2- DRAW COMMANDS

Draw panel contains icons set of special drawing tools (commands) for this program. The following is an explanation of these commands.

2-1 LINE COMMAND

Line command used to creates single straight line or more by specifying the line ends coordinates (2D or 3D coordinates), and can be activated by one of these methods:

1. From tools bar menu, choose Draw >> Line, Figure (2-1).

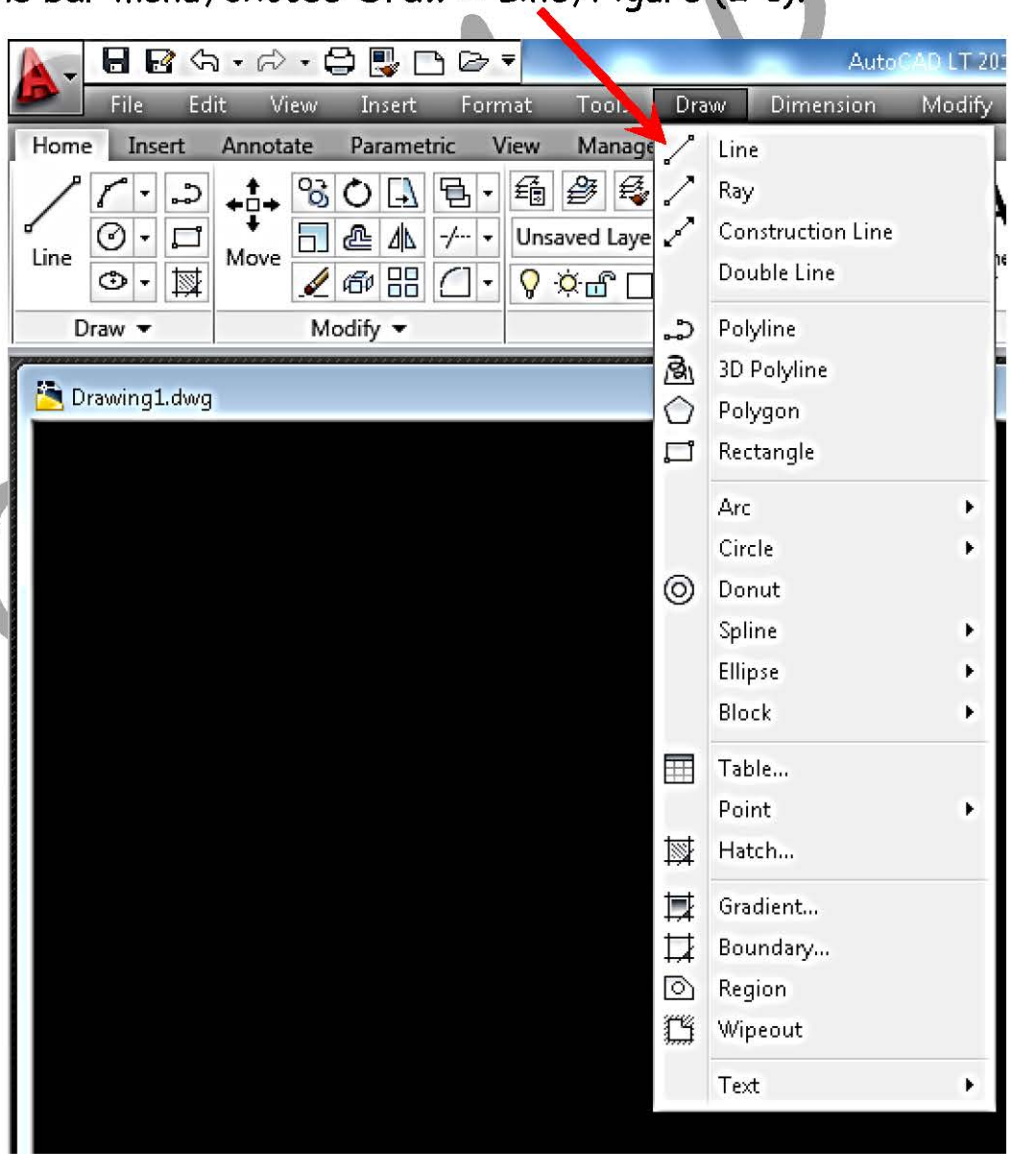
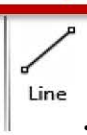


Fig. (2-1): Draw menu from tools bar.

2. Click the Line icon from the ribbon, 

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3. Type Line in the command bar or L, as shown below:

Command: LINE or L, and press ENTER

Command: LINE Specify first point: (point)

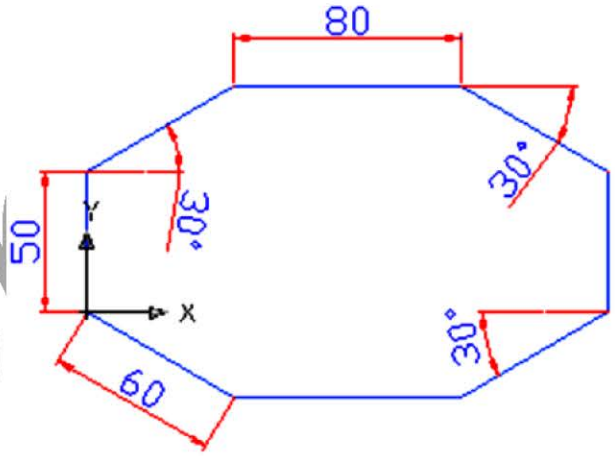
Specify next point or [Undo]: (point)

Specify next point or [Undo]: (point)

Specify next point or [Close/Undo]: (point)

Press ENTER to end line sequence or type U to undo the last segment or type C to create a closed polygon.

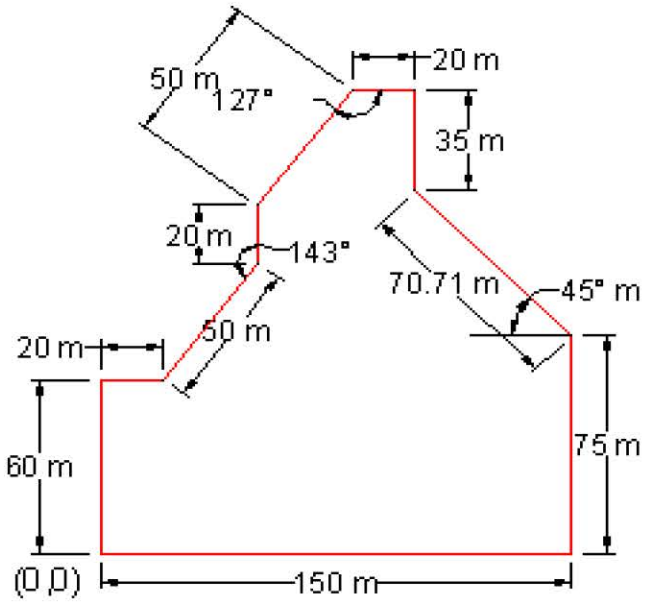
EXAMPLE 1: Draw the fallowing Figure using the different methods of ends line coordinates specifying.



- Command: line Specify first point: 0,0
- Specify next point or [Undo]: 0,50
- Specify next point or [Undo]: @60<30
- Specify next point or [Close/Undo]: @80,0
- Specify next point or [Close/Undo]: @60<-30
- Specify next point or [Close/Undo]: @0,-50

- Specify next point or [Close/Undo]: @60<210
- Specify next point or [Close/Undo]: @-80,0
- Specify next point or [Close/Undo]: 0,0 or C
- Press Esc or Enter.

EXAMPLE 2: Draw the fallowing Figure by one of the three methods of ends line coordinates specifying at each time.



1) Absolute Cartesian coordinate method:

- Command: line Specify first point: 0,0
- Specify next point or [Undo]: 150,0
- Specify next point or [Undo]: 150,75
- Specify next point or [Close/Undo]: 100,125
- Specify next point or [Close/Undo]: 100,160
- Specify next point or [Close/Undo]: 80,160
- Specify next point or [Close/Undo]: 50,120
- Specify next point or [Close/Undo]: 50,100
- Specify next point or [Close/Undo]: 20,60

- Specify next point or [Close/Undo]: 0,60
- Specify next point or [Close/Undo]: 0,0 or C
- Press Esc or Enter.

2) Relative Cartesian coordinate method:

- Command: line Specify first point: 0,0
- Specify next point or [Undo]: @ 150,0
- Specify next point or [Undo]: @ 0,75
- Specify next point or [Close/Undo]: @ -50,50
- Specify next point or [Close/Undo]: @ 0,35
- Specify next point or [Close/Undo]: @ -20,0
- Specify next point or [Close/Undo]: @ -30,-40
- Specify next point or [Close/Undo]: @ 0,-20
- Specify next point or [Close/Undo]: @ -30,-40
- Specify next point or [Close/Undo]: @ -20,0
- Specify next point or [Close/Undo]: @ 0,-60or C
- Press Esc or Enter.

3) Polar distance coordinate method:

- Command: line Specify first point: 0,0
- Specify next point or [Undo]: @ 150 < 0
- Specify next point or [Undo]: @ 75 < 90
- Specify next point or [Close/Undo]: @ 70.71 < 135
- Specify next point or [Close/Undo]: @ 35 < 90
- Specify next point or [Close/Undo]: @ 20 < 180
- Specify next point or [Close/Undo]: @ 50 < -127

- Specify next point or [Close/Undo]: @ 20 < 270
- Specify next point or [Close/Undo]: @ 50 < 233
- Specify next point or [Close/Undo]: @ 20 < 180
- Specify next point or [Close/Undo]: @ 60 < -90 or C
- Press Esc or Enter.

2-2 ARC COMMAND

Arc command used to create single arc using many ways, you can specify combinations of center, endpoint, start point, radius, angle, chord length, and direction values. Its can be activated by one of these methods:

1. From tools bar menu, choose Draw >> Arc, Figure (2-2).

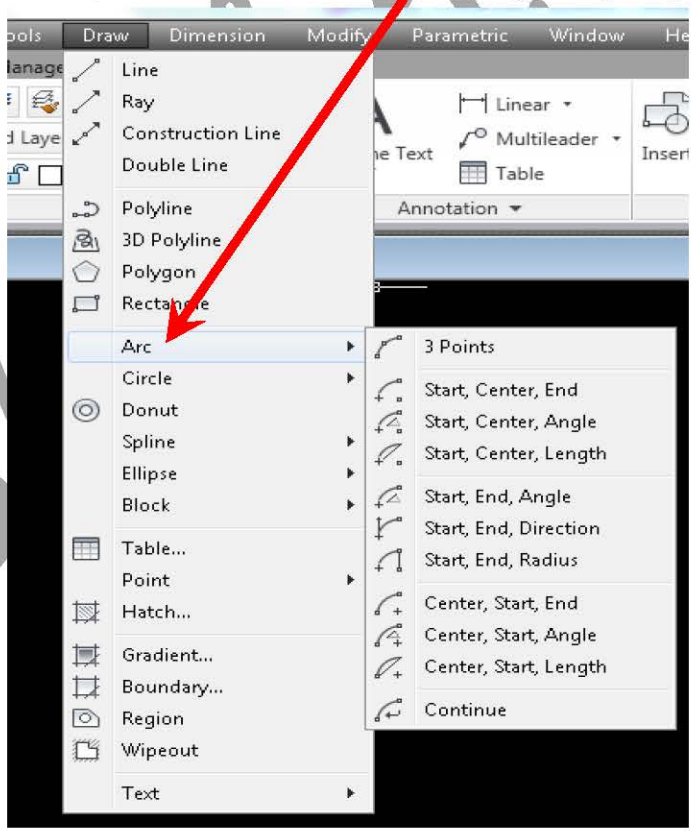


Fig. (2-2): Arc command from draw menu.

2. Click the Arc icon from the ribbon,  .

3. Type ARC in the command bar or A, as shown below:

Command: ARC or A, and press ENTER

Command: ARC Specify start point of arc or [Center]: (point)

Specify second point of arc or [Center/End]: (point)

Specify end point of arc: (point)

Pressing the small black triangle near arc key, opened a menu with eleven options key to draw an arc by specifying three different point options for each key, as shown in Figure (2-3). These options are explains as the following:

Drawing arc by specifying three point.

Drawing arc by specifying the start point, center of the arc, and end of the arc.

Drawing arc by specifying the start point, end point, and radius of the arc.

Drawing arc by specifying the center of the arc, start point, and end of the arc.

Draw an arc continuously from the last point and specify end point only.

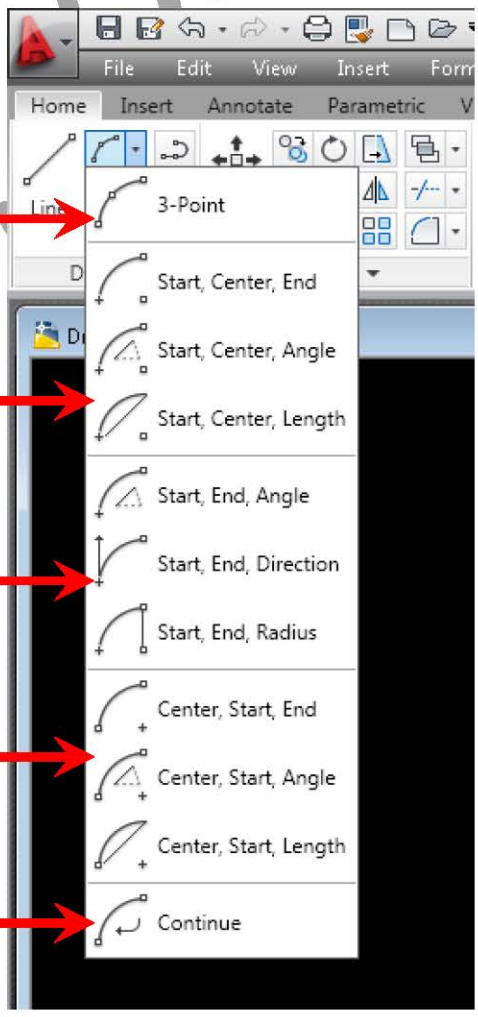


Fig. (2-3): Arc drawing menu.

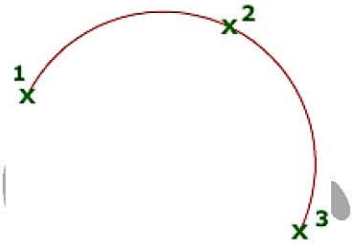
Start Point

Specifies the starting point of the arc.

- NOTE if you press ENTER without specifying a point, the endpoint of the last drawn line or arc is used and you are immediately prompted to specify the endpoint of the new arc. This creates an arc tangent to the last drawn line, arc, or polyline.

Second Point

Draws an arc using three specified points on the arc's circumference. The first point is the start point (1). The third point is the endpoint (3). The second point (2) is a point on the circumference of the arc.



- You can specify a three-point arc either clockwise or counterclockwise.

Center

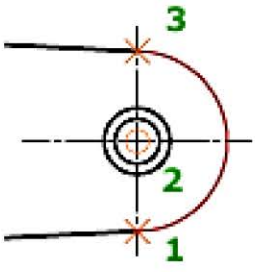
Specifies the center of the circle of which the arc is a part.

Specify center point of arc:

Specify end point of arc or [Angle/chord Length]:

End Point

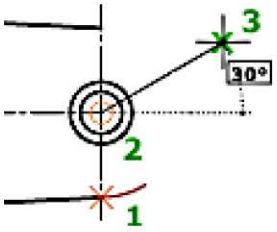
Using the center point (2), draws an arc counterclockwise from the start point (1) to an endpoint that falls on an imaginary ray drawn from the center point through the third point (3).



Angle

Draws an arc counterclockwise from the start point (1) using a center point (2) with a specified included angle. If the angle is negative, a clockwise arc is drawn.

Specify included angle: *Specify an angle*

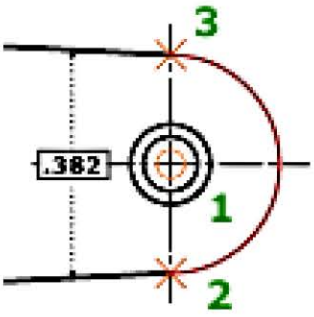


Chord Length

Draws either a minor or a major arc based on the distance of a straight line between the start point and endpoint.

- If the chord length is positive, the minor arc is drawn counterclockwise from the start point. If the chord length is negative, the major arc is drawn counterclockwise.

Specify length of chord: *Specify a length* (0.382)

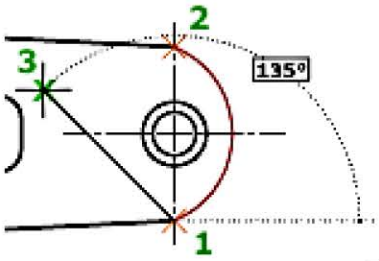


Angle

Draws an arc counterclockwise from the start point (1) to an endpoint (2), with a specified included angle.

- If the angle is negative, a clockwise arc is drawn.

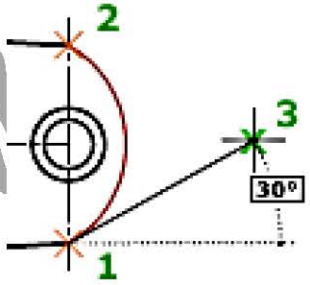
Specify included angle: *Enter an angle in degrees or specify an angle by moving the pointing device counterclockwise*



Direction

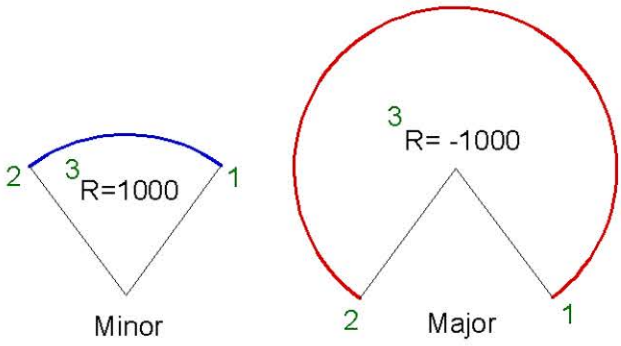
Begins the arc tangent to a specified direction. It creates any arc, major or minor, clockwise or counterclockwise, beginning with the start point (1), and ending at an endpoint (2). The direction is determined from the start point.

Specify tangent direction for the start point of arc:

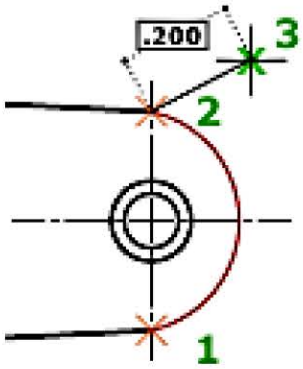


Radius

Draws the minor arc counterclockwise from the start point (1) to the endpoint (2). If the radius is negative, then the major arc is drawn.



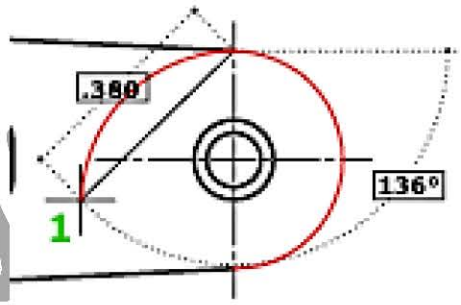
Specify radius of arc: You can specify the radius either by entering it or by specifying a point at the desired radius distance.



Tangent to Last Line, Arc, or Polyline

Draws an arc tangent to the last line, arc, or polyline drawn when you press ENTER at the first prompt.

Specify end point of arc: *Specify a point (1)*



H. W. 1: Write the command-statements for drawing the figure shown below using Line and Arc commands starting from point (0,0) (the axis of symmetry A) and in the direction of the arrow shown in the figure.