

# Introduction to **AUTOCAD**



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# Day 3

# Draw Commands



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## Draw Commands

1. Line Commands
2. Circles
3. Arc
4. Polygons
5. Rectangles
6. Donuts
7. Ellipse
8. Multiline
9. Construction lines
10. Rays



# Line Command

Creates single straight line segments



1. **Choose** Draw, Line.  
or  
**Click** the Line icon.  
or  
**Type** LINE from the command prompt

Command: **LINE** or **L**

2. **Press** ENTER
3. **Pick** From point: (**point**)
4. **Pick** Specify next point or [Close/Undo]:(**point**)
5. **Pick** Specify next point or [Close/Undo]:(**point**)
6. **Press** ENTER to end line sequence

- or
- Type** U to undo the last segment  
To point: **U** (undo)  
or

7. **Type** C to create a closed polygon  
To point : **C** (close)



## Absolute Coordinates

### 1. Type

x,y coordinate when AutoCAD asks for a point.

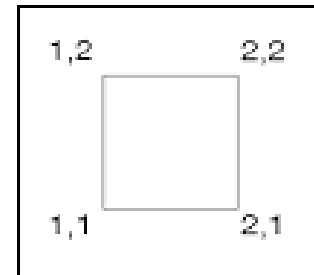
From point: 1,1

To point: 2,1

To point: 2,2

To point: 1,2

To point: 1,1



NOTE: If dynamic input (F12) is on, you must type the # sign before entering absolute coordinates (e.g.#1,1).

## Relative Coordinates

### 1. Type

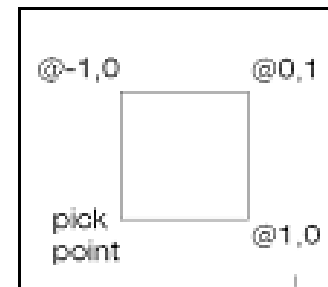
@deltax,deltay when AutoCAD asks for a point. From point pick point

To point: @1,0

To point: @0,1

To point: @-1,0

To point: @0,-1



## Polar Coordinates

### 1. Type

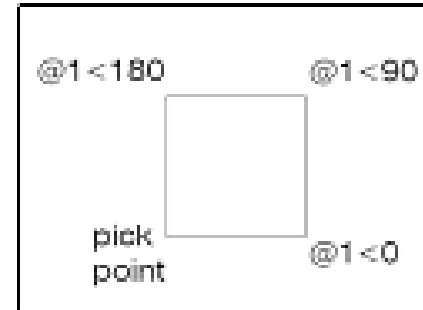
@distance<angle when AutoCAD asks for a point.  
From point: pick point

To point:@1<0

To point:@1<90

To point:@1<180

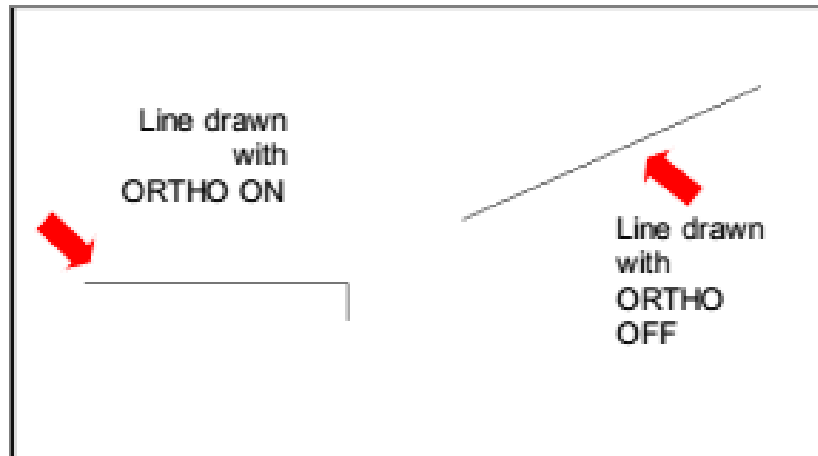
To point:@1<270



# Orthogonal Lines


Controls lines from being drawn at various angles to straight lines. When the snap grid is rotated, ortho mode rotates accordingly.

- 1. Press Function Key F8
  - or
- Double-click ORTHO from the Status Bar.
  - or
- Press CTRL + L.



## Pline Command


A polyline is a connected sequence of line segments created as a single object. You can create straight line segments, arc segments, or a combination of the two.

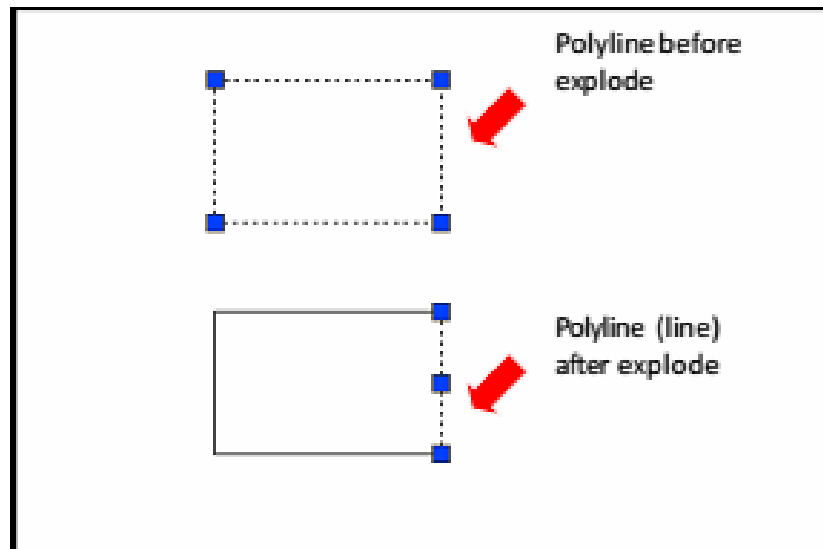
1. **Choose** Draw, Polyline.  
or
2. **Pick** the Pline icon. 
3. **Type** PLINE at the command prompt  
Command : **PLINE** or **PL**
4. **Pick** A point on the drawing to start the polyline  
From point: (**select**)
5. **Type** One of the following options  
Arc/Close/Halfwidth/Length/Undo/Width  
or
6. **Pick** A point to continue drawing  
Arc/Close/Halfwidth/Length/Undo/Width/  
<endpoint of line>: (**pick point**)





# Explode Command

1. **Choose** Modify, Explode.  
or  
**Pick** the Explode icon.   
**Type** EXPLODE at the command prompt.  
Command: **EXPLODE**  
or  
2. **Pick** The object to explode. Select objects: (**pick**)



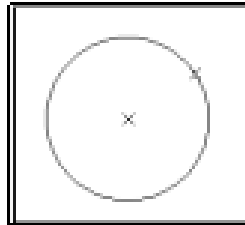
# Circles



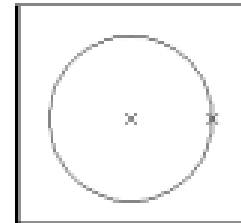
## Circle Command

- Choose** Draw, Circle.  
or  
**Click** the Circle icon.  
or  
**Type** CIRCLE at the command prompt.  
Command: **CIRCLE**
- Type** One of the following options:  
3P/2P/TTR/⟨⟨center point⟩⟩:  
or  
**Pick** A center point.
- Type** A radius or diameter.  
or  
**Pick** A radius or diameter  
Diameter/⟨⟨radius⟩⟩

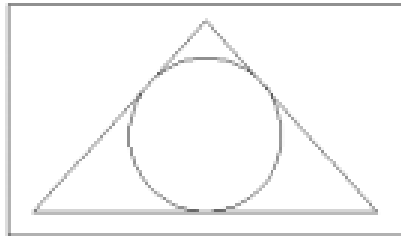
*Circle, Center Radius*



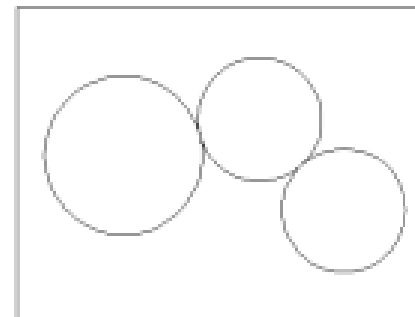
*Circle, Center Diameter*



*Circle, Tangent, Tangent, Tangent*



*Circle, Tangent, Tangent Radius*




**TIP:**

- To create circles that are the same size, press ENTER when asked for the circle radius.



## Arc Command

- Choose** Draw, Arc.  
or  
**Click** the Arc icon.   
or  
**Type** ARC at the command prompt  
Command: **ARC**
- Draw** One of the arcs.



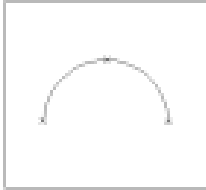
### TIP:

- Except for 3 point arcs, arcs are drawn in a COUNTERCLOCKWISE direction.

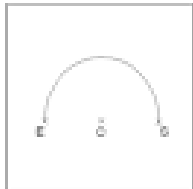


## Arc Examples

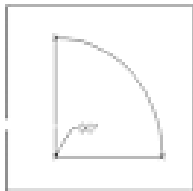
3 point arc



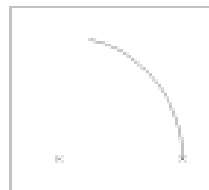
Start, center, end



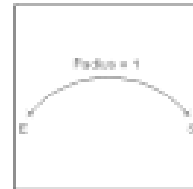
Start, center, included angle



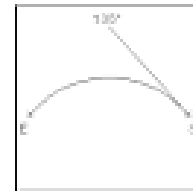
Start, center, chord length




Start, end, radius



Start, end, direction

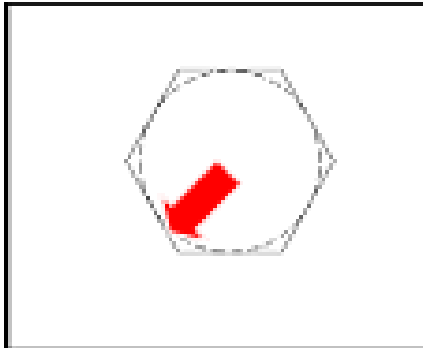


# Polygon

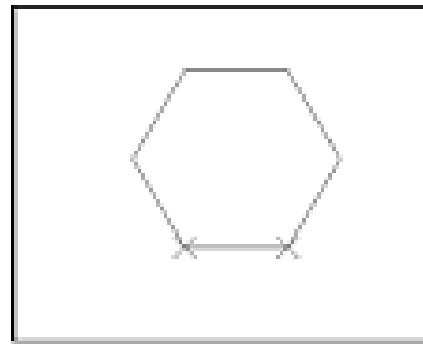
1. **Choose** Draw, Polygon.  
or
2. **Click** the Polygon icon.   
or
3. **Type** Polygon at the command prompt. Command: **POLYGON**
4. **Type** The number of sides for the polygon (3-1024)  
Number of sides <default>: **number**
5. **Pick** The center of the polygon. Edge/<Center of polygon>: **pick**  
or
6. **Type** **E** to define the polygon by two edges.
7. **Type** **I** or **C** to place the polygon inside or outside of an imaginary circle. Inscribed in circle/Circumscribed about circle (I/C):



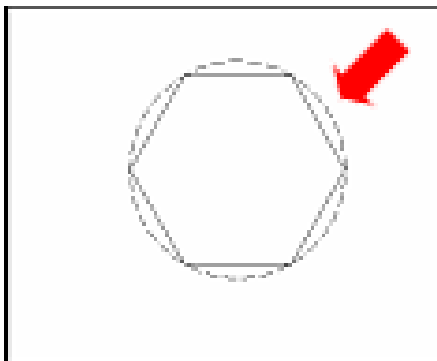
Polygon Inscribed in an imaginary circle




Polygon drawn with an edge

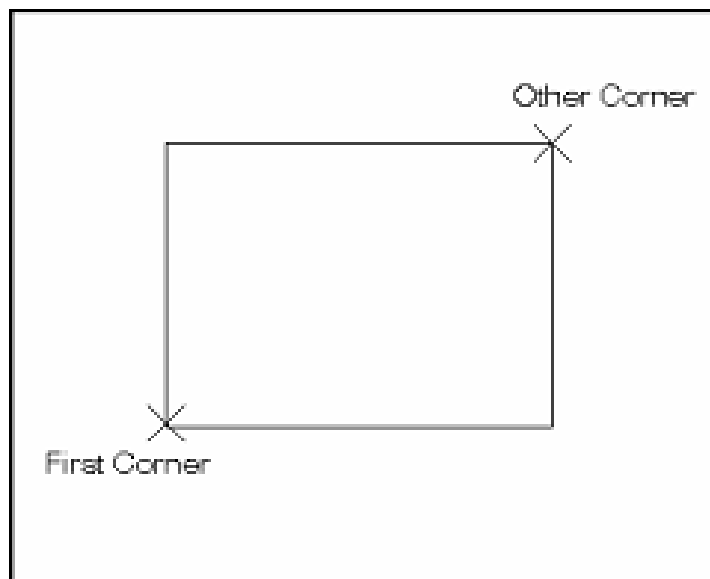


Polygon circumscribed around an imaginary circle



# Rectangle


1. **Choose** Draw, Rectangle.  
or
2. **Click** the Rectangle icon.   
or
3. **Type** Rectang at the command prompt  
Command: **RECTANG** Chamfer/Elevation/Fillet/  
Thickness/Width/<First corner>:
4. **Pick** first corner.
5. **Pick** other corner or type coordinates (i.e. @4,2).

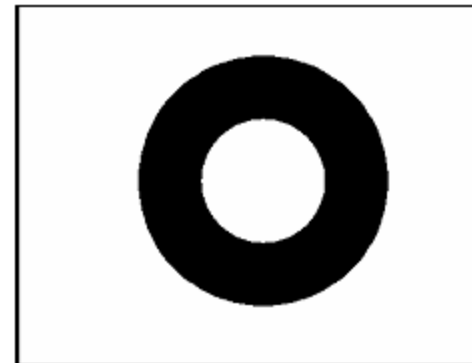




# Donut


Donuts are filled rings or solid-filled circles that actually are closed polylines with width.

1. **Choose** Draw, Donut.  
or
2. **Type** Donut at the command prompt.  
Command: **DONUT**  
or
3. **Choose** the donut icon. 
4. **Type** A value for the inside diameter. Inside diameter  
<last>: .5
5. **Type** A value for the outside diameter. Outside diameter  
<last>: 1
6. **Pick** A point for the center of the donut. Center of  
doughnut: (point)



# Ellipse

Creates an ellipse or an elliptical arc.

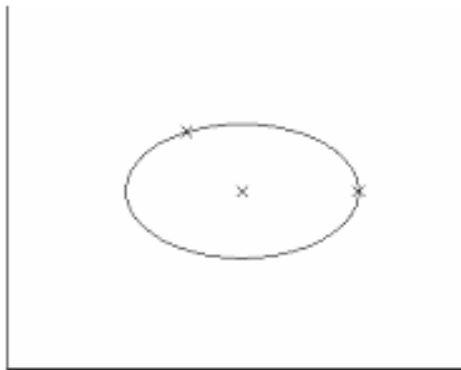
1. **Choose** Draw, Ellipse.  
or
2. **Choose** the Ellipse icon.   
or
3. **Type** ELLIPSE at the command prompt  
Command: **ELLIPSE**
4. **Type** One of the following options: Arc/Center/Isocircle  
/<Axis endpoint 1>:

## Ellipse options:

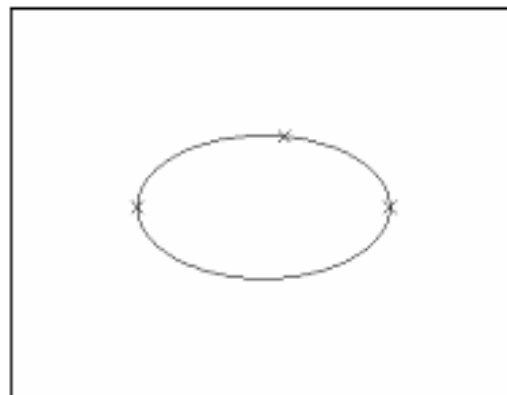
<b>Axis endpoint 1</b>	Defines the first axis by two specified endpoints. The angle of the first axis determines the angle of the ellipse. The first axis can define either the major or the minor axis of the ellipse.
<b>Axis endpoint 2:</b>	<Other axis distance> / Rotation: Specify a point or enter a distance
<b>Arc</b>	Creates an elliptical arc. The angle of the first axis determines the angle of the elliptical arc. The first axis can define either the major or the minor axis of the elliptical arc.
<b>Center</b>	Creates the ellipse by a specified center point.
<b>Isocircle</b>	Creates an isometric circle in the current isometric drawing plane.
<b>Rotation</b>	The major axis is now treated as the diameter of a circle that will be rotated a specified amount around the axis. You enter an angle between 0 and 89.4 degrees.



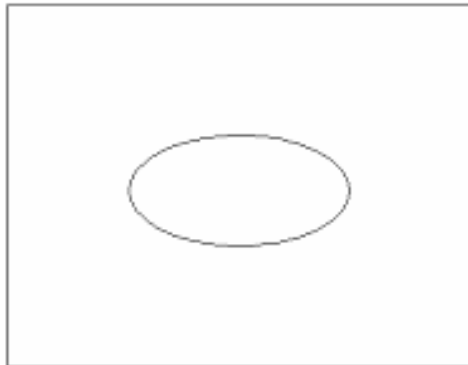
**ELLIPSE,**  
**Center, Axis, Axis**



**ELLIPSE,**  
**Axis, Eccentricity (Axis Endpoint, Axis Endpoint, Other Axis Distance)**



**ELLIPSE,**  
**Axis Endpoint, Axis Endpoint, Rotation=60**



# Multilines

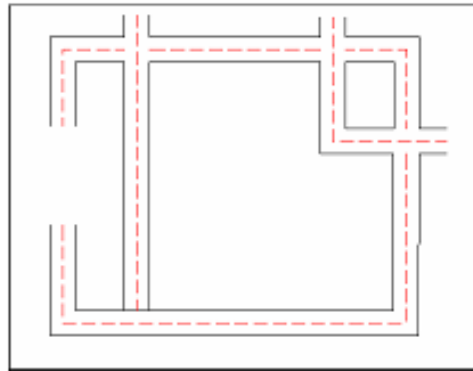
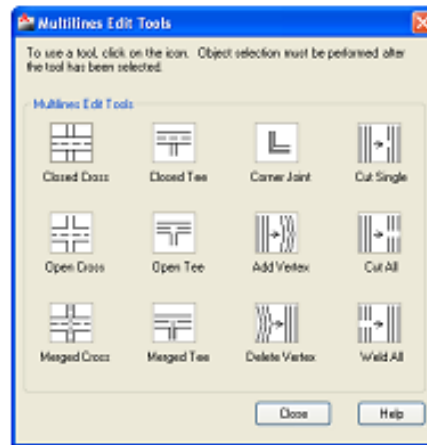
## MLINE Command

Creates multiple parallel lines.

1. **Choose** Draw, Multiline.  
or
2. **Type** MLINE at the command prompt.  
Command: **MLINE**
3. **Pick** A point to start the multiline. Justification/Scale/  
Style/<From point>: pick point
4. **Pick** A second point to continue the multiline.  
<To point>: **pick point**
5. **Pick** The next point to continue drawing  
multilines. Undo/<To point>: pick point
6. **Press** ENTER to end the multiline  
Close/Undo/<To point>: press enter  
or
7. **Type** C to close the multiline back to the first  
point. Close/Undo/<To point>: **c**


## Editing Multilines

1. **Choose** Modify, Multiline...
- or
2. **Type** MLEDIT at the command prompt  
Command: **MLEDIT**
3. **Choose** From one of the mledit options:



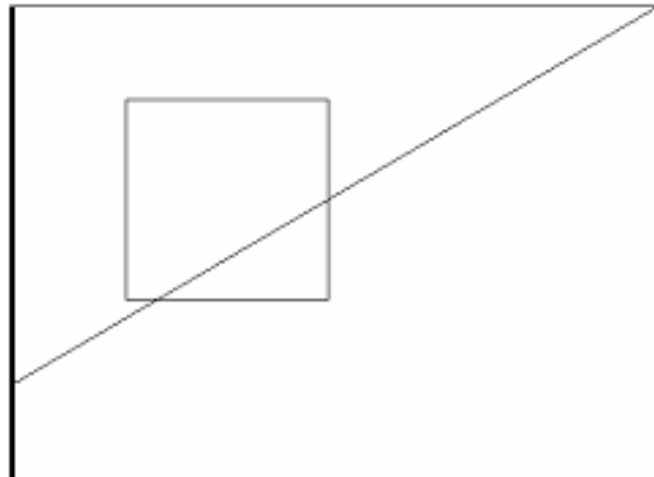
# Construction Line

Creates an infinite line.

1. **Choose** Draw, ConstructionLine  
or
2. **Choose** the XLINE icon.   
or
3. **Type** XLINE at the command prompt.  
Command: **XLINE**  
Specify a point or [Hor/Ver/Ang/Bisect/Offset]:


## XLINE Options

- HOR** Creates a horizontal line passing through a specified point.  
**VER** Creates a vertical line passing through a specified point.  
**ANG** Creates an xline at a specified angle.  
**BISECT** Creates an xline that passes through the selected angle vertex and bisects the angle between the first and second line.  
**OFFSET** Creates an xline parallel to another object.



# Ray Command

Creates an infinite line in one direction.

1. **Choose** Draw, Ray  
or
2. **Choose** the Ray icon.   
or
3. **Type** RAY at the command prompt.  
Command: **RAY**  
Specify a point : **(pick through point)**





# Questions...?



**MASTERS ACADEMY**