PABLO

MECH 161 – INTRO. TO COMPUTER AIDED DESIGN I

INTRODUCTION TO AUTODESK AUTOCAD

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Outline

- Google Classroom Code (**ri7ua4g**)
- AutoCAD Interface
- AutoCAD Window
- Setting up Drawing Area
- Drawing some geometric figures
- Principles of Tangency
- Isometric Drawings

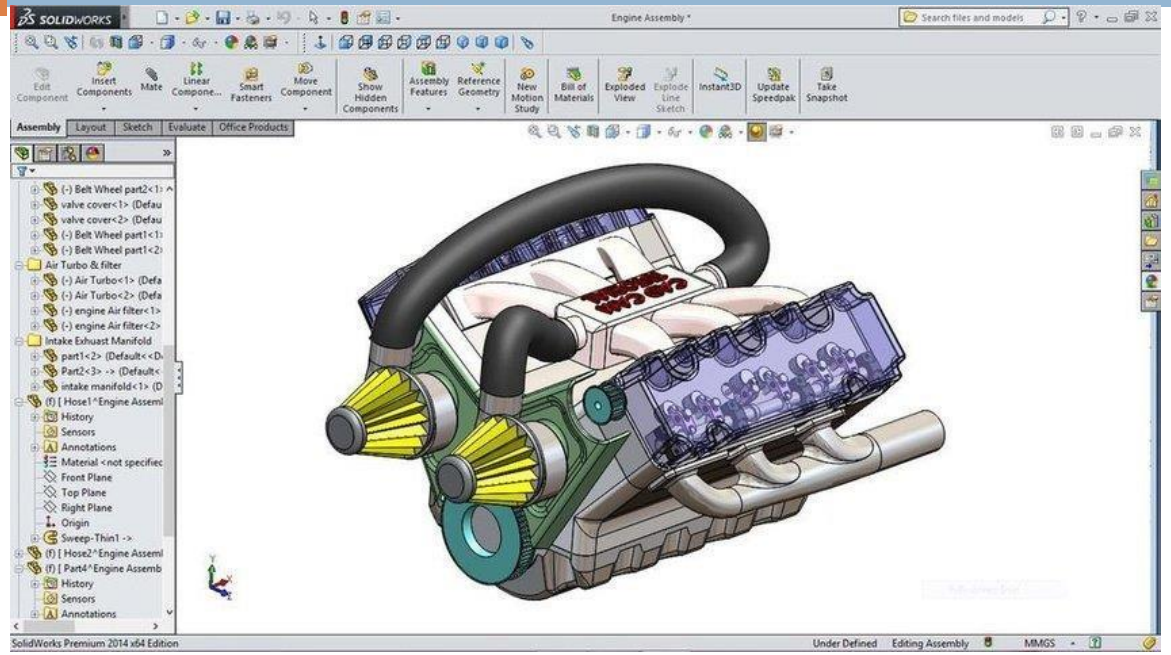
COMPUTER-AIDED DESIGN (CAD)

- Computer-Aided Design (CAD), is the **two-dimensional or three-dimensional** modeling of physical structures and material properties, using **specialized software on a computer.**
- CAD software is used by engineers, artists, and enthusiasts to create architectural designs, ray

traced images, animations, and physics simulations.

Examples of CAD software

- Autodesk AutoCAD
- Autodesk Inventor
- Fusion 360
- Solidworks
- Solidedge
- Catia
- Blender
- FreeCAD □ Rhino □ Etc.


SOLIDWORKS
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Move Component
Show Hidden Components
Assembly Features
Reference Geometry
New Motion Study
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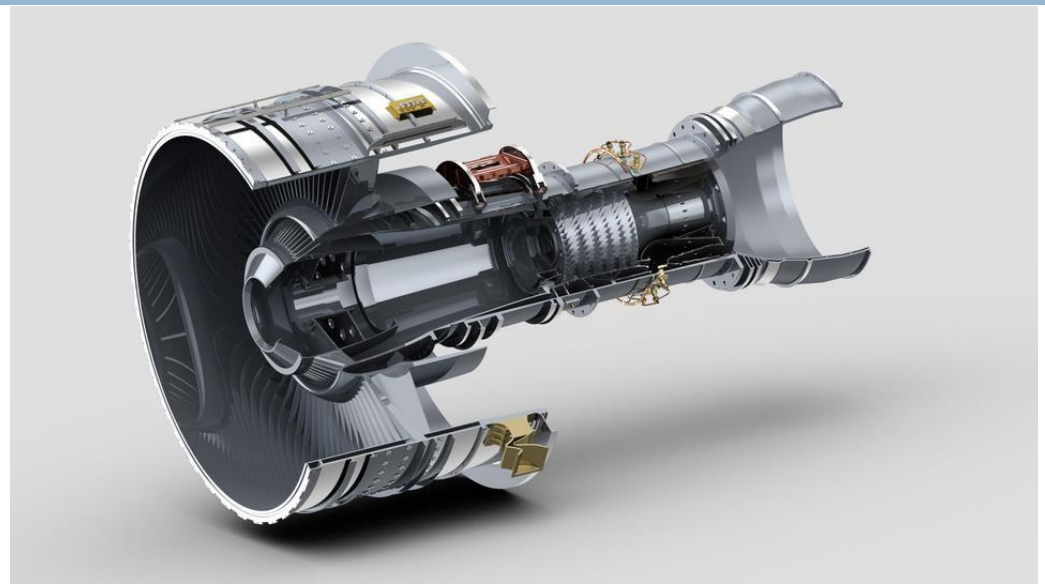
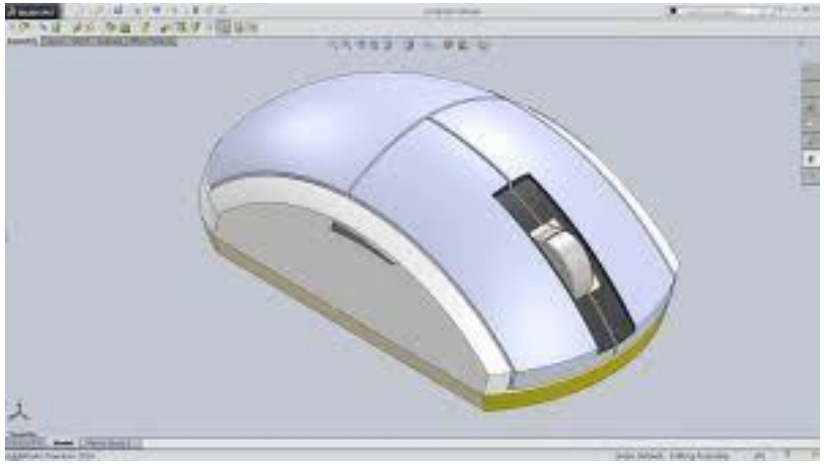
Editing Assembly
MMGS





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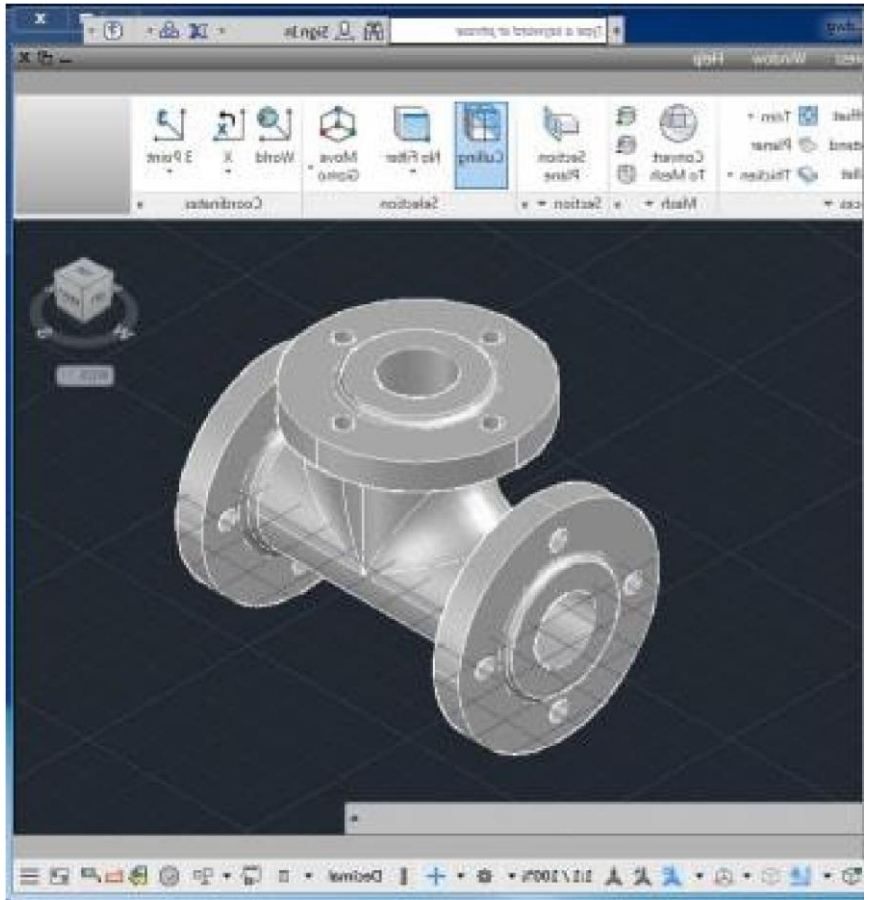
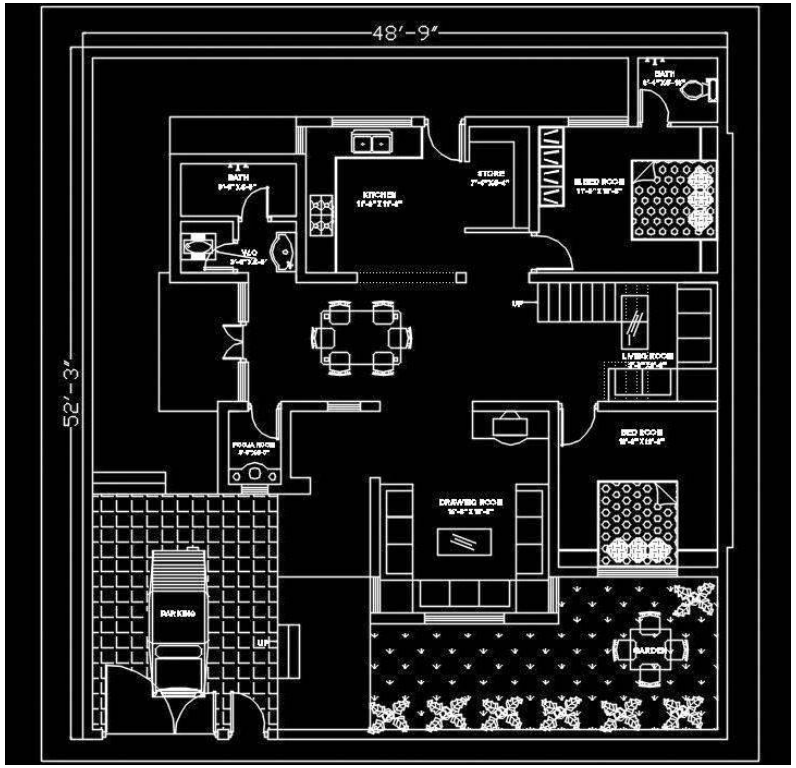
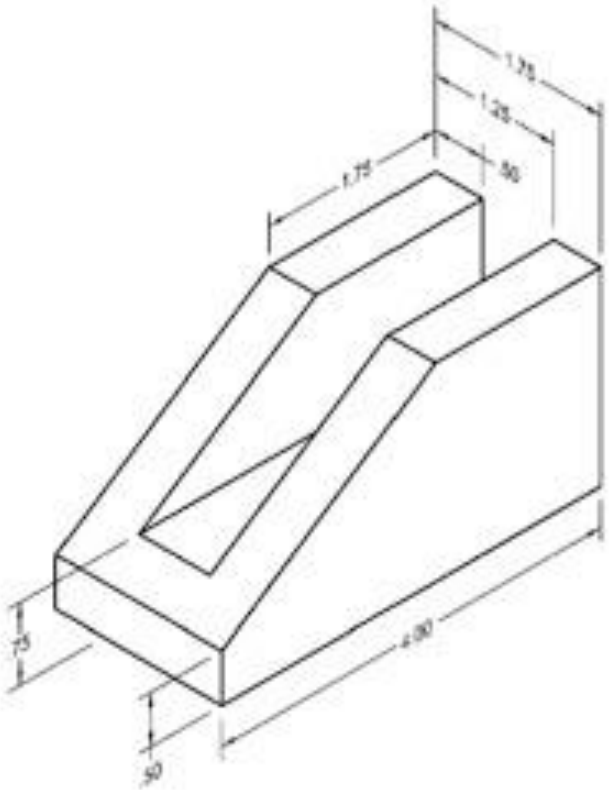
AUTODESK AUTOCAD

PABLO



- **AutoCAD** is a commercial software application for 2D and 3D computer-aided design (CAD) and drafting





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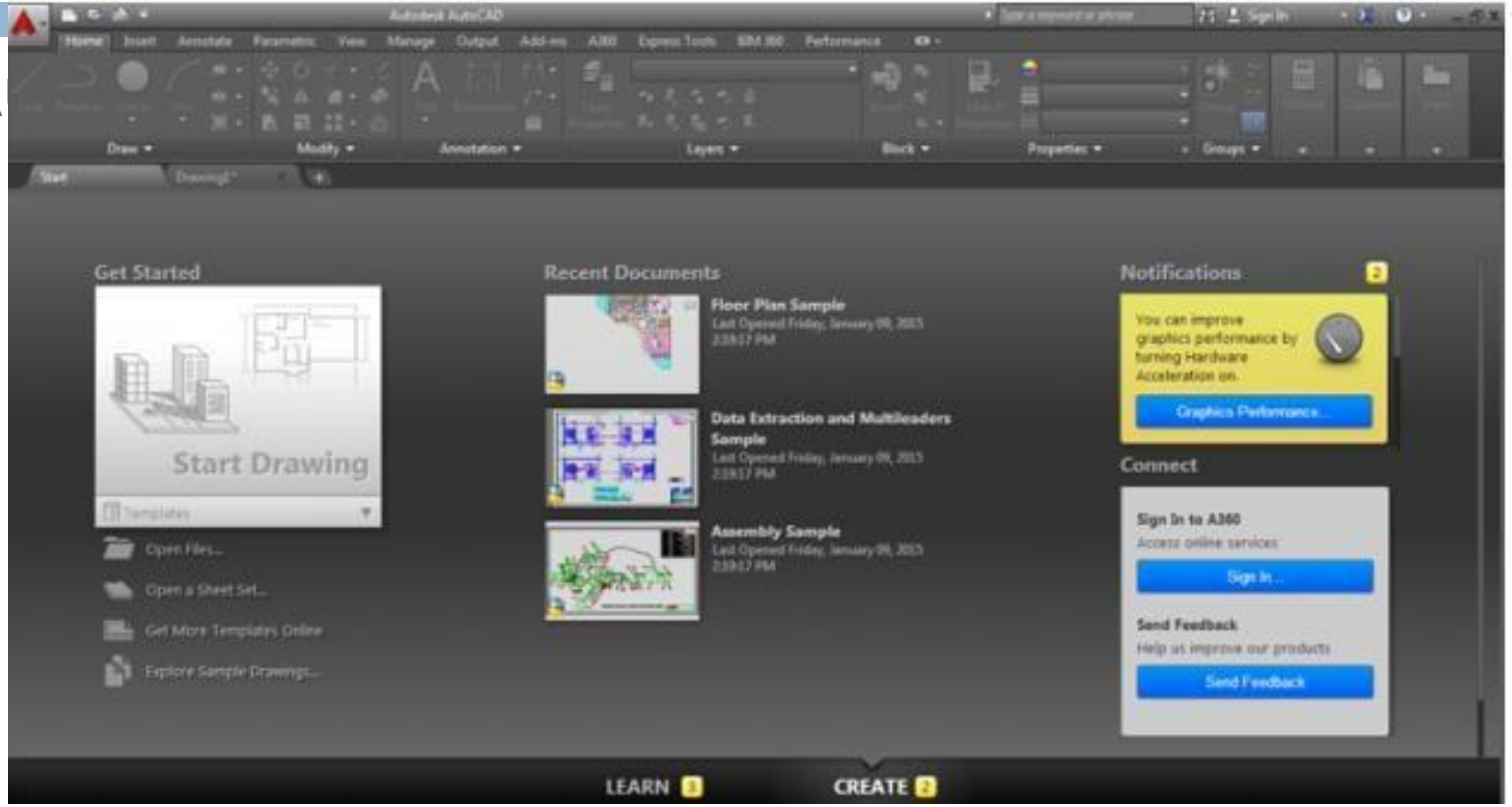
Get Started
Start Drawing
Open Files...
Open a Sheet Set...
Get More Templates Online
Explore Sample Drawings...
Recent Documents
Floor Plan Sample
Data Extraction and Multileaders Sample
Assembly Sample
Notifications
You can improve graphics performance by turning Hardware Acceleration on.
Graphics Performance...
Connect
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Access online services
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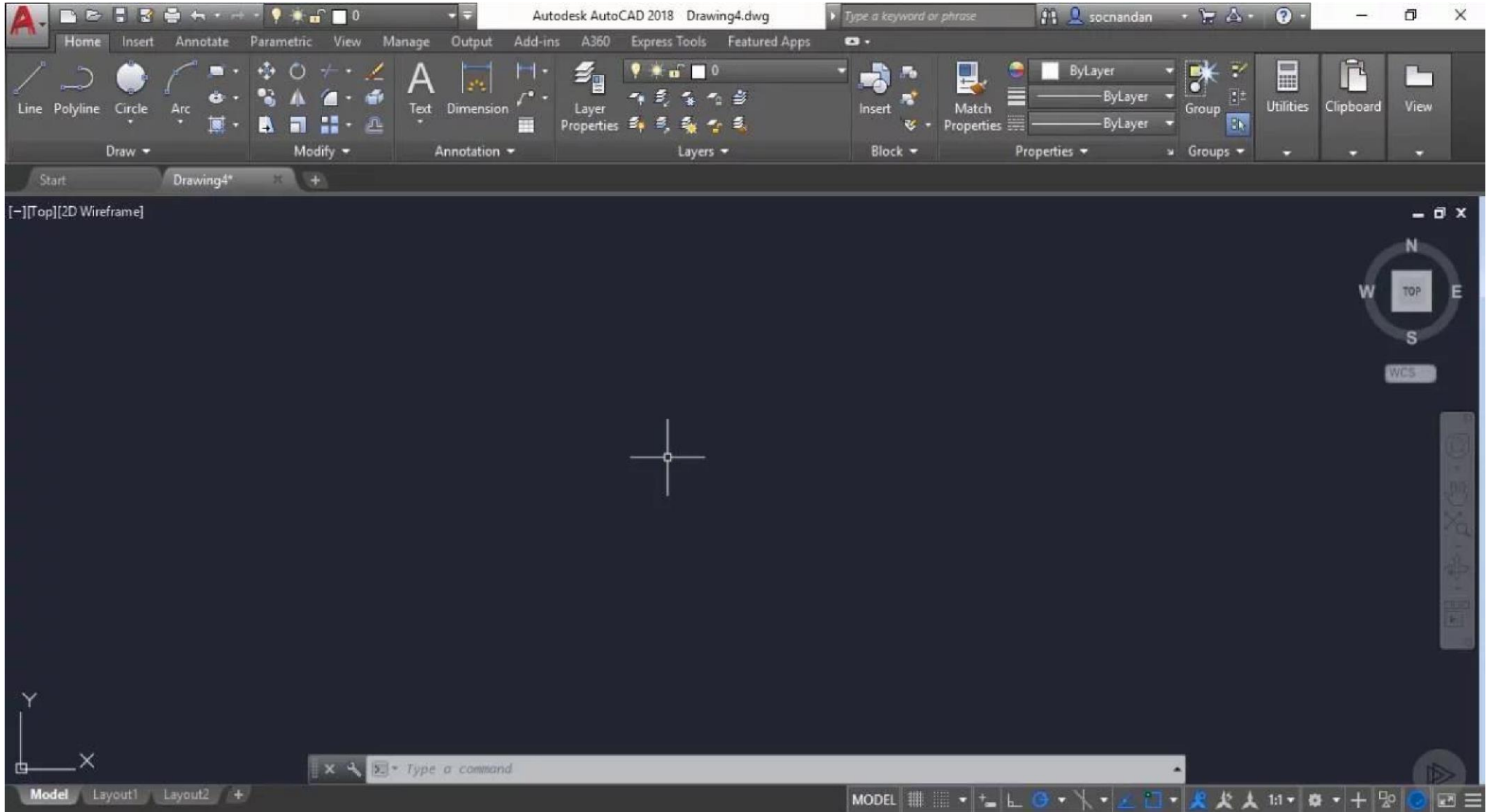
Send Feedback
Help us improve our products
Send Feedback
LEARN
CREATE

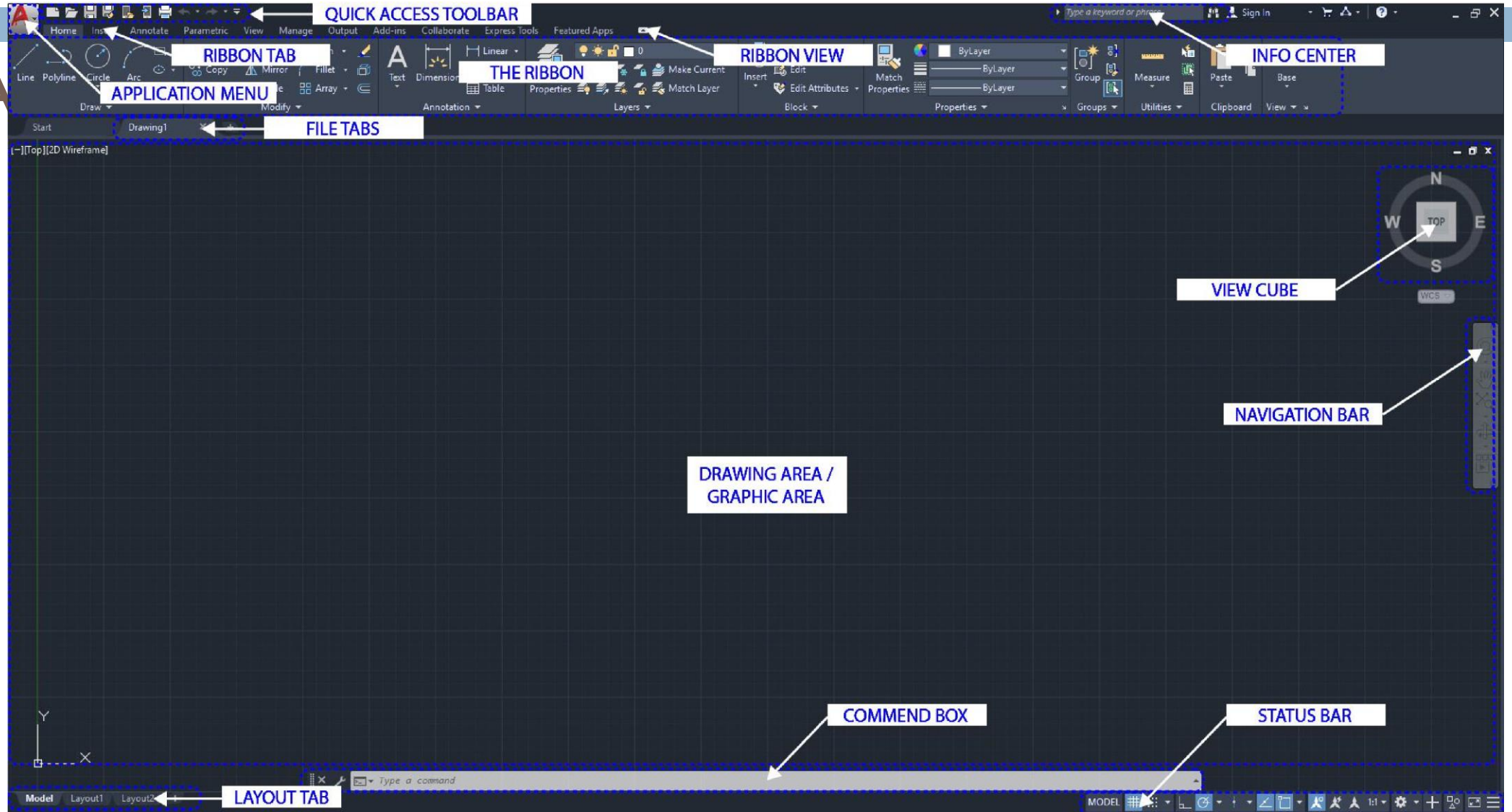
AutoCAD Interface continue



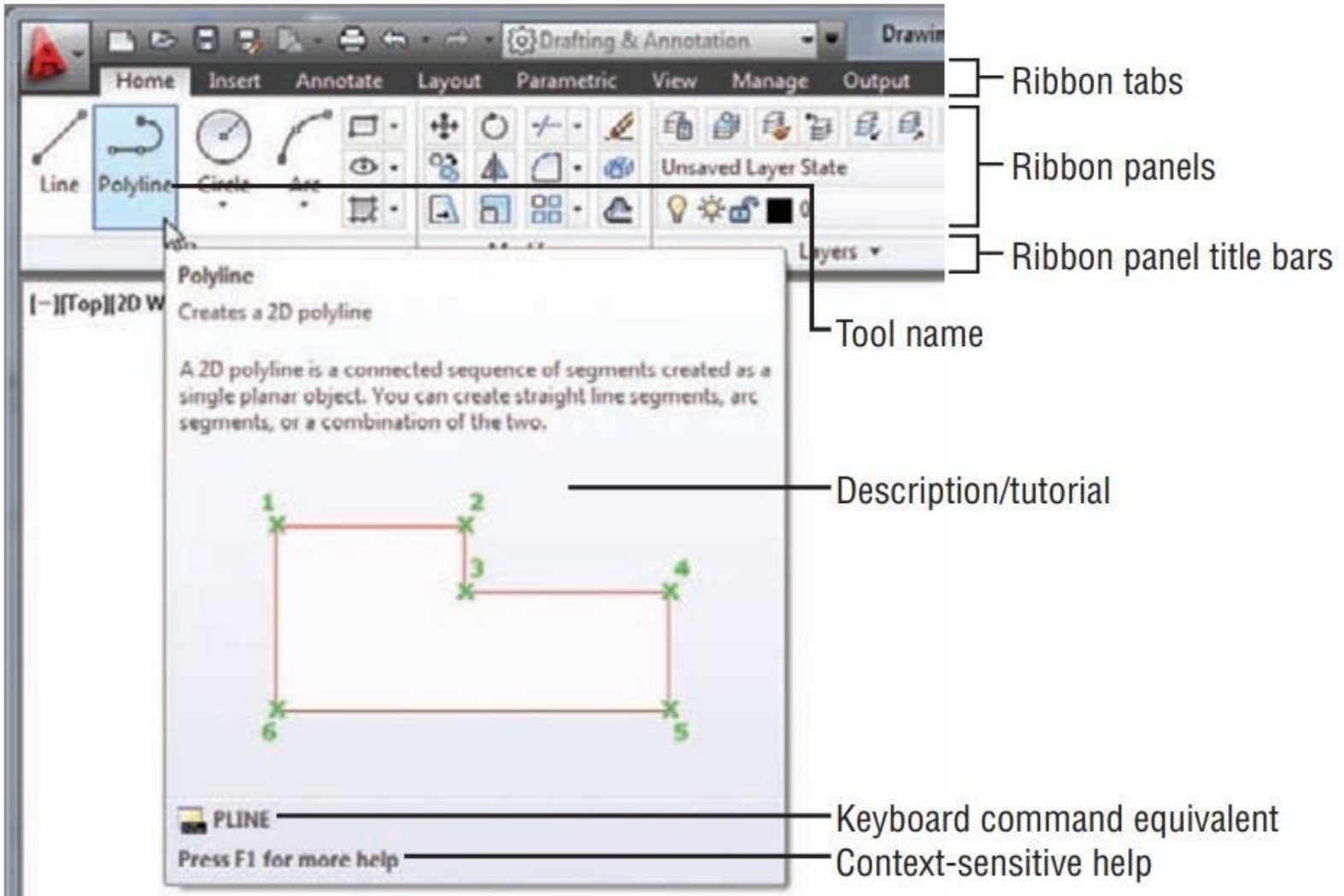
AutoCAD Windows

- The AutoCAD window is divided into several parts:
  - Application menu
  - Quick Access toolbar
  - InfoCenter
  - Ribbon
  - Drawing tabs
  - Drawing area
  - UCS icon (User Coordinate System icon)
  - Viewport Controls
  - ViewCube®

- Navigation bar
- Command window
- Status bar


QUICK ACCESS TOOLBAR
RIBBON TAB
RIBBON VIEW
INFO CENTER
THE RIBBON
APPLICATION MENU
FILE TABS
VIEW CUBE
NAVIGATION BAR
DRAWING AREA / GRAPHIC AREA
COMMEND BOX
STATUS BAR
LAYOUT TAB

AutoCAD Windows (Ribbon)


Drafting & Annotation
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Polyline
Creates a 2D polyline
A 2D polyline is a connected sequence of segments created as a single planar object. You can create straight line segments, arc segments, or a combination of the two.
1
2
3
4
5
6
PLINE
Press F1 for more help
Ribbon tabs
Ribbon panels
Ribbon panel title bars
Tool name
Description/tutorial
Keyboard command equivalent
Context-sensitive help

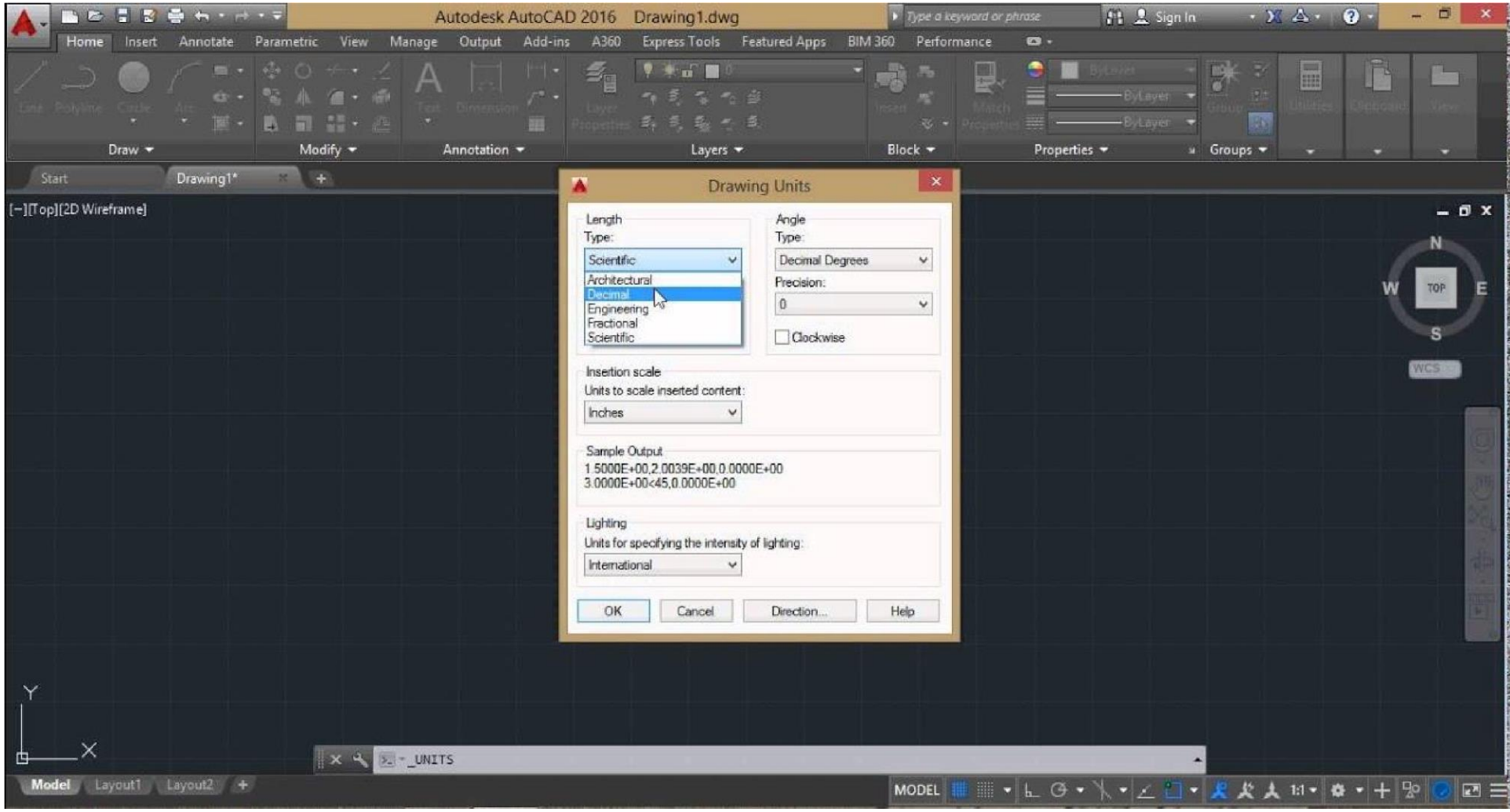
Entering of Commands

- You can enter **information (commands)** either through the **keyboard** or through your **mouse or pointing device**.
- There are also **toolbars and icons** that help to access the information.
- You can enter a command by typing it in at the **command line** or in the **dynamic input** or you can use the **pointing device** to pick up commands from:
- **the pull-down menus in the ribbon panel title bar**
  the icons on the ribbon panel

Setting up the Units

- Type units in the command line or in the dynamic input and hit the enter key

- Under the



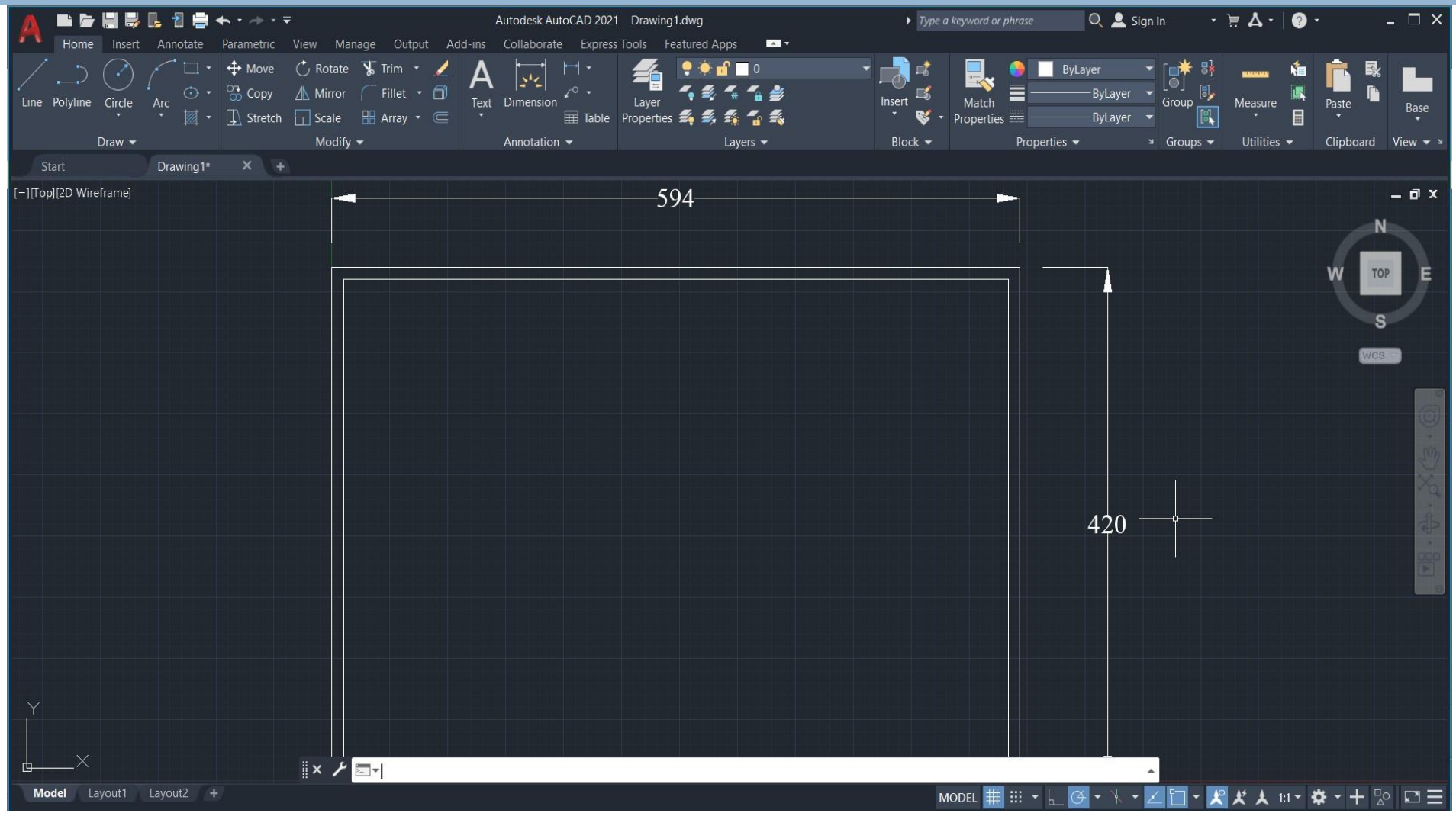
insertion scale, choose the required unit (Millimeters)

Setting up Drawing Area

- Setting up visible drawing sheet and borders using the **rectangle** and **offset**

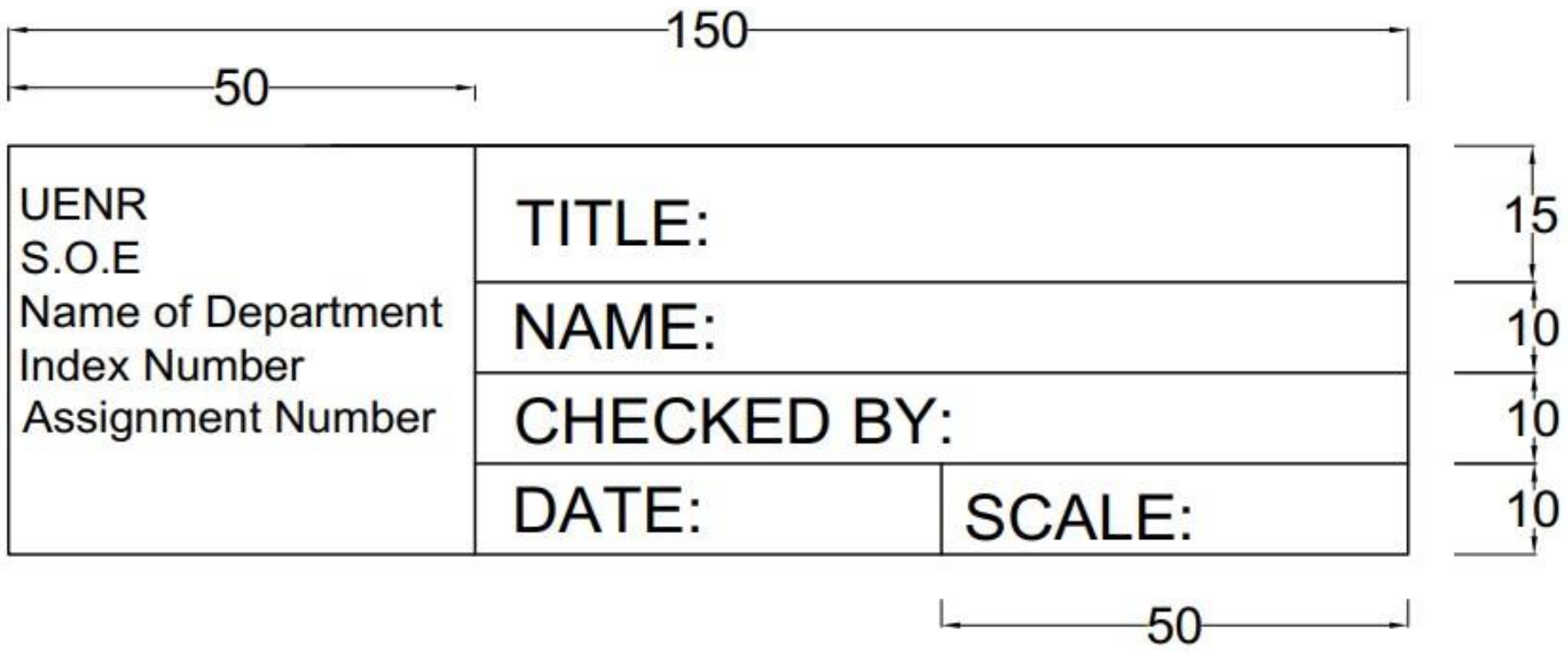
commands respectively.

- $594mm \times 420mm$

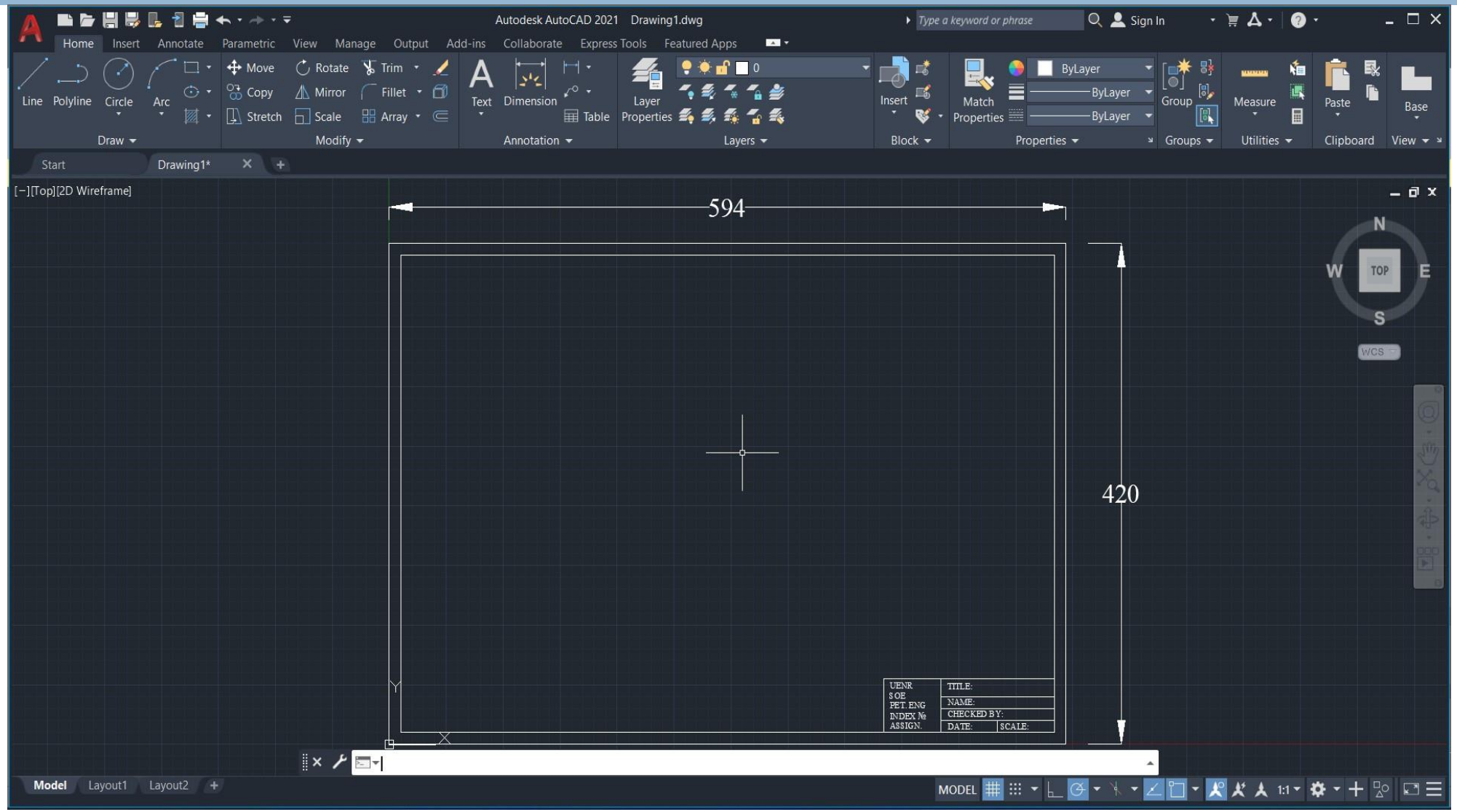


Setting up Drawing Area

- Drawing of the Title block (using the **line, offset and trim** commands)
- All dimensions in mm



Setting up Drawing Area


Autodesk AutoCAD 2021 Drawing1.dwg
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Sign In
Home Insert Annotate Parametric View Manage Output Add-ins Collaborate Express Tools Featured Apps
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DATE:
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Layout1
Layout2
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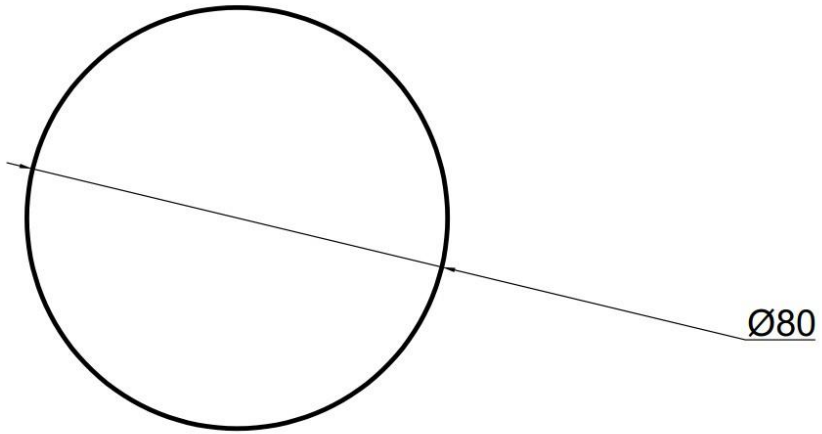
Saving Your Work

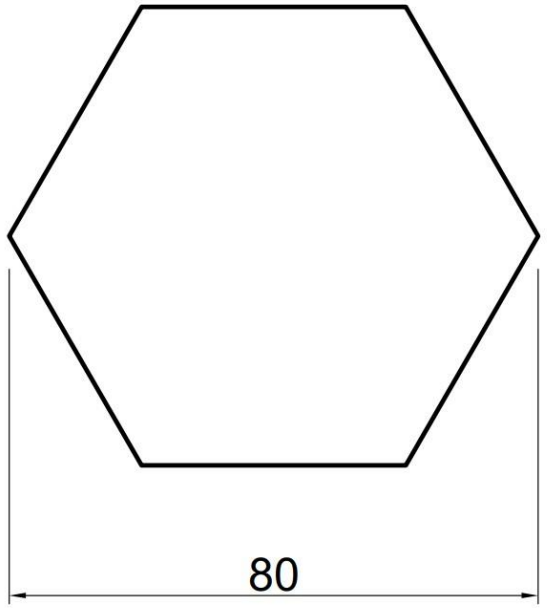
- **Surname_Index Number_Programme__Assignment Number**
- Example:

Osafo_UEB120777730_MECH. ENG._Assignment 1

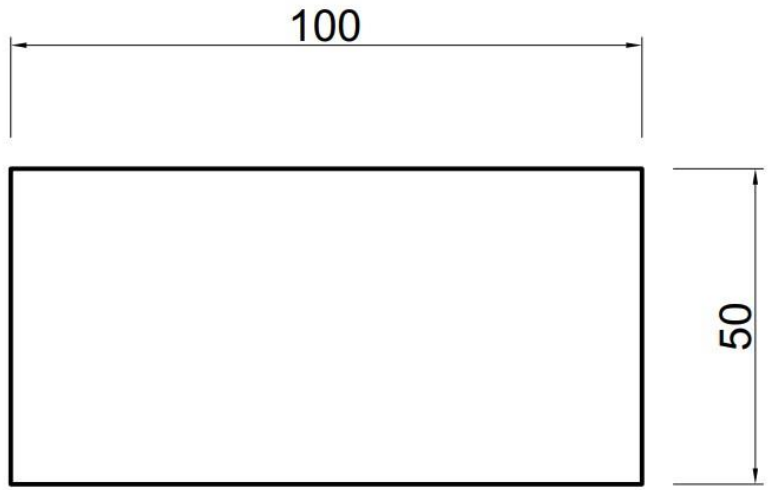
Starting Your First Drawing



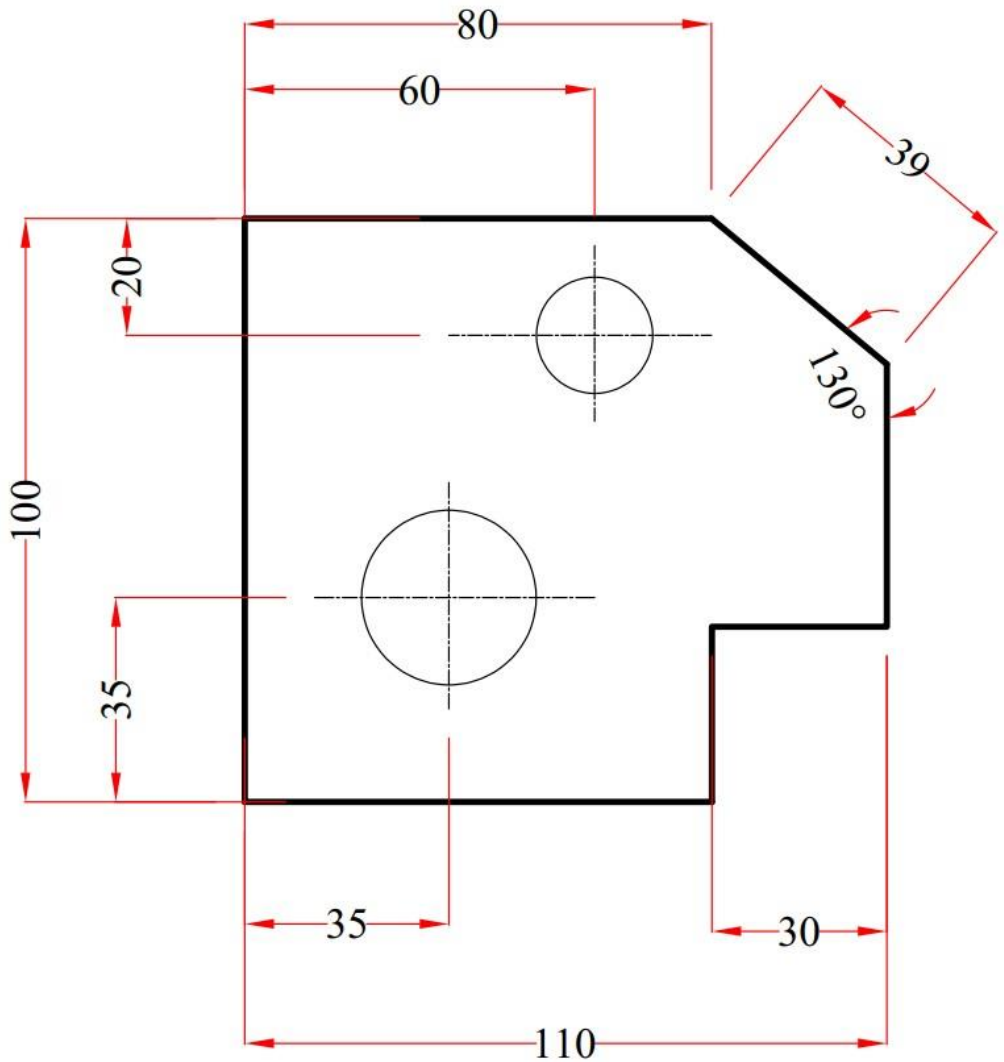
Circle



Regular Polygon



Rectangle



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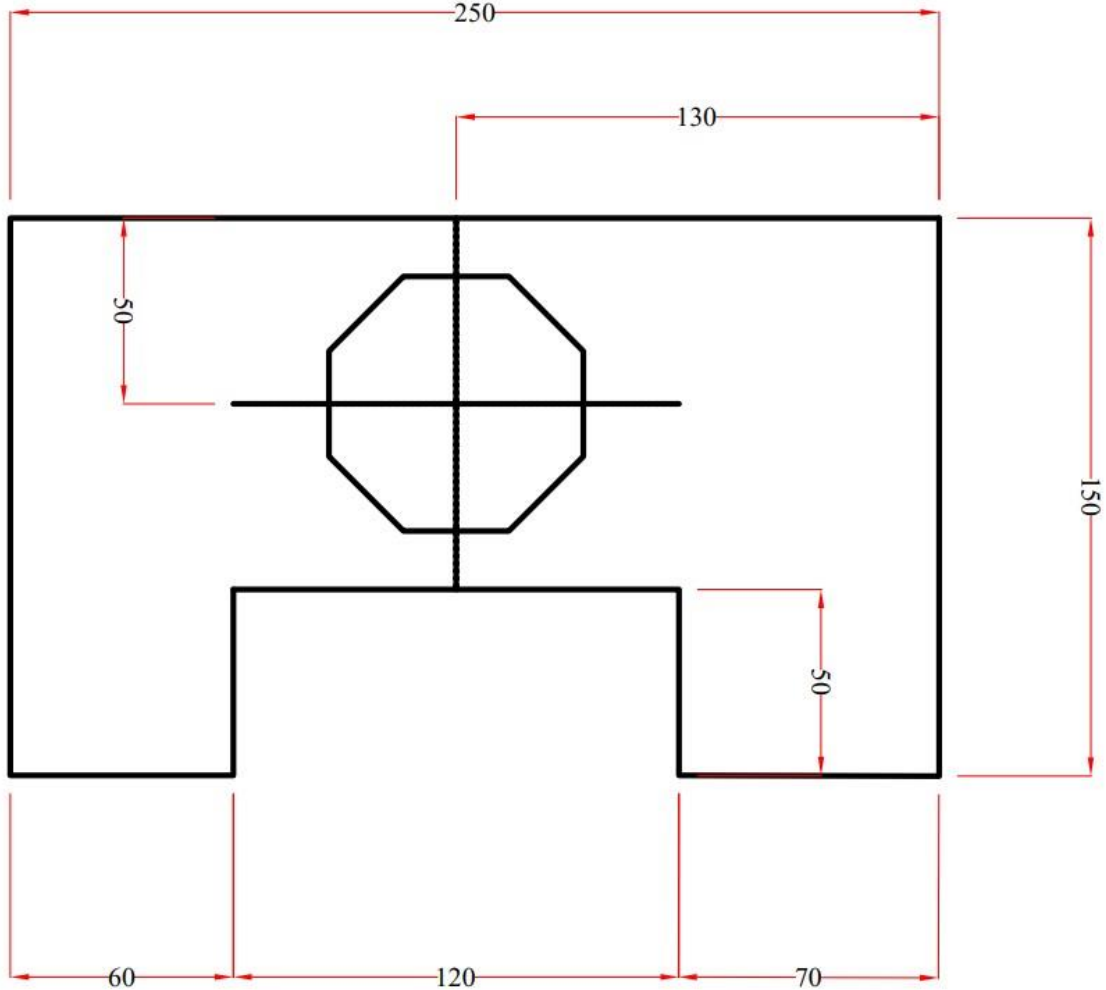
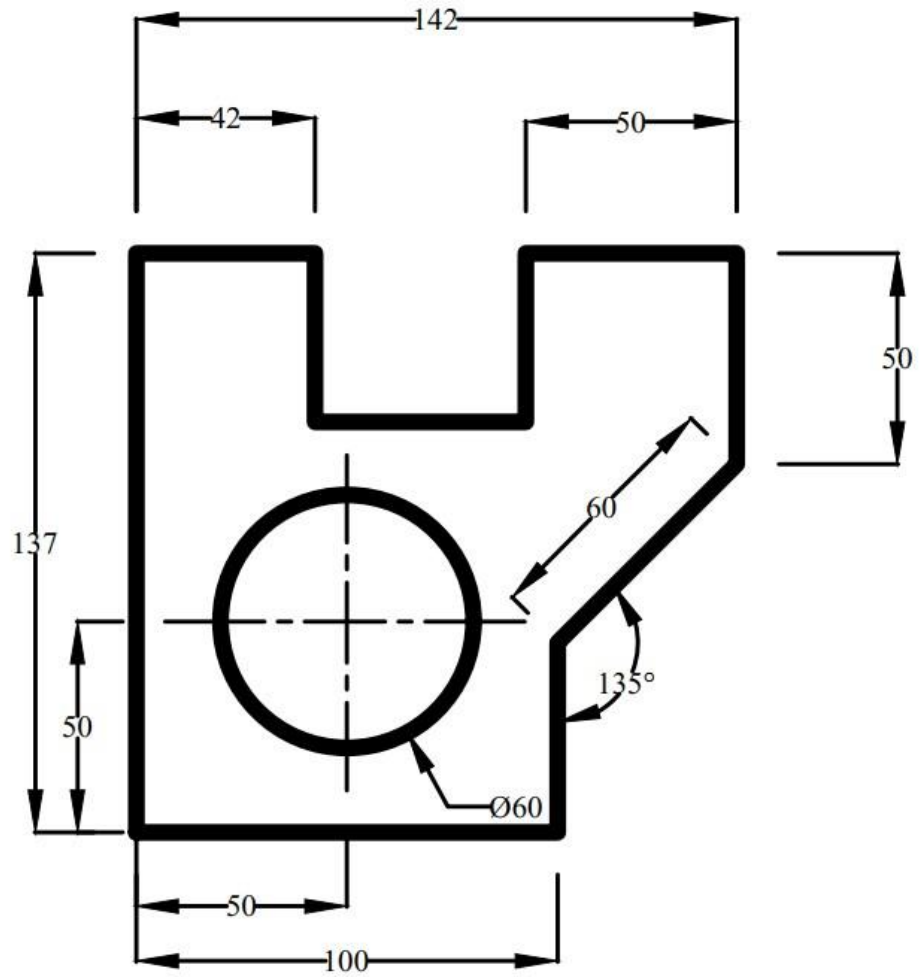
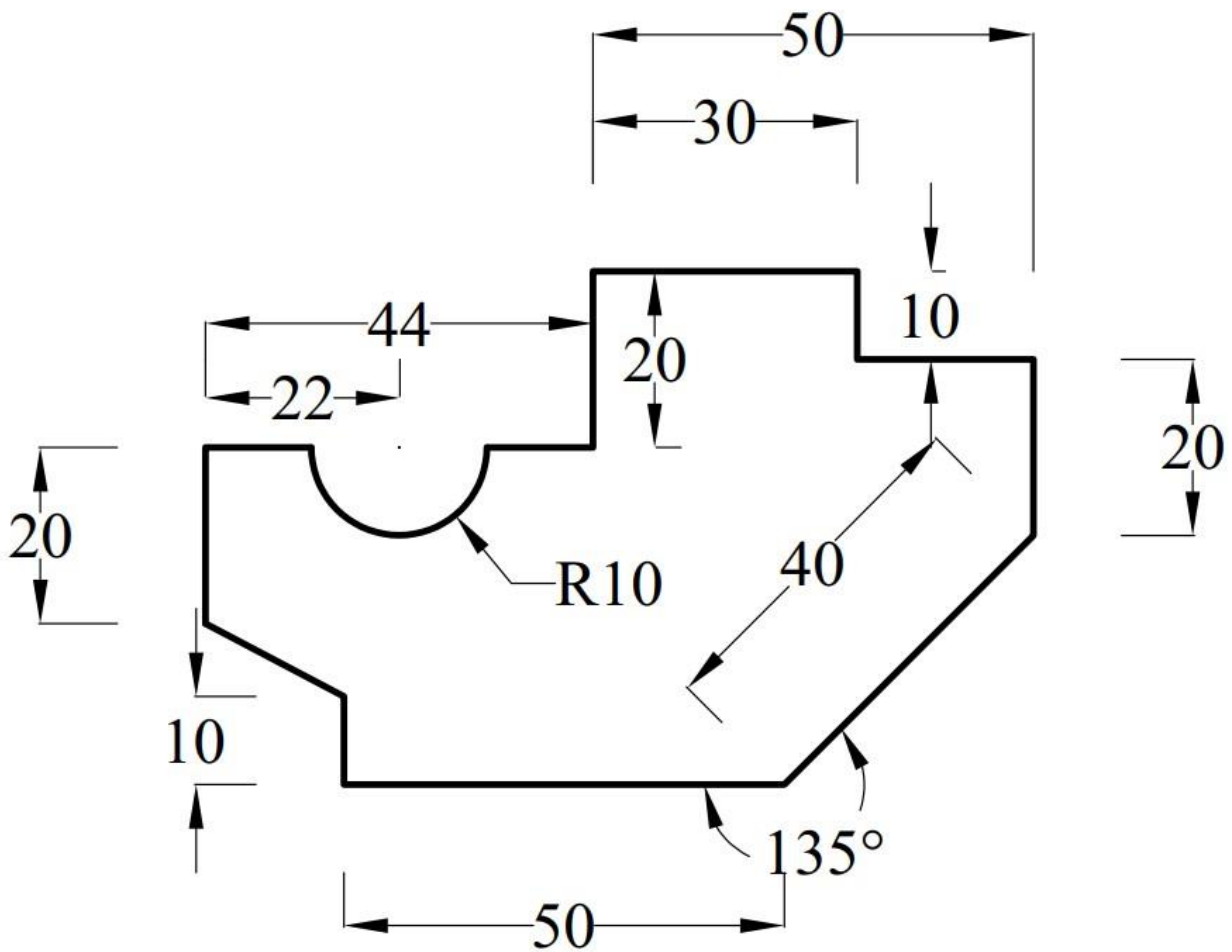


Exercise

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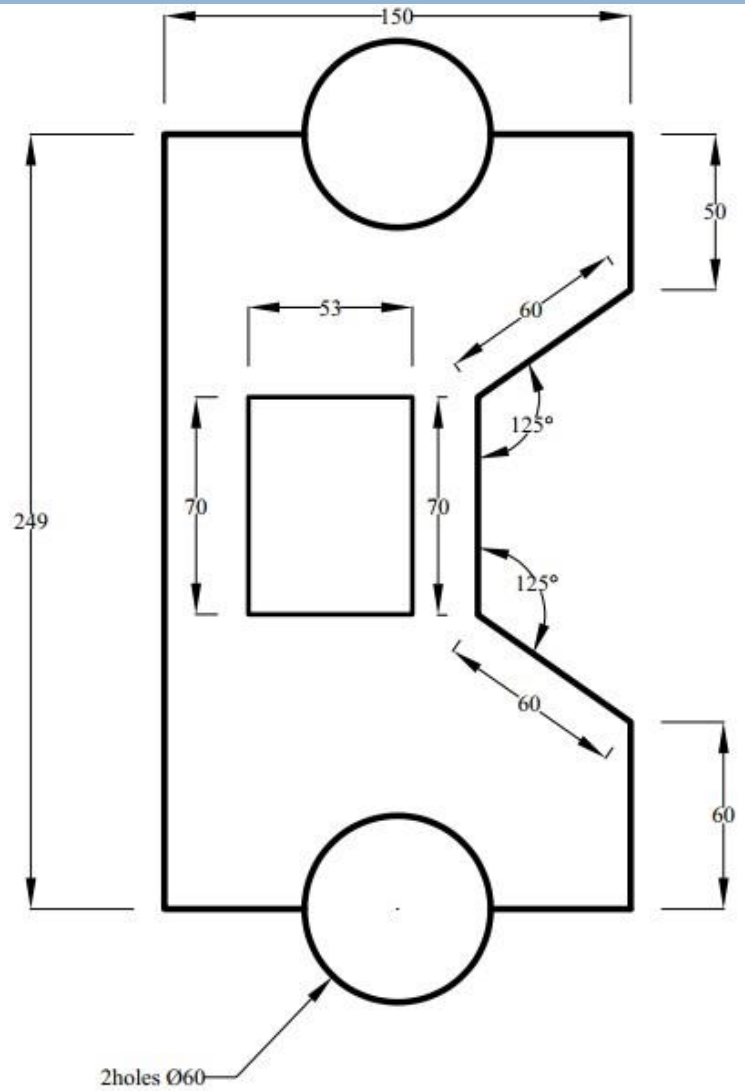
Exercise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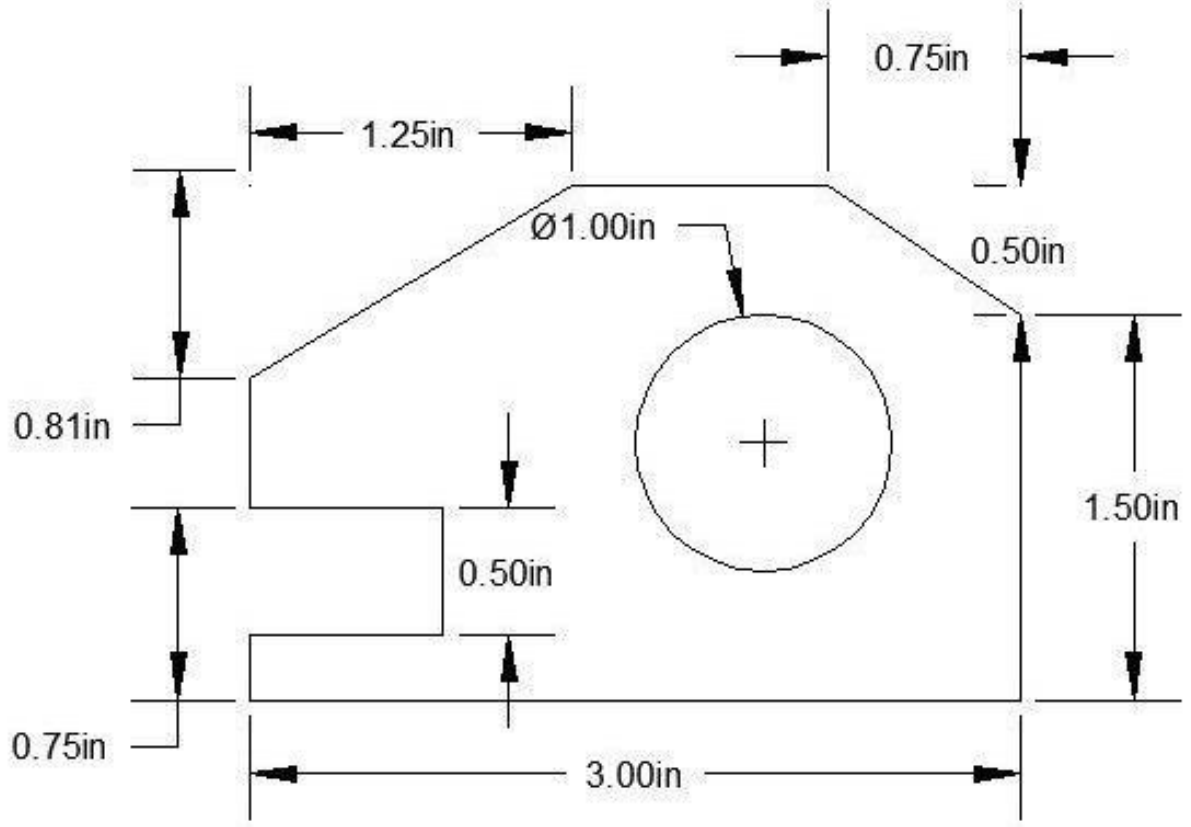
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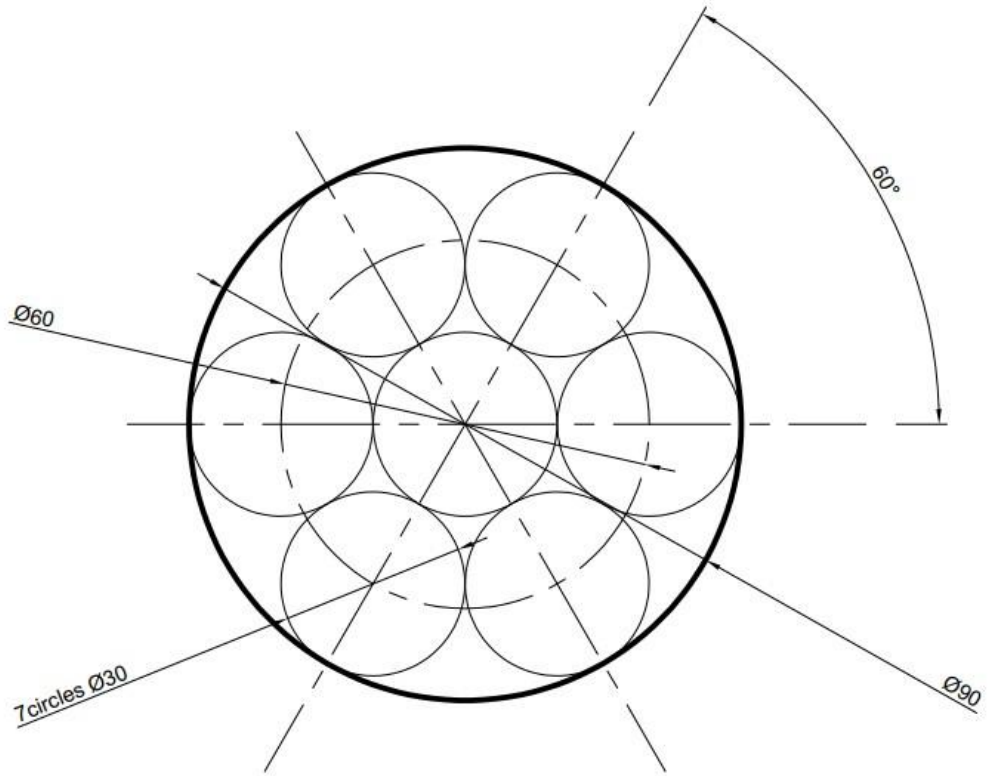
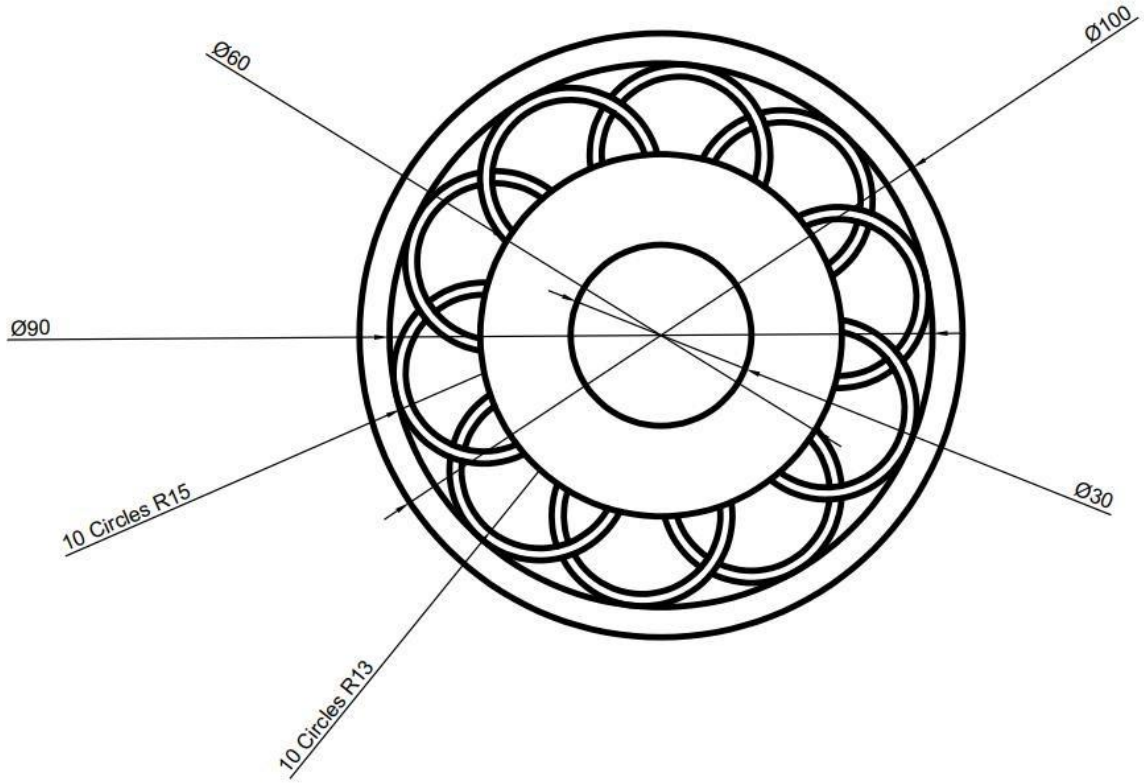
Modifying Commands

- Array
- Mirror
- Trim
- Copy
- Move
- Fillet
- Rotate

Array


60°
Ø60
7circles Ø30
Ø90


Ø60
Ø100
Ø90
10 Circles R15
Ø30
10 Circles R13

Questions