD Lab

Lecture # 03 & 04

DRAW/BASIC COMMANDS OF AutoCAD

Learning Objectives of this Lecture

- To know & to learn basic commands

- To learn how to draw different 2D object in AutoCAD.

- Students get to know about the options available in Drawing Toolbar.

- Students get to know usage of Drawing Toolbar options in drawing.

Line, Polyline, Construction Lines, Polygon, Circle, Arc, Spline, Donut, Point, Block, Ellipse, Revcloud, Text


By: Engr. Asim Ahmad Riaz

Modify COMMANDS OF AutoCAD

Learning Objectives of this Lecture

- To know & to learn basic modify commands
- To learn how to Change/edit/modify the existing 2D drawing in AutoCAD.
- Students get to know about the Modify Toolbar.
- Students will learn the purpose of modify toolbar.
- Students get to know about the options available in Modify Toolbar.
- Students will learn to use all the commands of modify toolbar.
- Students will learn the interesting commands like Array, its types and applications.
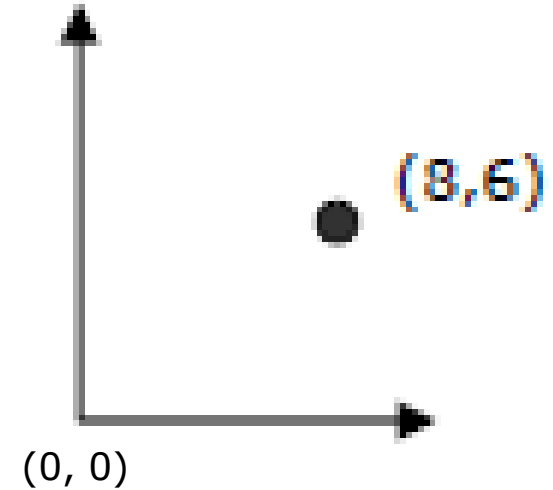
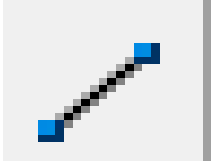*Erase, Copy, Mirror, Fillet, Move, Rotate, Chamfer, Scale, Trim, Extend, Explode, Lengthen, Break, Array*
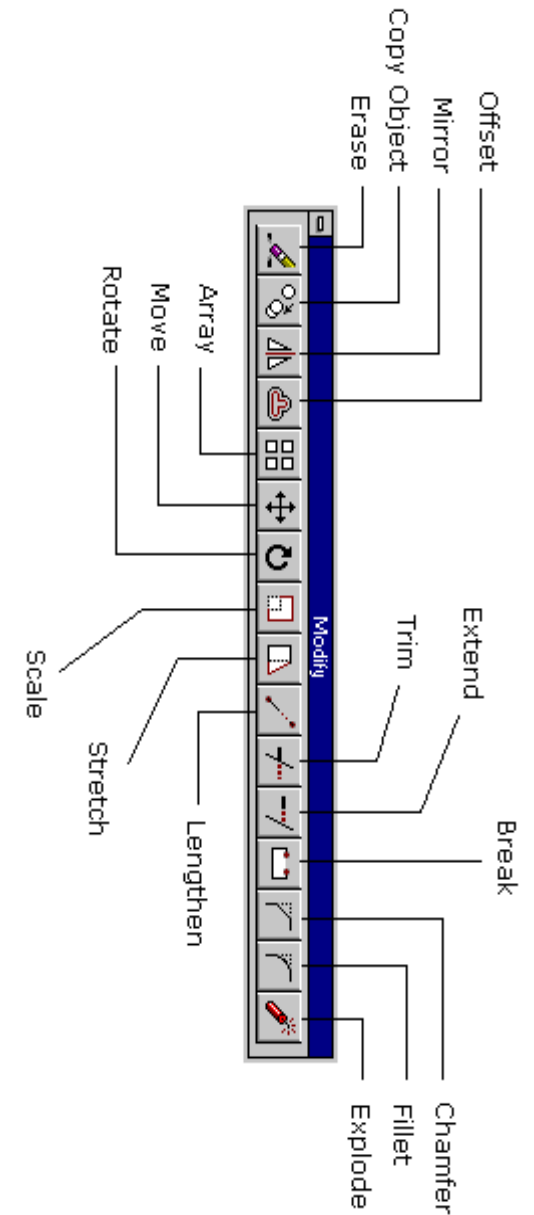
Drawing Entities

Point:

- Plot a point at the location (8, 6)
- Command: point
- Point: 8, 6

(8,6)

(0, 0)

Line:

Lines can be drawn by any one of the following three methods using LINE command.

1. *Using Absolute Co-ordinates:*
2. *Using Relative Co-ordinates*
3. *Using Polar Co-ordinates*

Line:

(10, 10)
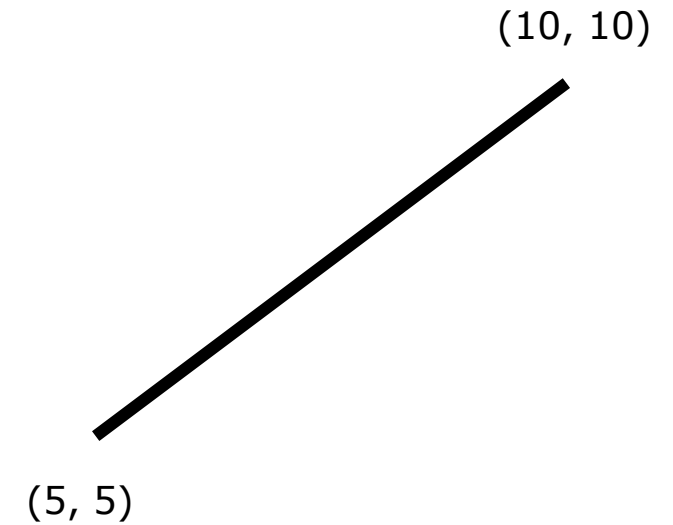
Using Absolute Co-ordinates:

Drawing a line from point (5, 5) to point (10, 10).

Command: Line

From point: 5, 5 (select the point by mouse or

Enter the Co-ordinates by keyboard)

To Point: 10, 10
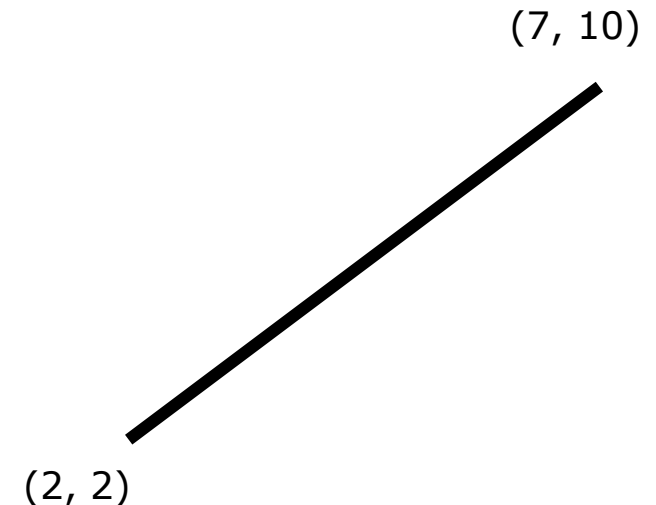
(5, 5)

Using Relative Co-ordinates

(7, 10)

Draw a line from point (2, 2) to point 5 units in X-axis and 8

units in Y-axis relative to first co-ordinate.

Command: Line

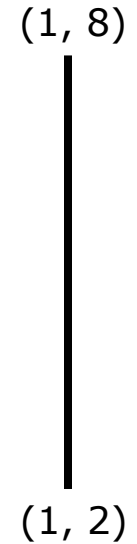**From point: 2, 2**

To point: @ 5, 8

To point:

(2, 2)

Line:

Using Polar Co-ordinates:

Draw a line from point (1, 2) to a length of 6 units at 90 degree.

- **Command: Line**
- **From point: 1, 2**
- **To point:@6<90**
- **To point:**

(1, 8)

(1, 2)

Polylines: (Pline)

A polyline is a connected sequence of line and arc segments.

Draw a thick line of width 2 units from (8, 4) to (6, 7) using pline command.

Command: pline

From point: 8, 4

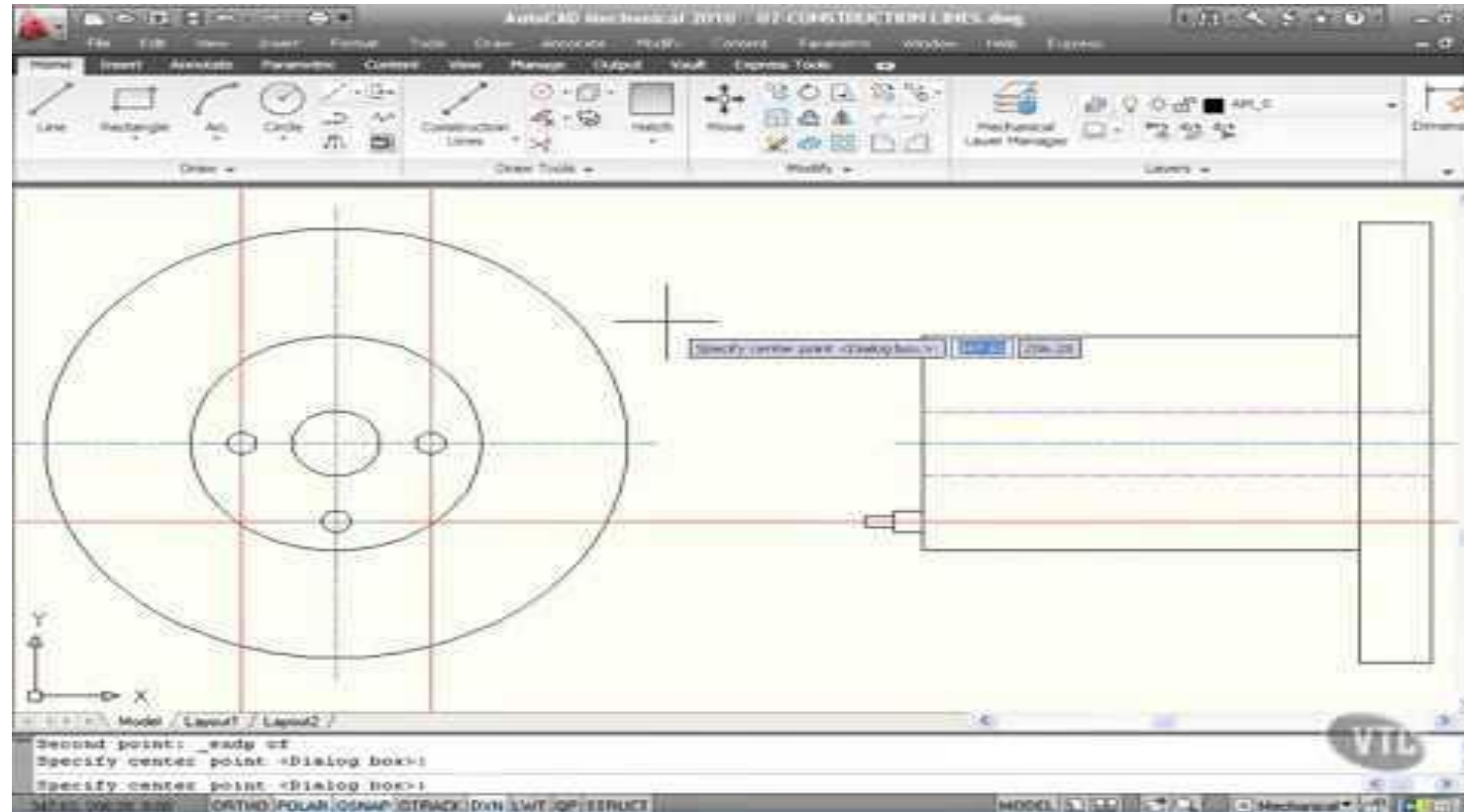Arc/close/Half width/length/undo/width/ <Endpoint of line> :

width

Width: 2

Next point: 6, 7

Next point:

A box drawn by using pline will act as one object instead of four discrete lines.
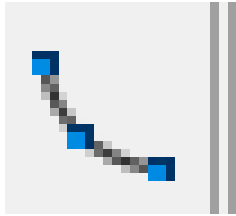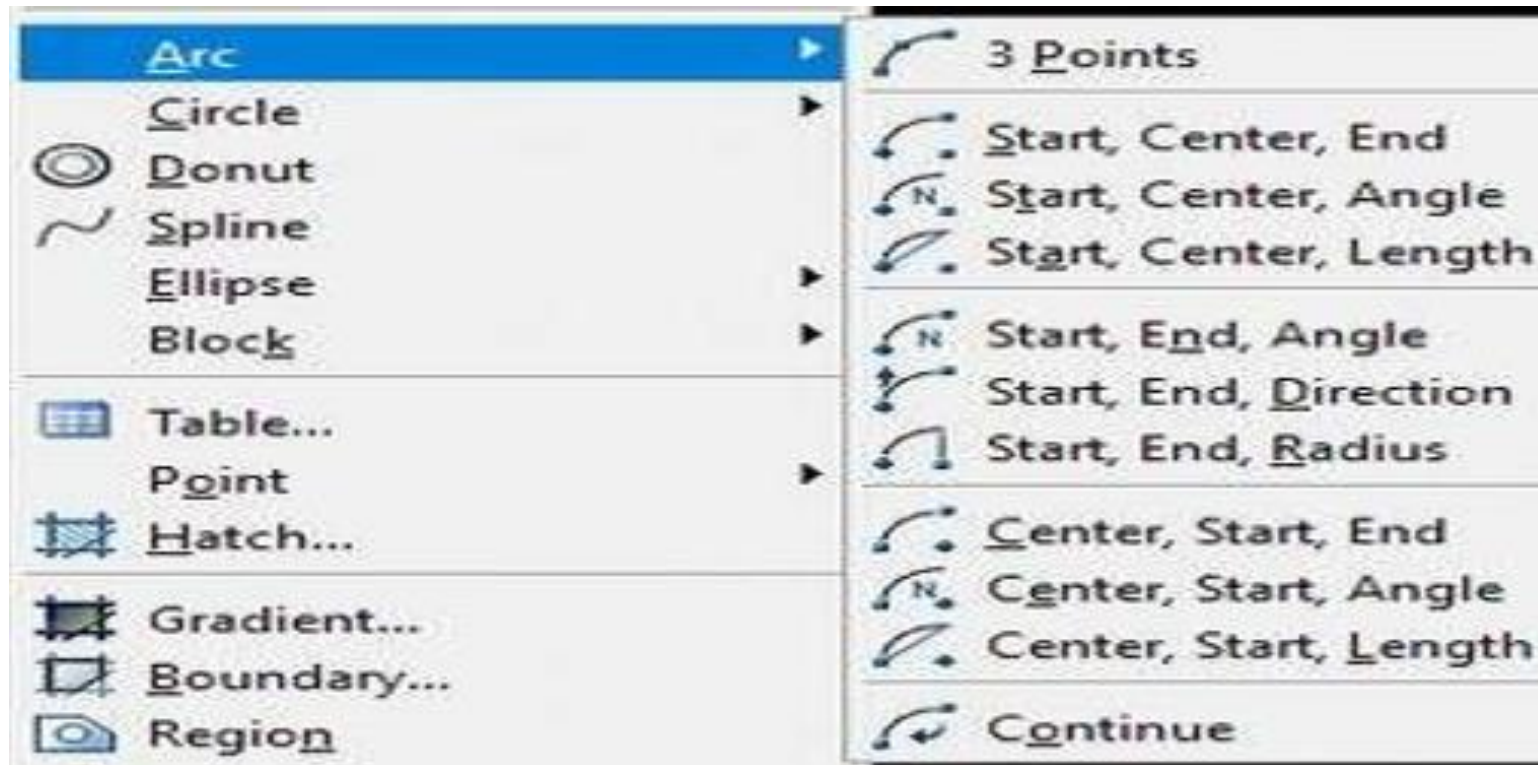
Construction Line: (xl)

Construction lines (also known as xlines) are temporary linework entities that can be used as references when creating and positioning other objects or linework.
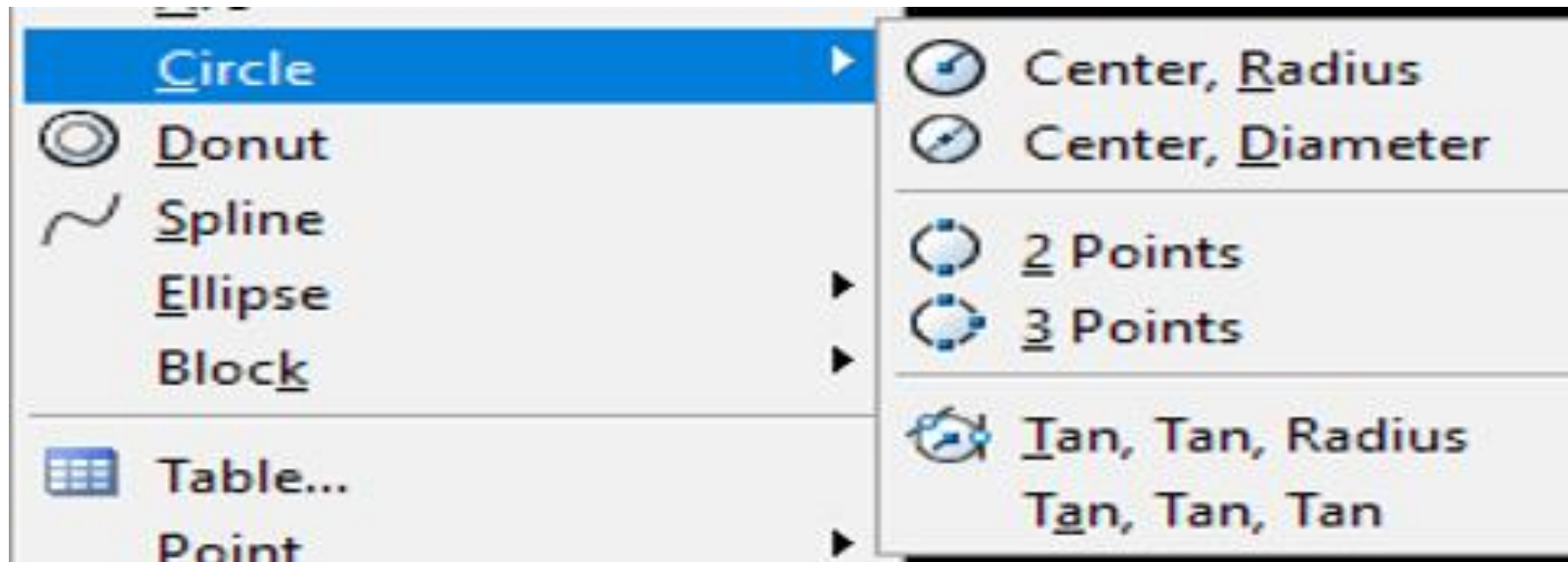
Arc: (a)

Arc Command can be activated by clicking its icon in drawing toolbar or by clicking on draw option in menu bar and then selecting arc.
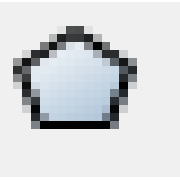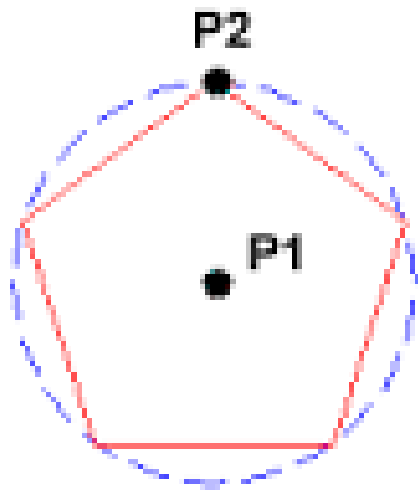
Circle: (c)

Circle command can be activated by clicking its icon in draw toolbar or by clicking on draw option in menu bar and then selecting circle
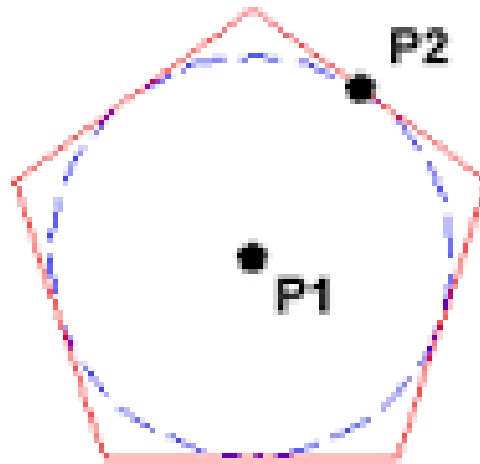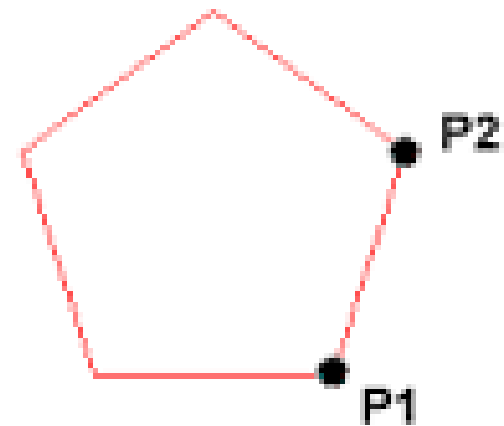
Polygon: (pol)

Circle command can be activated by clicking its icon in draw toolbar or by clicking on draw option in menu bar. Polygon may be circumscribed or inscribed.
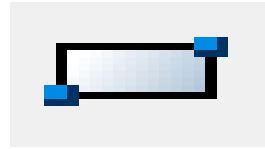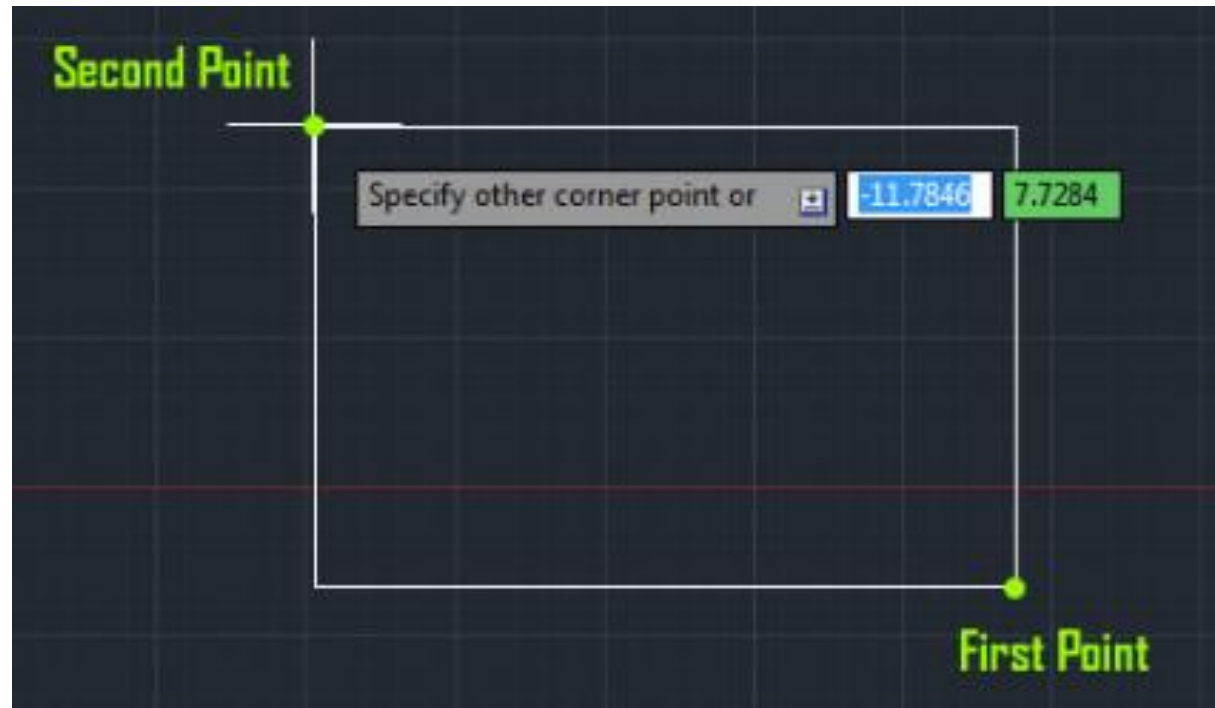

Inscribed   Circumscribed   Edge

Rectangle: (rec)

It can be activated by clicking its icon in draw toolbar. It has different options after selecting first point like other corner or Area / Dimensions /Rotation.
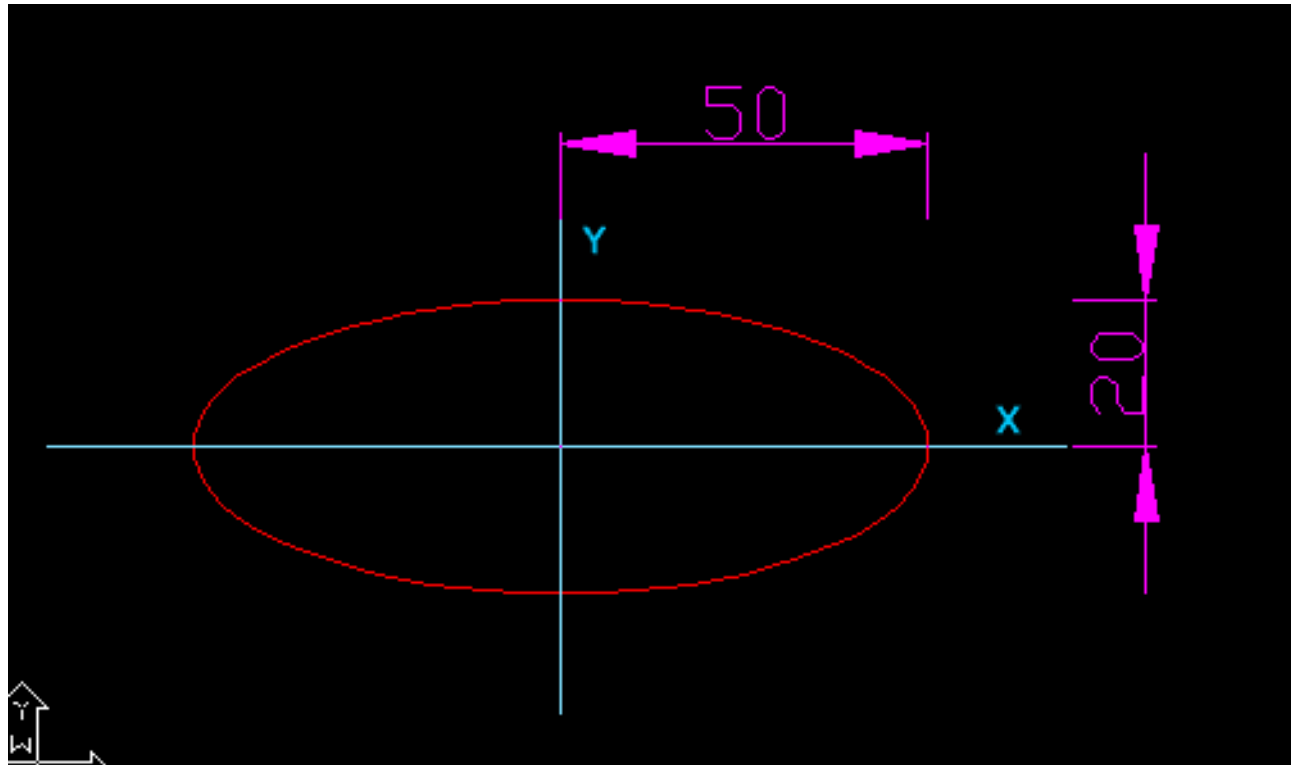
Revision Cloud: (Revcloud)

It can be activated by clicking its icon in draw toolbar. Revision cloud is used for highlighting parts of a drawing.

Ellipse:

**It is used to draw ellipse. It can be activated by clicking its icon in draw bar**
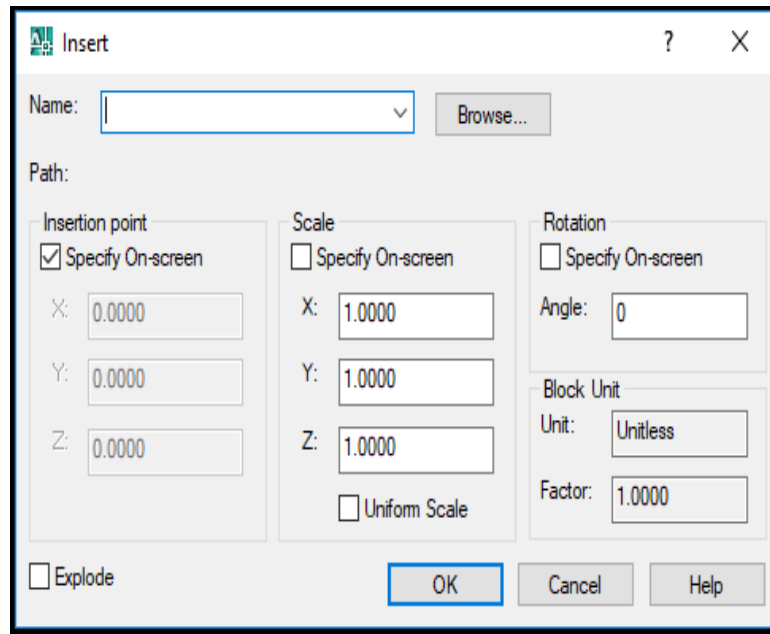
Block:

In AutoCAD, a block is a collection of objects that are combined into a single named object.

Creating Block:- Block can be created by clicking its icon in draw toolbar. After clicking its icon a dialogue box appears that asks to select object and after selecting object a pick point is chosen and it is saved with a name. Any change done in block will change all objects.

Inserting Block:

Block can be inserted by clicking its icon in draw toolbar. After clicking its icon a dialogue box appears that asks to browse the block to be inserted.
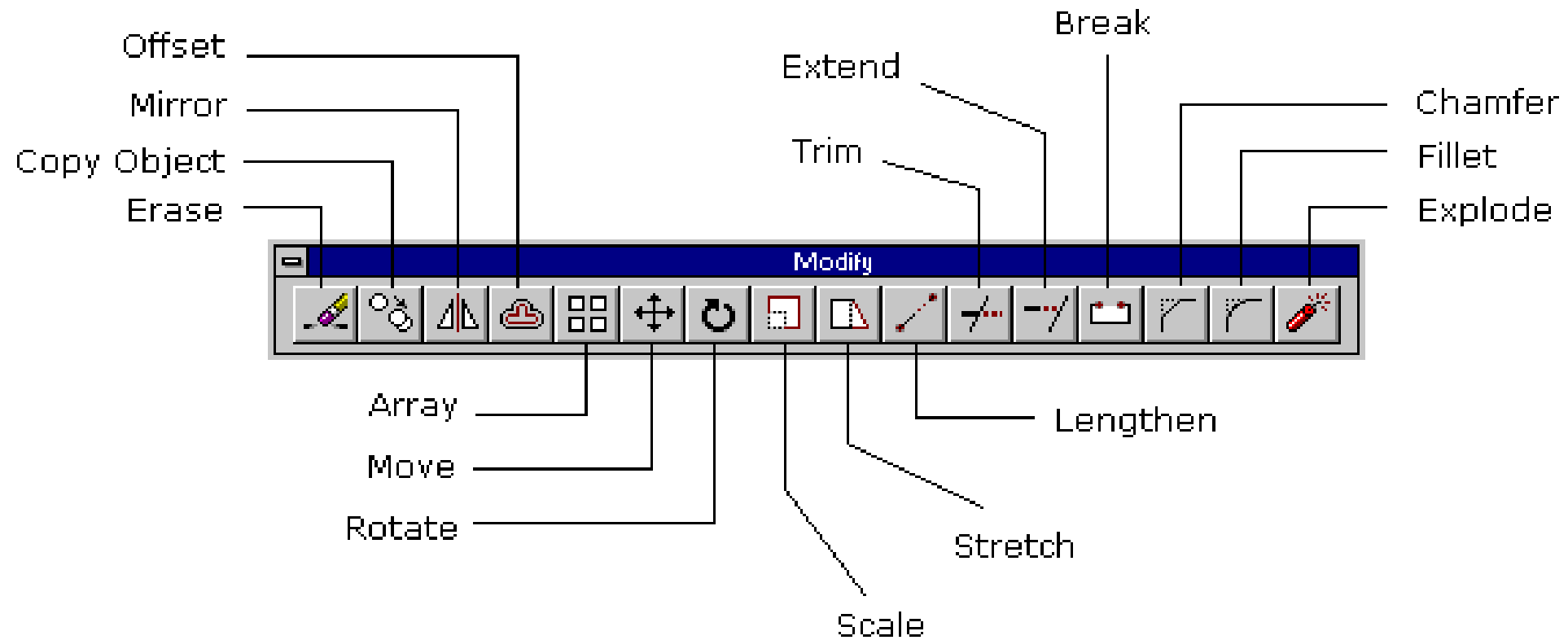
Text A
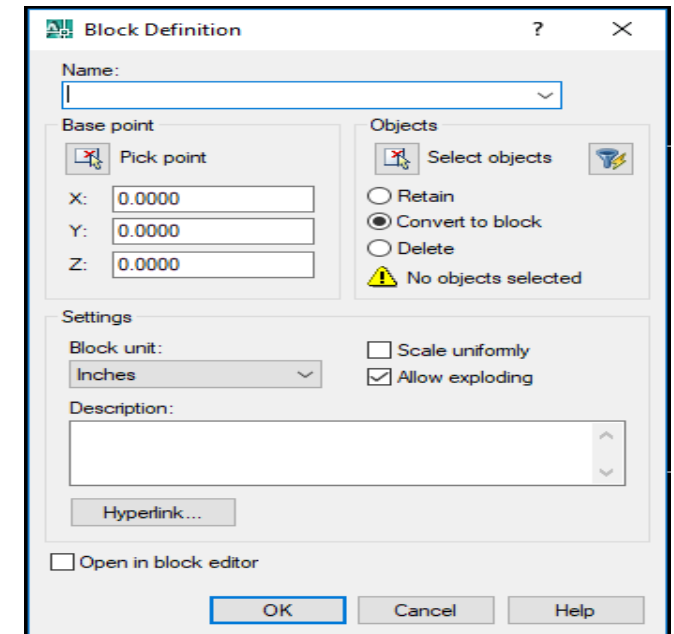
Text command is used to write the text in drawing. Text can be added by clicking its icon in draw toolbar. After clicking the icon a block is made by specifying two points, after this text can be written and clicked ok.
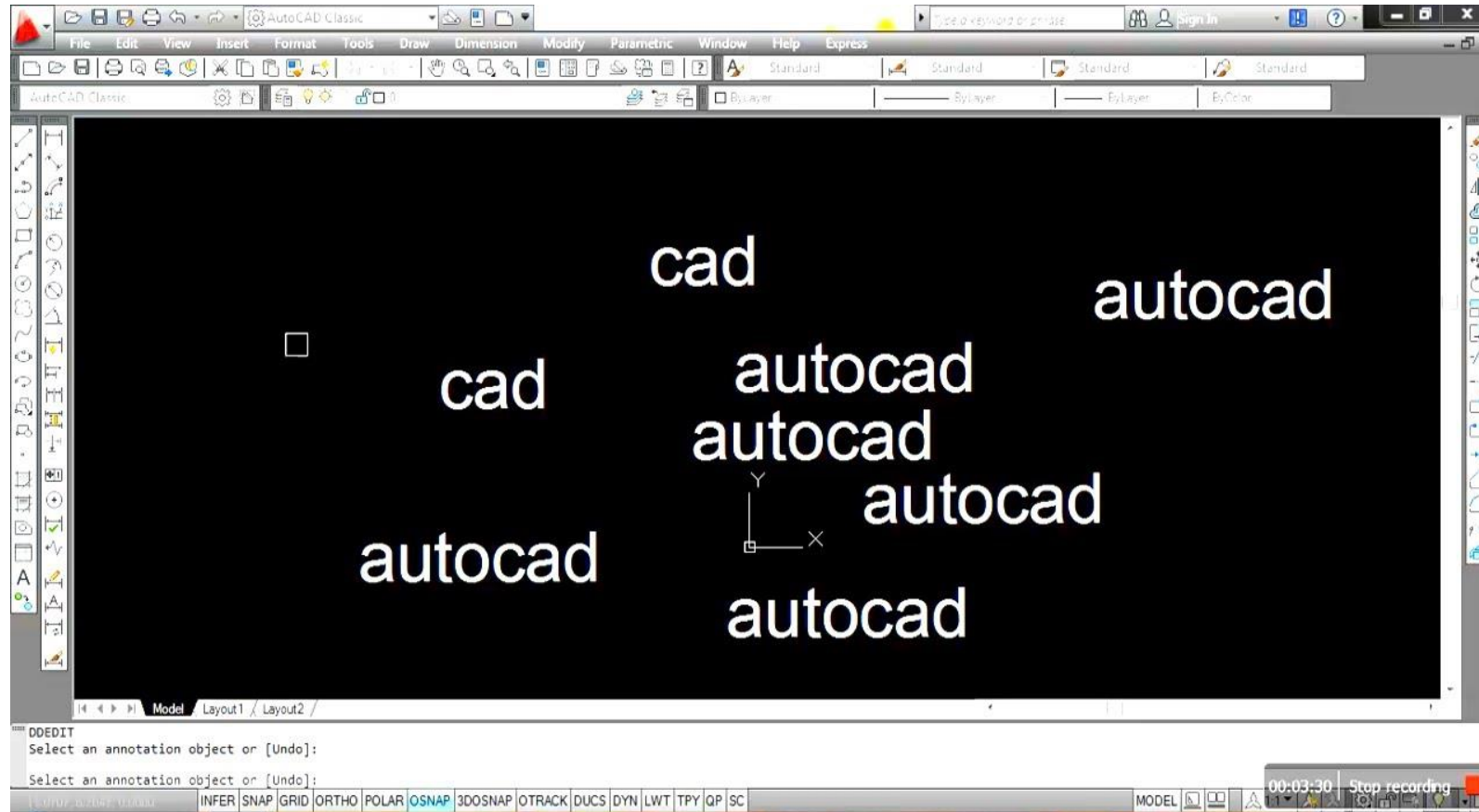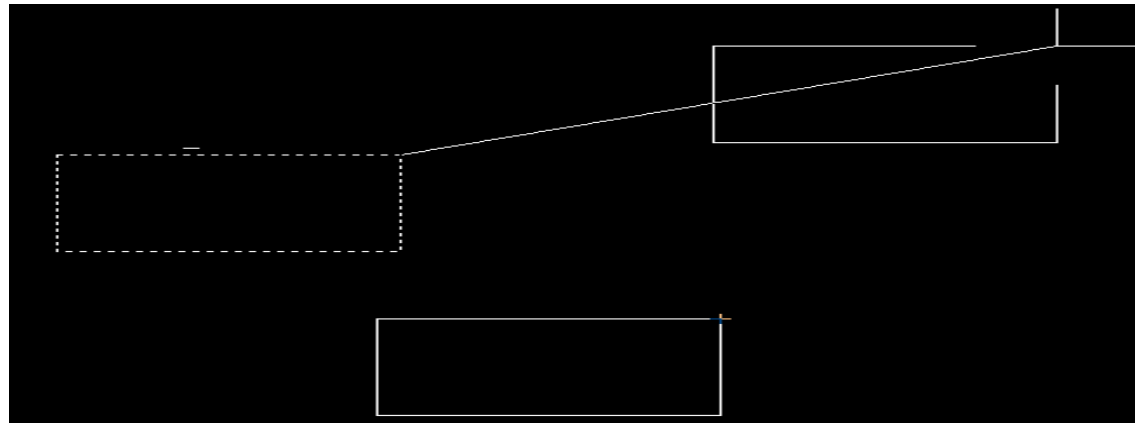
Modify COMMANDS OF AutoCAD

Erase (e) :

It is used to erase a drawing. It can be activated by clicking its icon in modify tool bar. After activating the command object is selected and space is pressed.
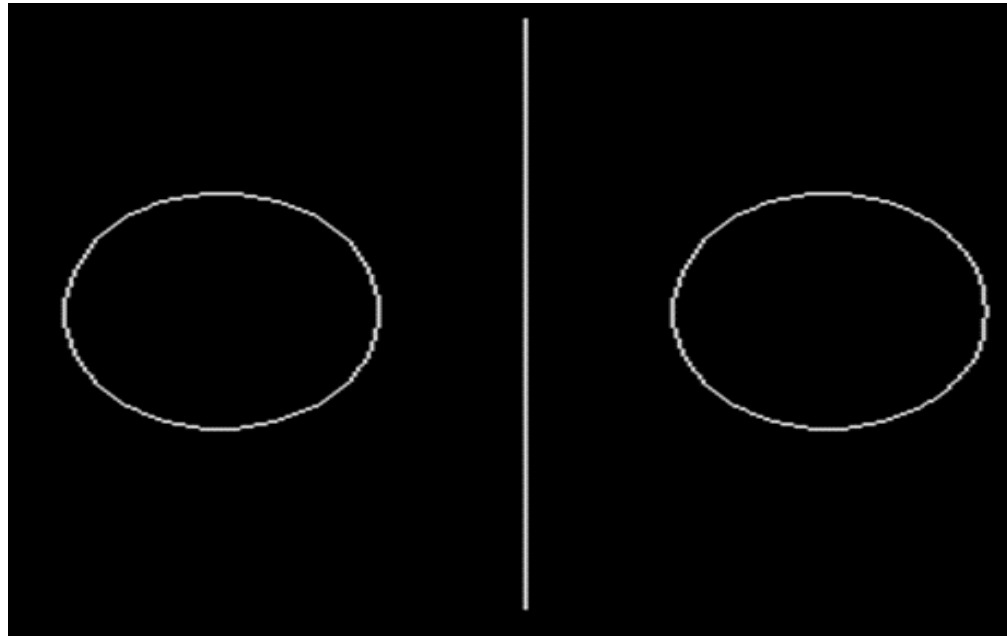
Copy (co) :

It is used to make copies of drawing. After activating the command object is selected and base point is selected to copy object. Displacement can also be entered.
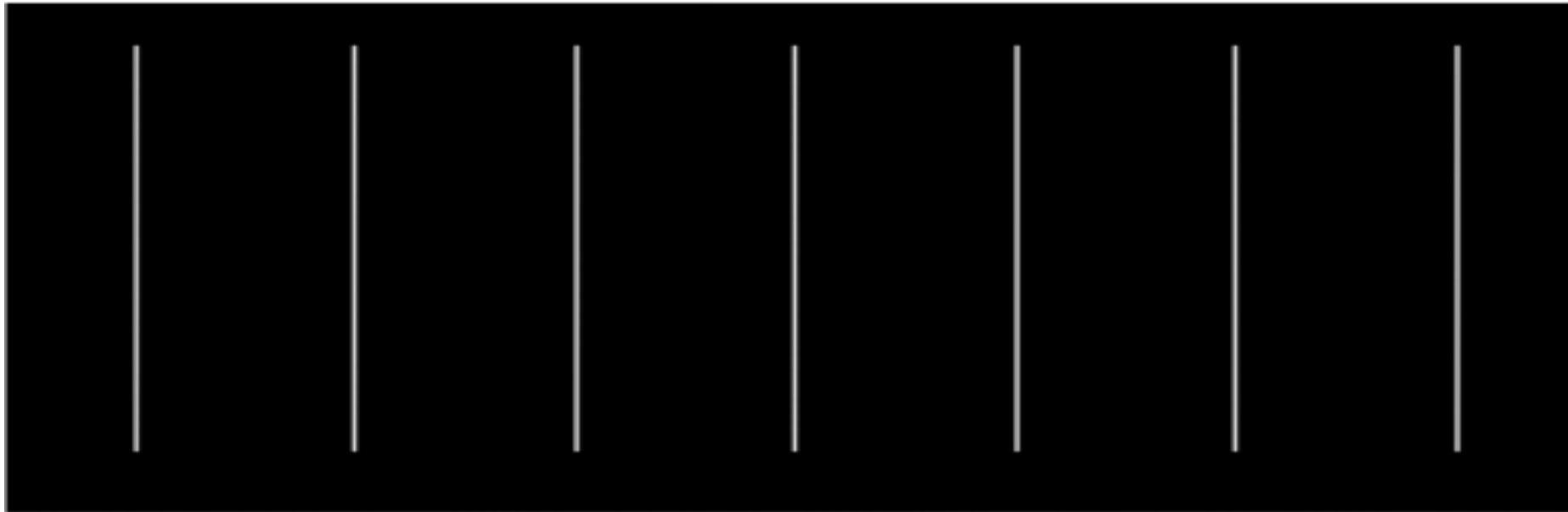
Mirror (mi) :

It is used to generate mirrored drawing of drawn object. It can be activated by clicking its icon in modify tool bar. After activating the command object is selected and space is pressed. Then first and last point of mirror line is selected and a mirrored drawing is obtained.

Offset (o):

Most models include a lot of parallel lines and curves. Creating them is easy and efficient with the OFFSET command. It can be activated by clicking its icon in modify toolbar. After activating the command original object drawing is selected and the offset distance is specified, and click to indicate on which side of the original drawing the result is required.

Move: (m)

Moves objects a specified distance in a specified direction. It can be activated by clicking its icon in modify toolbar. After activating the move command object is selected and base point is selected to move it or displacement can also be entered.
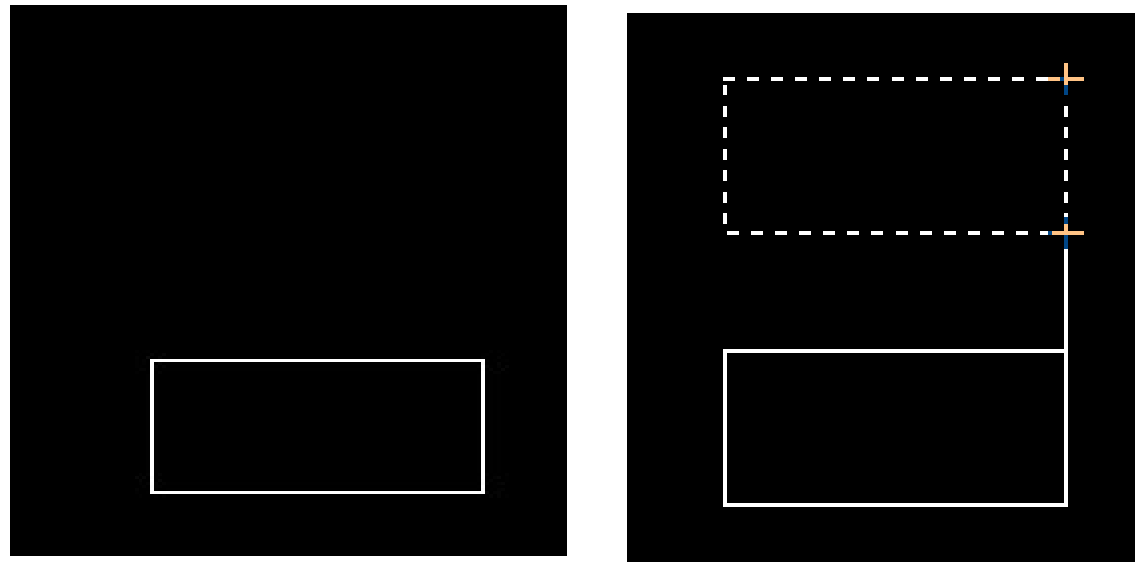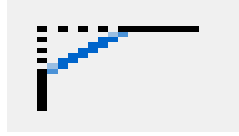
Rotate (rot):

It is used to rotate selected objects around a base point to an absolute angle. It can be activated by clicking its icon in modify toolbar. After activating the rotate command object is selected and base point is selected to rotate it and angle of rotation is specified.
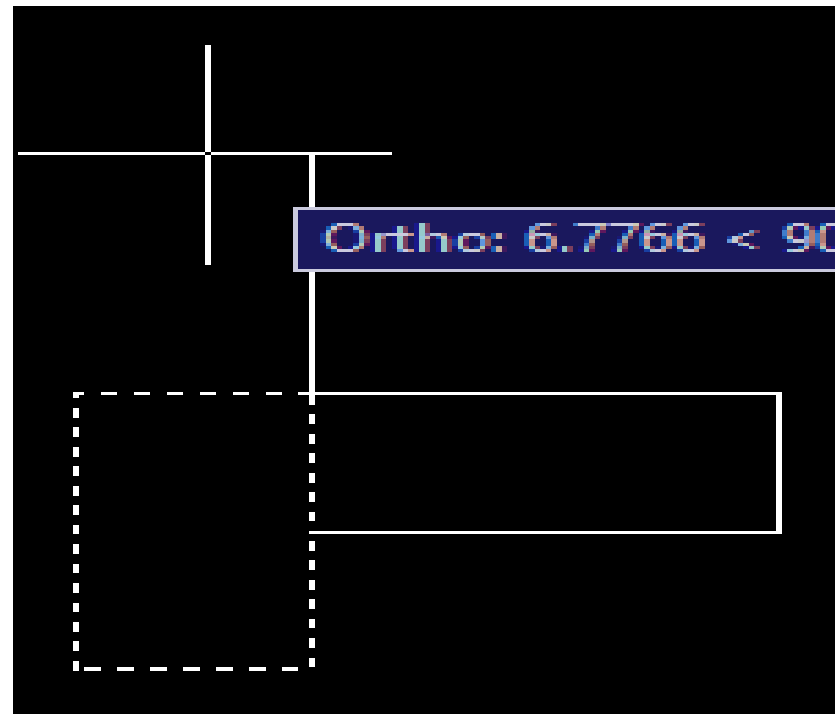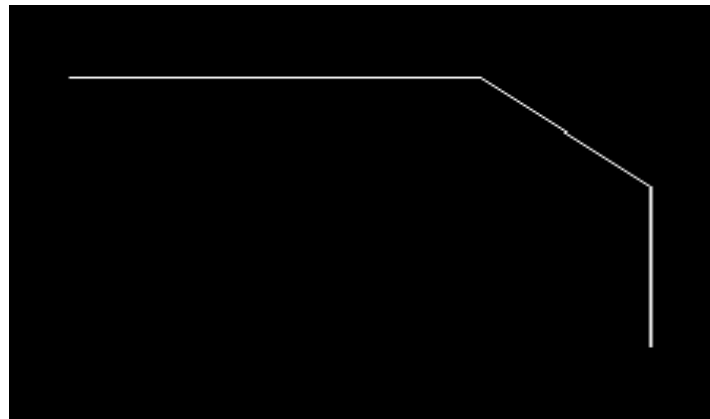
Chamfer: (cha)

A bevel or chamfer is;

1. An angled line that meets the endpoints of two straight 2D objects.

2. A sloped transition between two surfaces or adjacent faces on a 3D solid. It can be activated by clicking its icon in modify toolbar. After activating command different options are available like undo/polyline/multiple/distance etc.
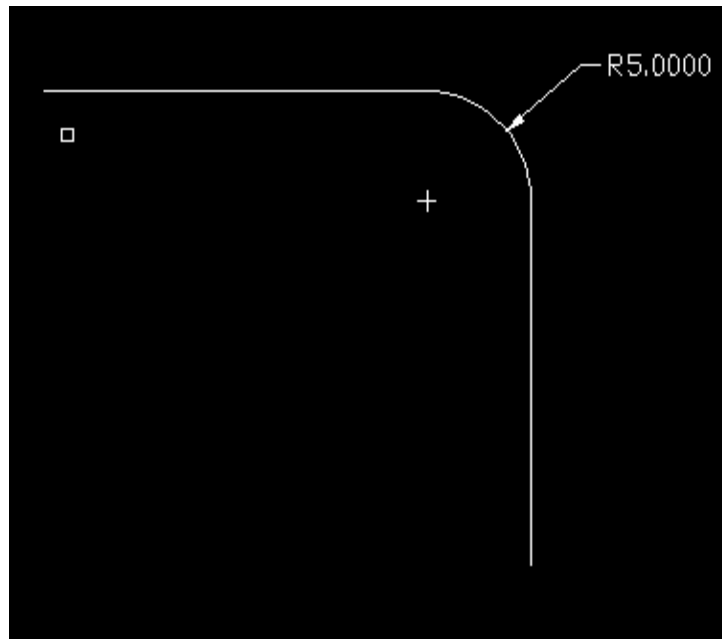
Fillet: (f)

Rounds or fillets the edges of two 2D objects or the adjacent faces of a 3D solid. It can be activated by clicking its icon in modify toolbar.
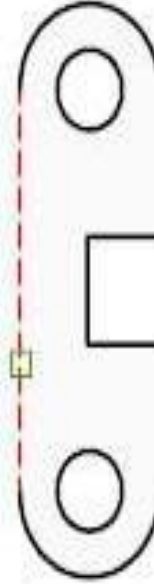
After activating command different options are available like Undo/Polyline/Radius/Trim/Multiple etc.

Explode: (x)

Breaks a compound object into its component objects. It can be activated by clicking its icon in modify toolbar
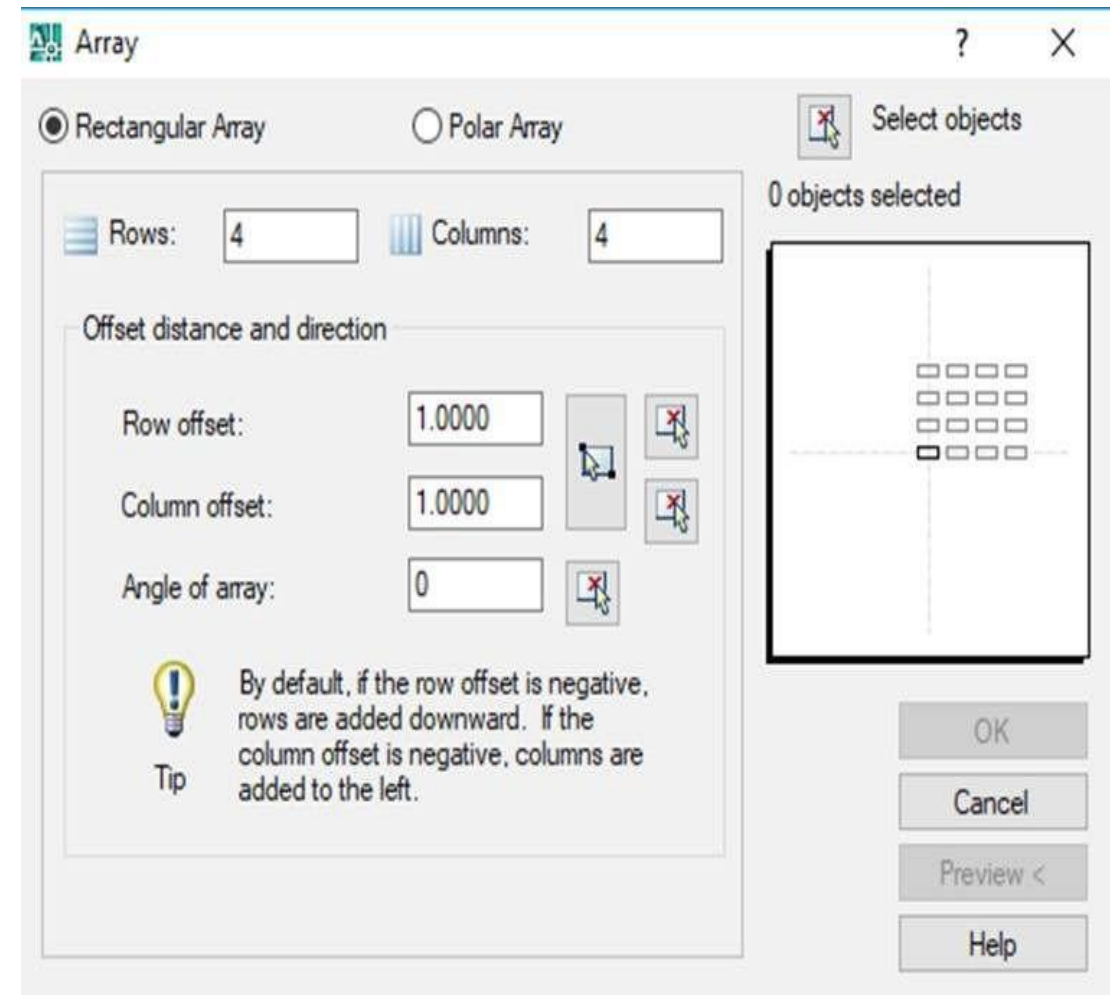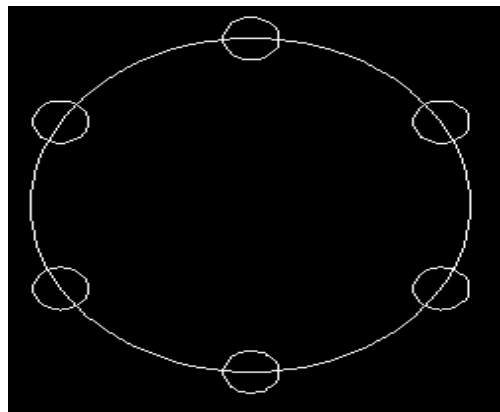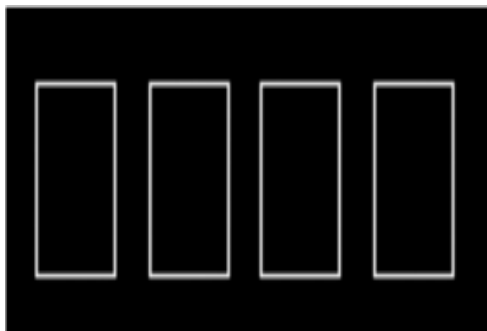
Array (ar):

Creates copies of objects arranged in a pattern. It can be activated by clicking its icon in modify toolbar
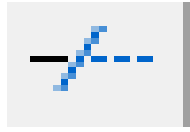
Array is of two types:

Rectangular Array:- Distributes copies of the selected object into any combination of rows, columns, and levels.
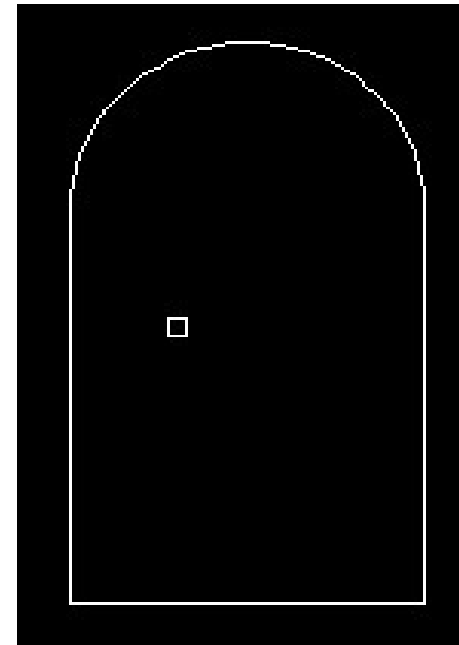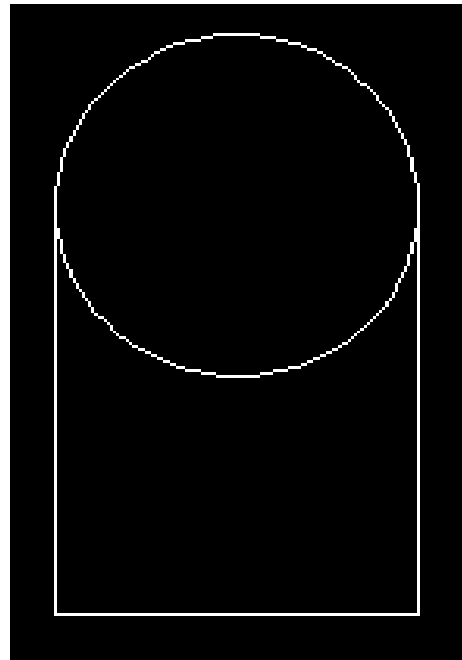
Polar Array:- Evenly distributes copies of the object in a circular pattern around a center point or axis of rotation.
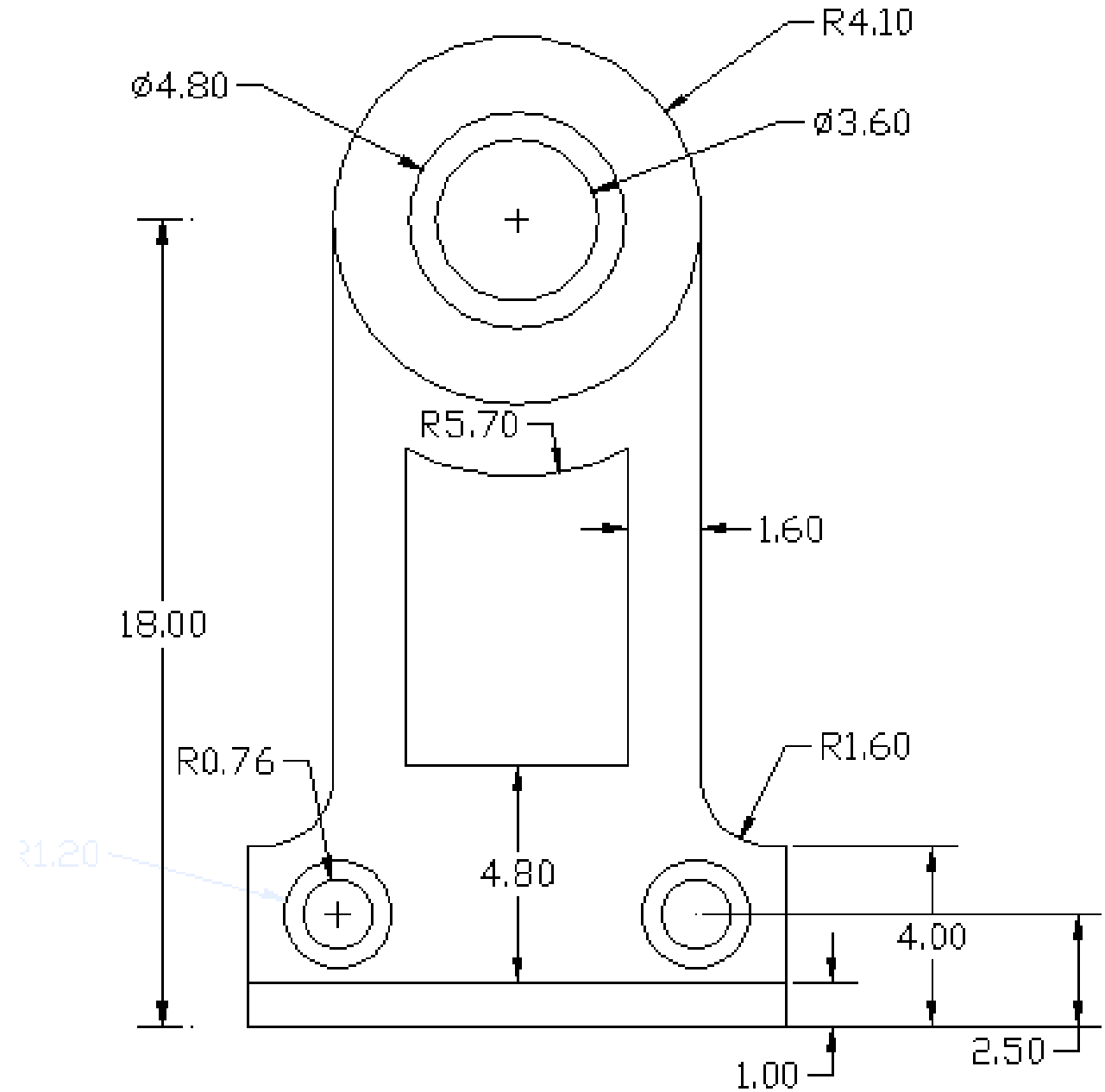
Trim (tr):

Trims objects to meet the edges of other objects. It can be activated by clicking its icon in modify toolbar

Practice # 01

THANKS…!

QUESTIONS ARE WELCOME ….!!!