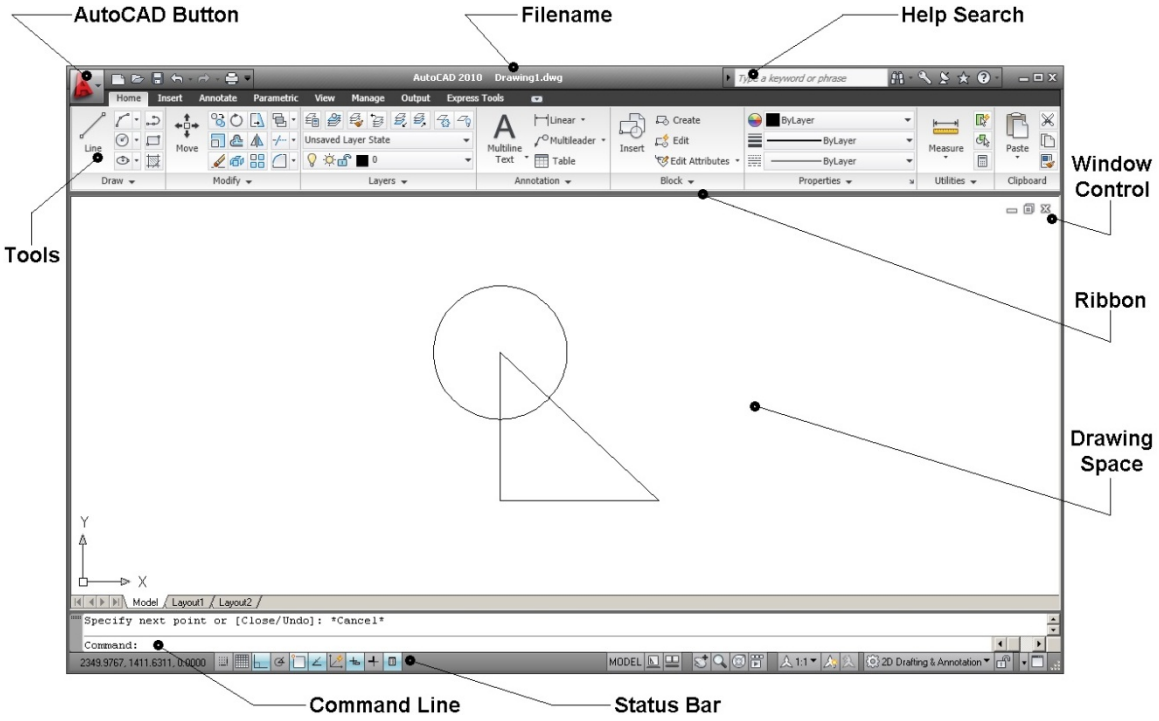
ENG103 – Computer Aided Design
Lecture Set 0

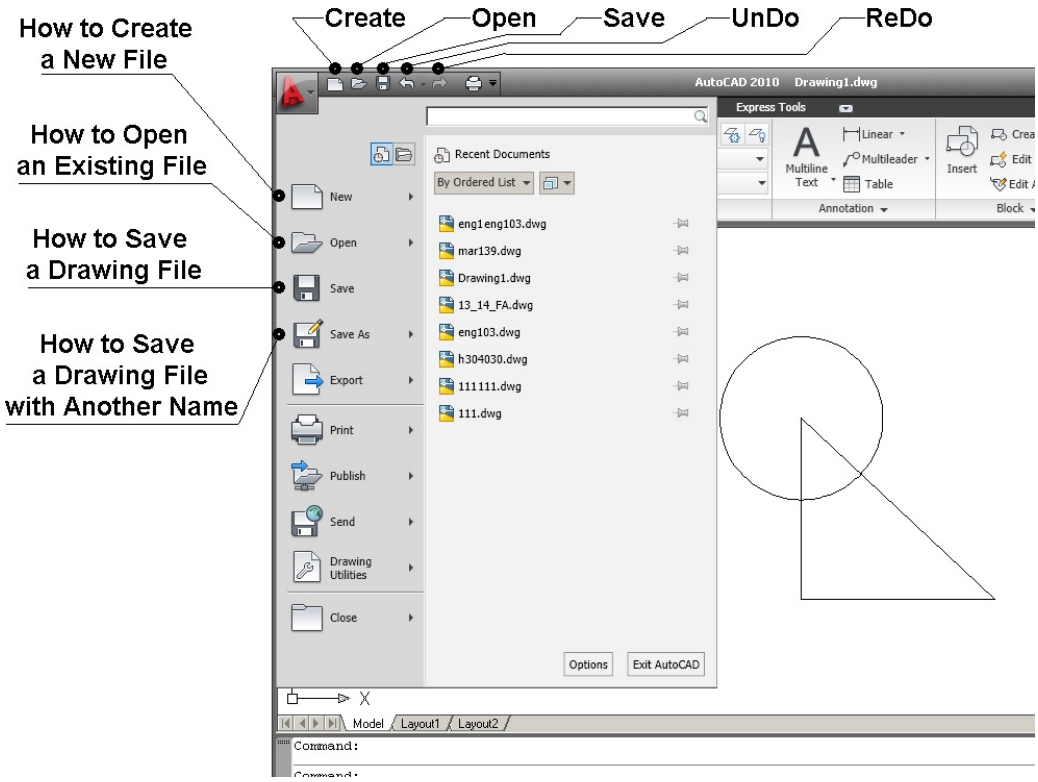
Brief Introduction to AutoCAD



This is a Typical AutoCAD screen-shot. It Includes:

1. AutoCAD button or Application button
2. File name
3. Help search
4. Ribbon
5. Tools
6. Window control
7. Drawing space
8. Command line
9. Status bar

1. AutoCAD button:This button enebles acces toAutoCAD menu (or application menu). Autocad menu icludes: New, Open, Save, Save as



- New: Creates a new AutoCAD file
- Open: Opens an existing AutoCAD file
- Save: Saves an already opened AutoCAD file (if you save it first time you need to enter a filename)
- Save as: Saves the AutoCAD file with a different name.

2.File Name:This shows the name of the AutoCAD file which is currently opened.

3.Help search:You can search for help topics by typing into help search.

4.Ribbon:Ribbon includesthe drawing tools such as line, circle etc. (home tab) and multiline text, dimension (Annotate tab) etc.

5.Tools:These are the tools that are used for drawing any feature e.g. line, circle etc.

6. Window control: Includes minimize (minimizes the current drawing window) restore (restores the current drawing window) and close (closes the current drawing window)

7. Drawing space:It is the space where the drawing is done.

8. Command line: This is the line where the drawing commands are written.

9. Status bar: This bar has the on and off buttons for features such as: grid, osnap, polar etc. (we will cover these in subsequent lectures)

Dimensioning and Notations

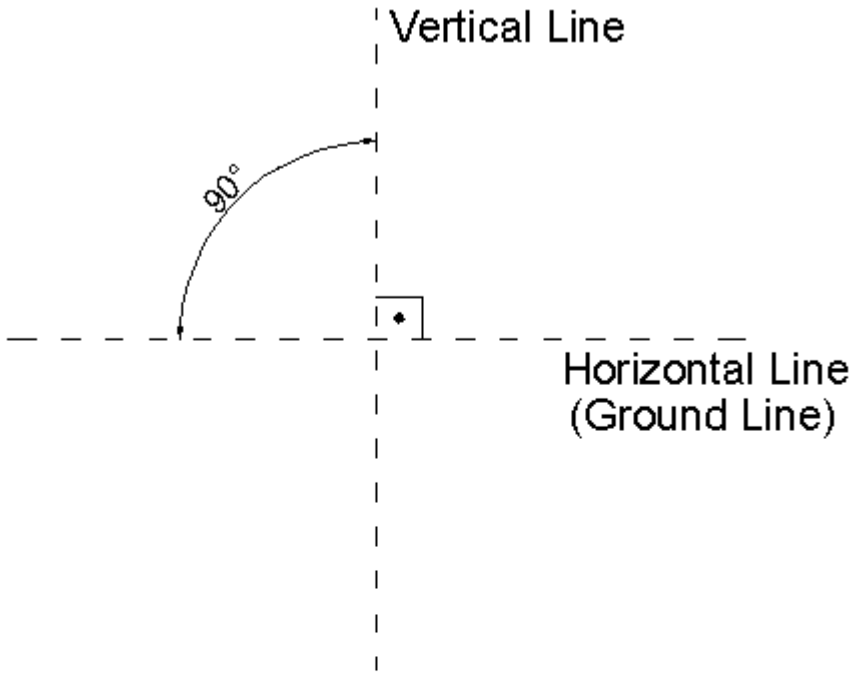


Figure 1

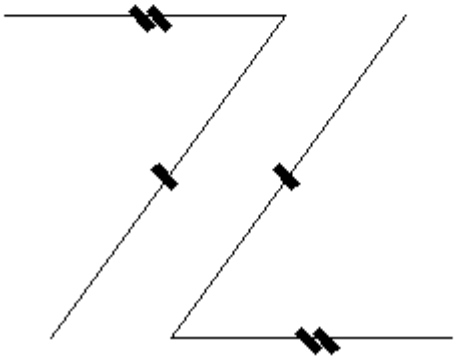


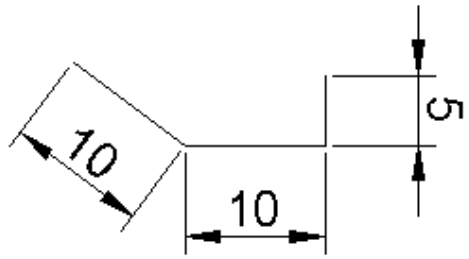
Figure 2

Figure 1
Horizontal Line (or Ground Line) is accepted as parallel to the ground and also parallel to the x-axes. So, Horizontal Line has zero degrees relative to drawing area.

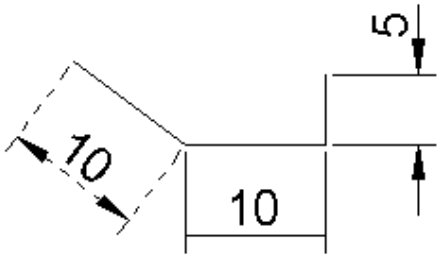
Vertical Line is parallel to the y-axes and has 90 degrees with Horizontal Line.

In Figure 90 degrees is shown with two different notations.

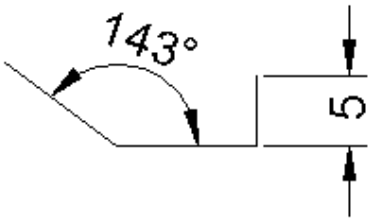
Figure 2
Parallel lines can be denoted by locating dashes on lines. Lines which has same number of dashes are parallel.



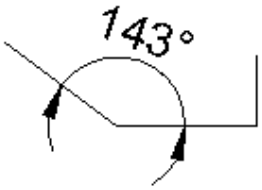
Length measurements can be shown with **two sided arrows** for relatively large distances OR **two arrows aiming each other and connected with a line** for relatively small distances. Note that lines on both sides of arrows are vertical to the object which is measured.



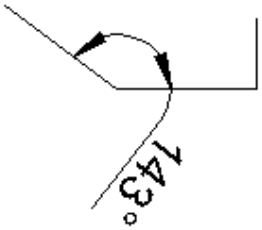
Sometimes two arrows aiming each other may not be connected with a line and measurement result (in this example it is 5) can be written on one of these arrows. Also it is possible to show dimension lines as dashed lines.



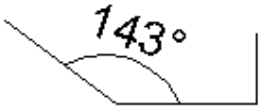
Angles are also be shown with two sided arrows BUT notation of angle, which is degree (°), is always located on right-top of measurement.



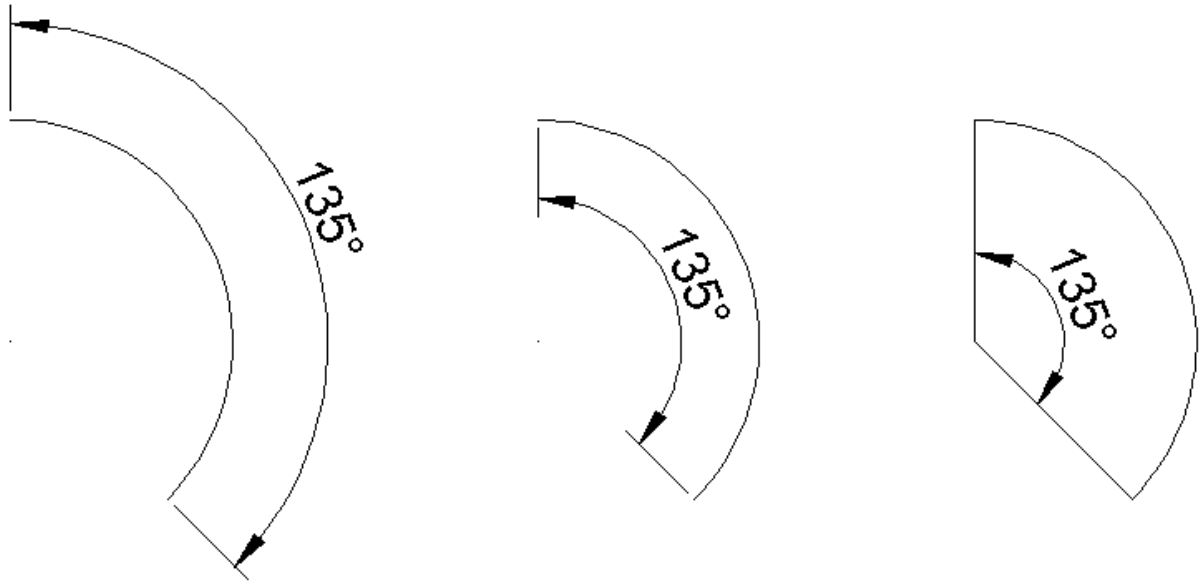
It is also possible to locate arrows to the outside of angle that is measured BUT arrows must be connected with an arc.



If the place which is used to show angle is large enough, it is possible to write the angle outside with shown notation.



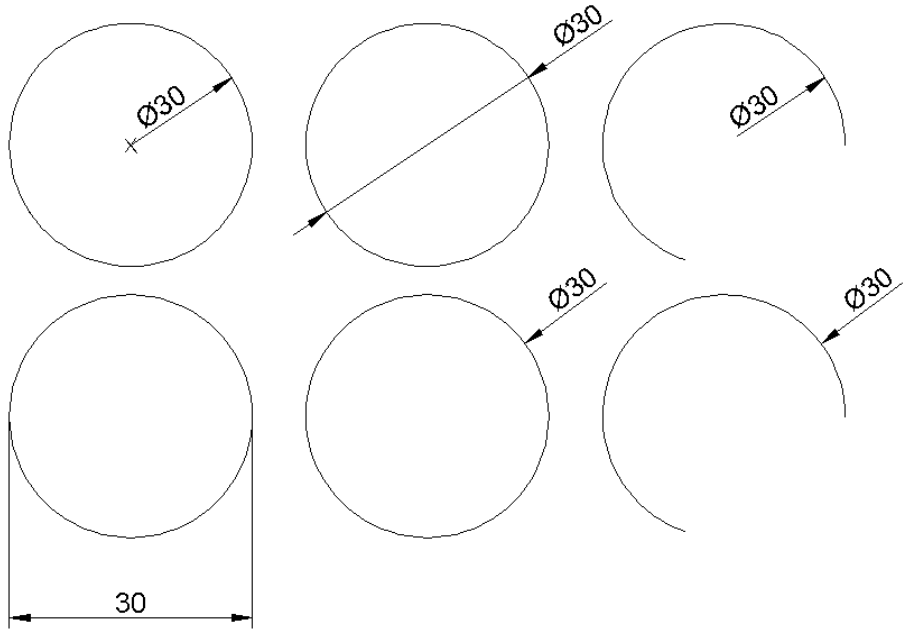
Classically, it is possible to show an angle just by using an arc without arrows.

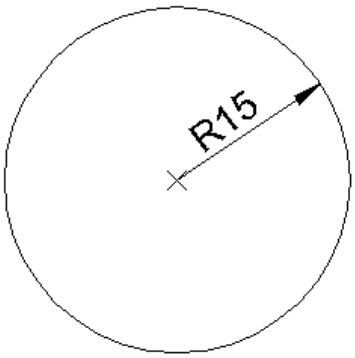


It is possible to show angle of an arc or section of a curve as given above. Degree symbol (°) is used to denote clearly that the measurement is an angle. In the first figure angle is located outside of the arc, in the second figure inside of the arc and in the last one between two lines which are emerging from the edged and intersecting in the center of arc.

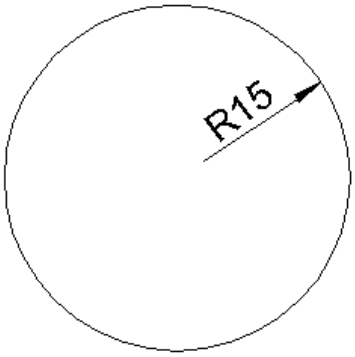
An arc or a circle can be dimensioned using it's Radius or Diameter property. Simply half of diameter gives us radius (Diameter = 2 x Radius). Representation of radius and diameter is the same, only difference is that Radius is denoted with R and Diameter is denoted with ϕ.

Below, it is possible to find representations of dimensioning with diameter and on the next page representations of dimensioning with radius.

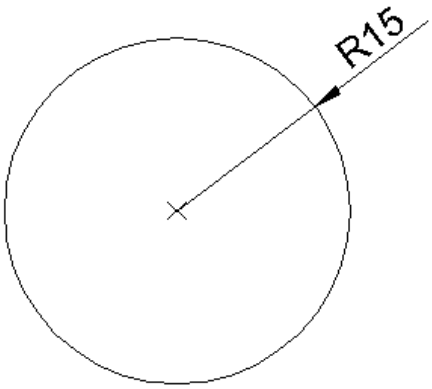




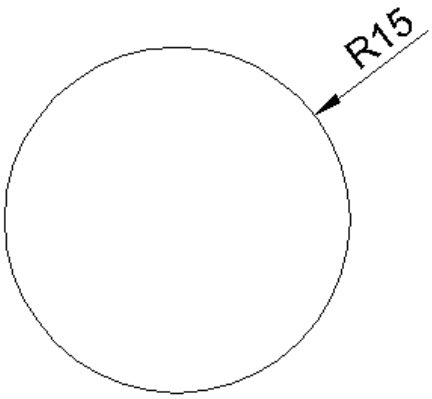
Radius is shown with an arrow emerging from center and touching to the object. **R** letter is used to denote clearly that the measurement is a radius. Center of object is shown with a cross.



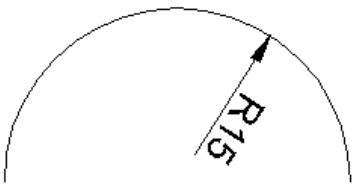
If the center is NOT given, there will not be any symbol denoting the center. It is possible to give radius without showing center.



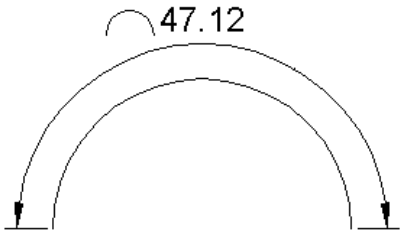
If it is not possible to locate measurement inside of curve, it is located to the outside by locating a reverse sided arrow. In this example center is shown.



Again it is possible to show radius measurement without defining center.



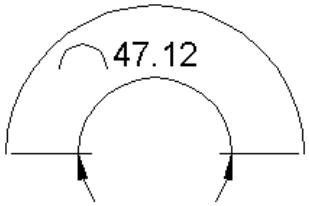
Radius measurement is used for all curves not only for circles.



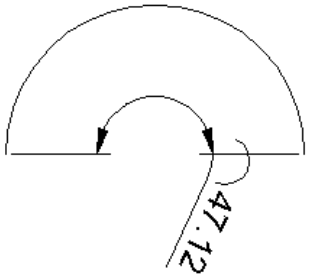
Arc length dimensions measure the distance along an arc. An arc symbol (∩) is displayed either above or preceding the dimension text.



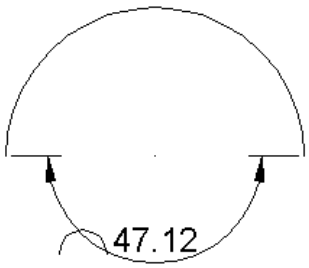
It is shown with two sided arrows either outside of object or inside of object. In both cases start and end point of measurement is shown with radial vertical lines.



If it is not possible to locate arrows in measurement location, outside arrows (aiming each other) can be used.



It is possible to take measurement text outside of measurement location with a line touching to arrows.



Following two examples shows that, it is possible to draw measurement arc to the outside of object that is measured.

