



الجامعة التقنية الشمالية / الكلية التقنية الهندسية
قسم هندسة تقنيات الجيوماتكس

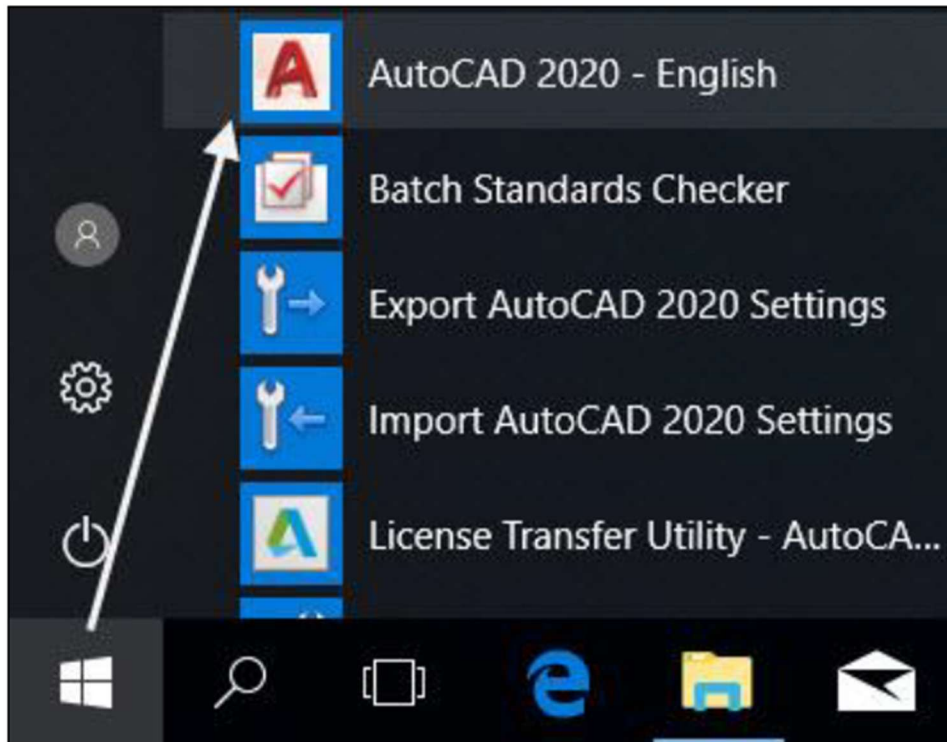
الرسم الهندسي باستخدام الحاسوب
2026-2025

أعداد

م.م. هبة عبد الحافظ عبدالكريم

Running the Program:

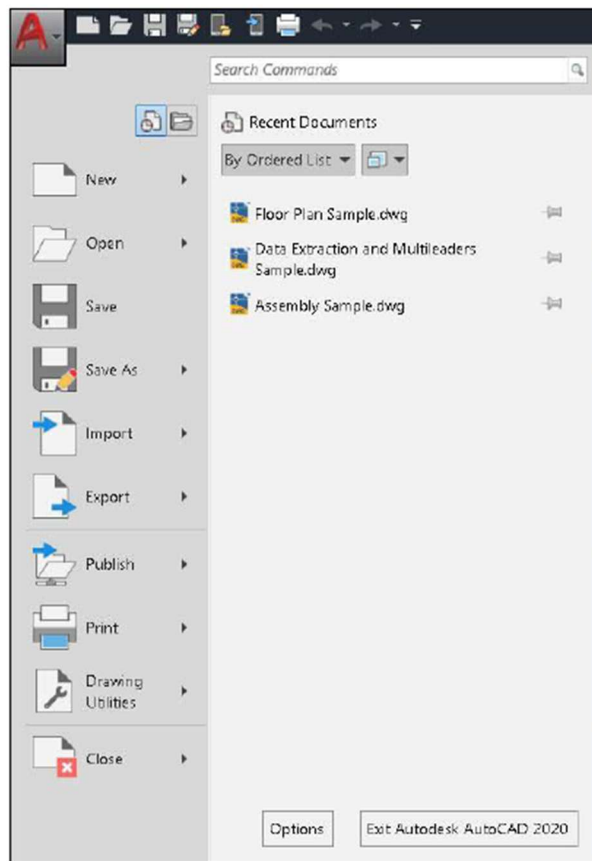
The program is run by double-clicking on the AutoCAD icon located on the desktop, or by clicking the **Start** button in Windows, then selecting **All Programs**, and from the **AutoCAD 2020** folder, clicking on the program icon found inside this folder.



Application Menu

It is located in the upper-left corner of the program interface. When clicked, a menu appears containing a set of commands related to managing drawing files, which are frequently used, such as **creating a new file (New)**, **opening a file (Open)**, **saving a file (Save)**, **printing a file (Print)**, **exporting a file (Export)**, and so on.

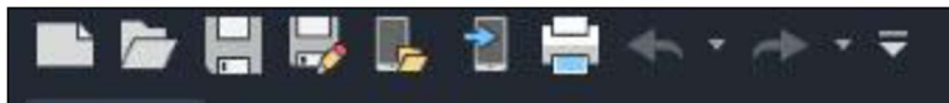
The menu also includes a **Search Commands** box at the top, through which we can type the command we want to search for.



Quick Access Toolbar:

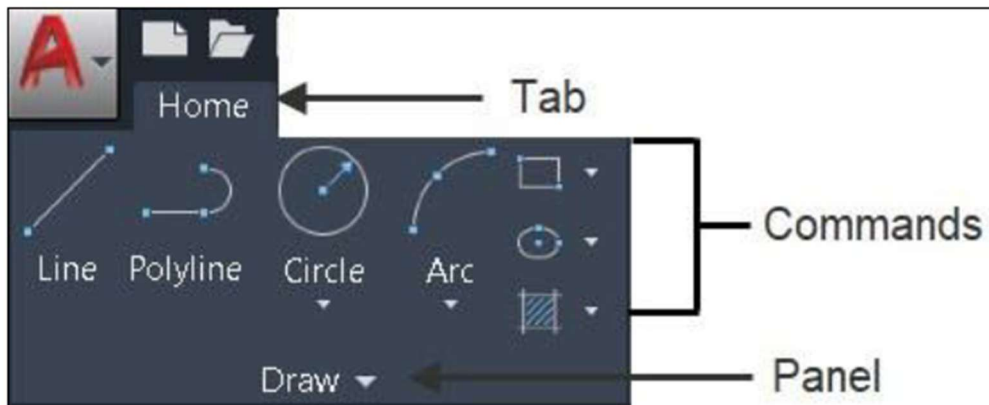
This toolbar contains icons for frequently used commands such as creating a file, opening a file, saving a file, and printing a file. It also includes the **Undo** and **Redo** commands.

It is worth noting that two new commands have been added since **AutoCAD 2019: Save to Web & Mobile** and **Open from Web & Mobile**, which allow the user to save drawing files on the internet and then access them from anywhere—such as from home, the office, or mobile devices.



Ribbon:

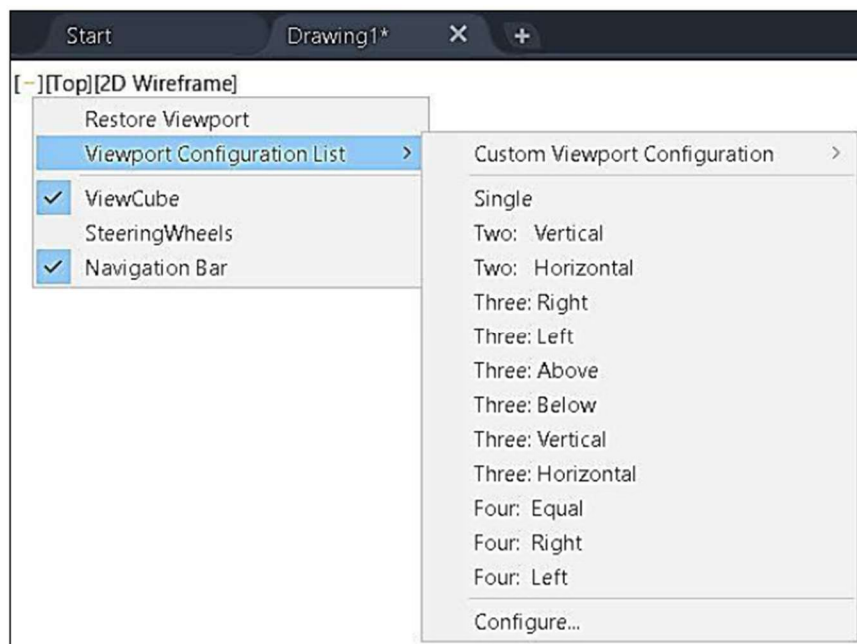
This toolbar is located below the title bar and provides quick access to the program's commands. The Ribbon was first introduced in **AutoCAD 2009** as a replacement for drop-down menus. It is considered the most important part of the program window, as it contains several **tabs** categorized by function. Each tab includes a set of **panels**, which in turn contain a collection of commands represented by different icons.



Viewport

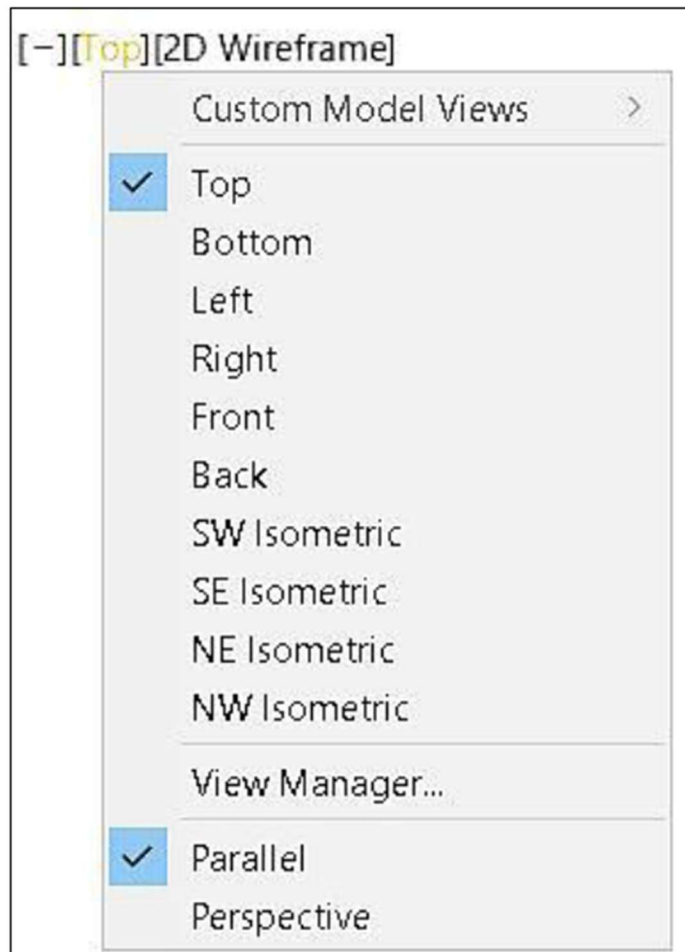
Controls:

This section allows you to control the display modes of the viewport. By clicking on this icon, the **Viewport Configuration List** appears, enabling you to display multiple views of the drawing at the same time.



View Controls:

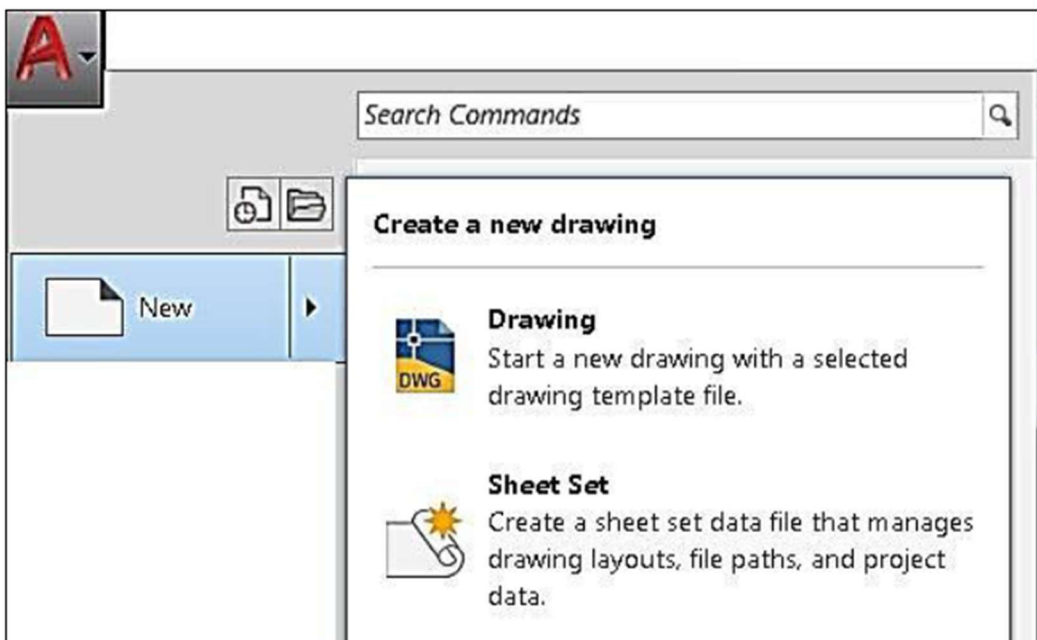
Located in the upper-left corner of the drawing area, this section provides menus for controlling the viewports. It allows you to display the drawing from different perspectives or views. **View** refers to the position from which you observe the drawing

**Dealing with Drawing Files in AutoCAD**

Every software program has a set of commands for opening, closing, and saving files. In this section, these commands will be explained:

Creating a New File

In AutoCAD, the command **New** is used to create a new drawing file. From the **Application Menu**, choose the **New** command to create a new file.

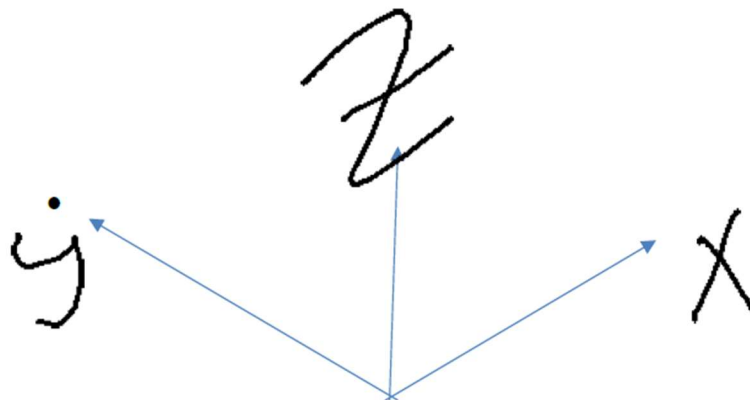


Engineering drawing

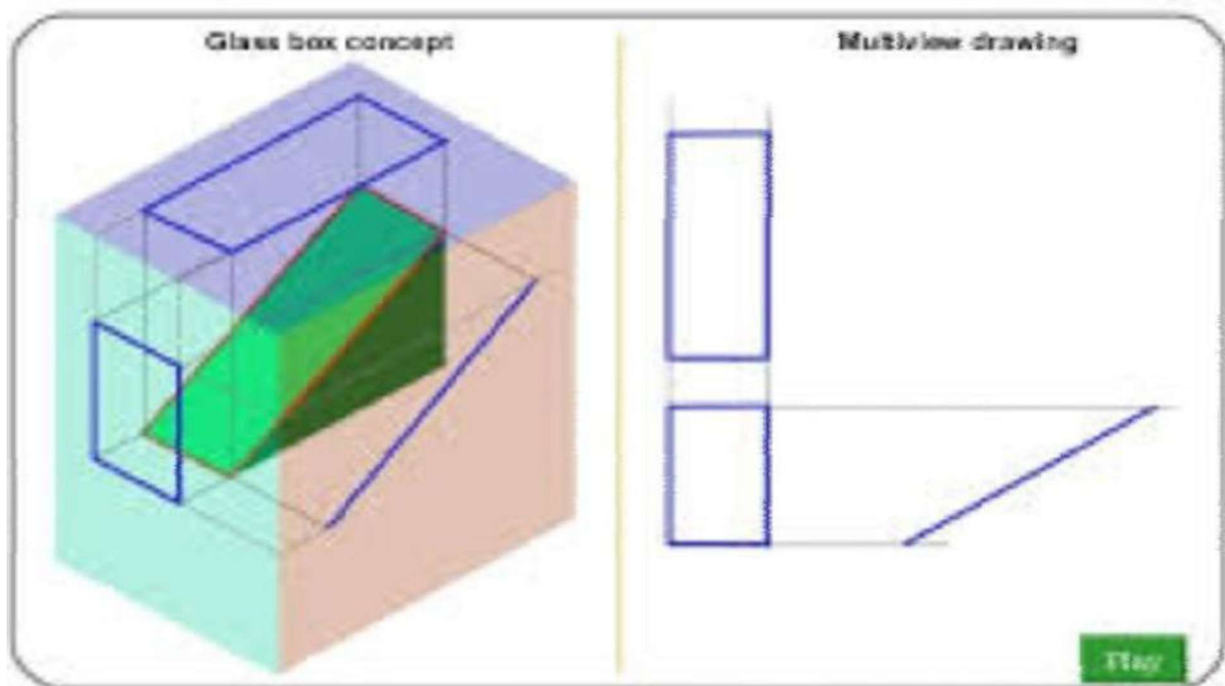
orthographic projection drawing

When Drawing Projections – Notes:

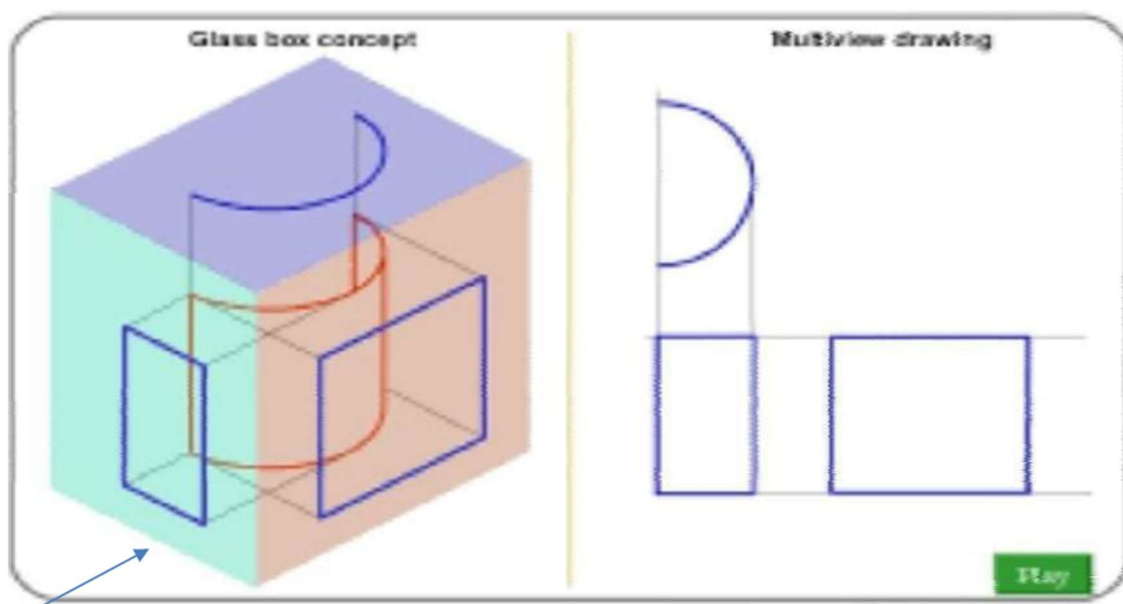
1. When drawing projections, we start by drawing two horizontal lines spaced 2 cm apart and two vertical lines spaced 2 cm apart. Do not write dimensions within these lines.
2. The **front view (front projection)** is the most detailed or the longest view and is usually indicated with an arrow.
3. The **side view** is drawn next to the front view. It can be either the **right side view** or the **left side view**, depending on its position.
4. The **top view** is always drawn above the front view.
5. Draw the outlines of the general shape for each projection, using a light pencil (e.g., pencil 4H).
6. The front view shares the **height (Z-axis)** with the side view.
7. The front view shares the **length** with the top view.
8. The side view shares the **width** with the top view.
9. The dimensions of the top view are **X and Y**.
10. For **inclined planes**, they appear in their true slope in only one projection. Draw this by marking the start and end points of the inclined line and connecting them. In the other two projections, the inclined surface appears as a rectangle with dimensions corresponding to the projection in which it appears, as shown in Figure (1).
11. **Curved surfaces** appear in one projection with their true curve. In the other two projections, they appear as a rectangle with a centerline.

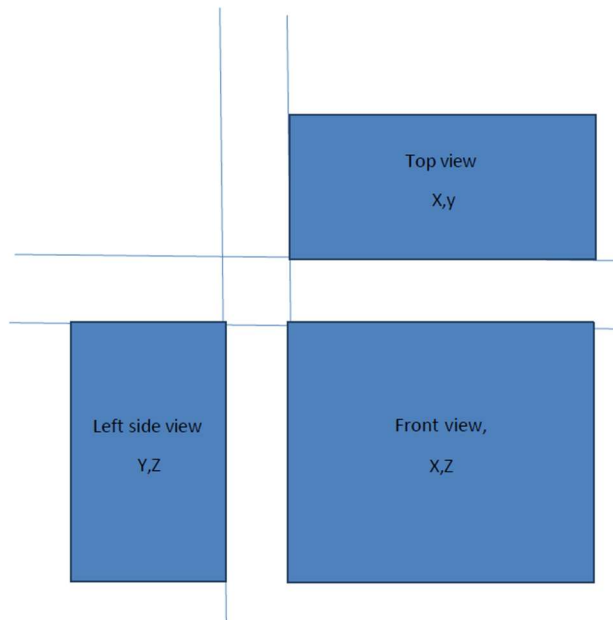


Projection of an **inclined plane**

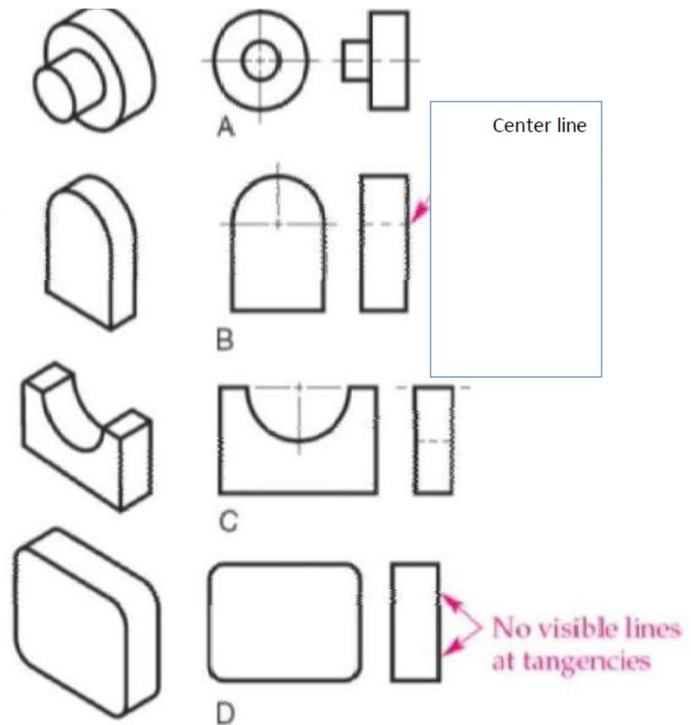


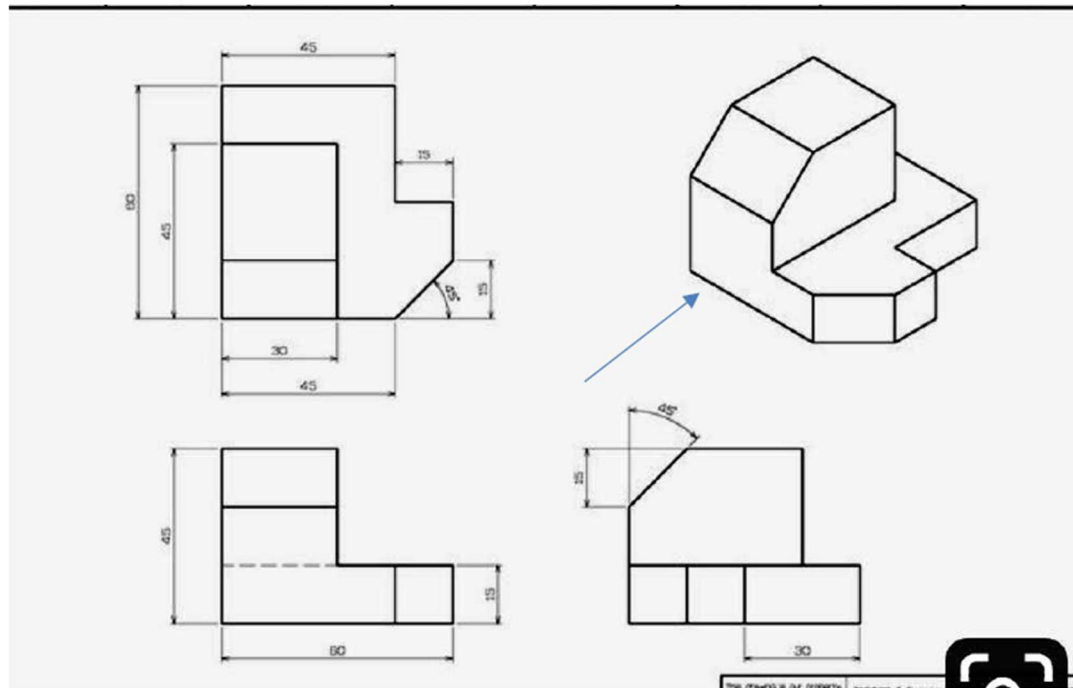
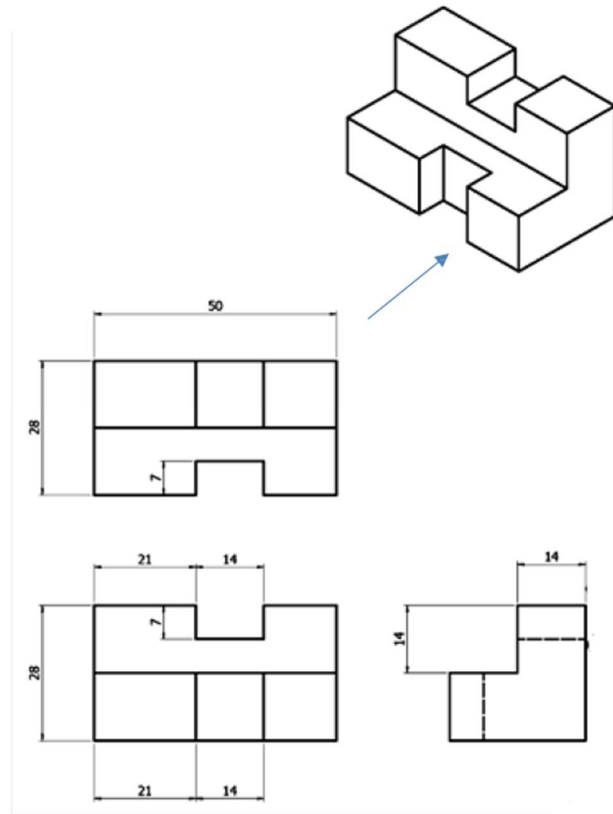
Projection of a **curve surface**

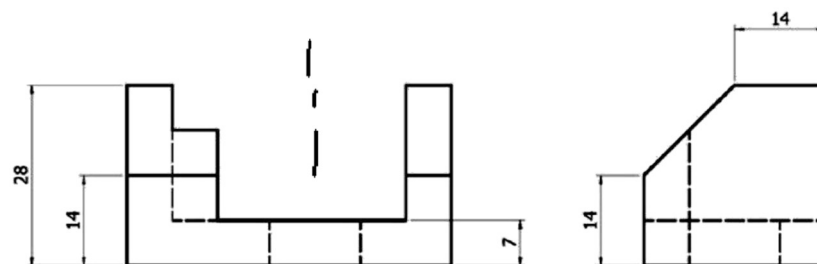
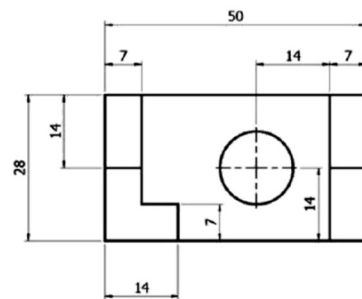
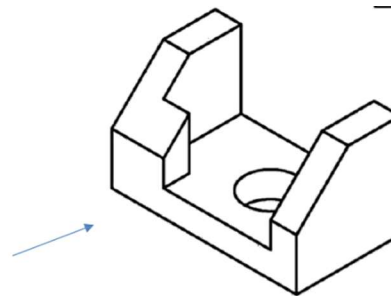
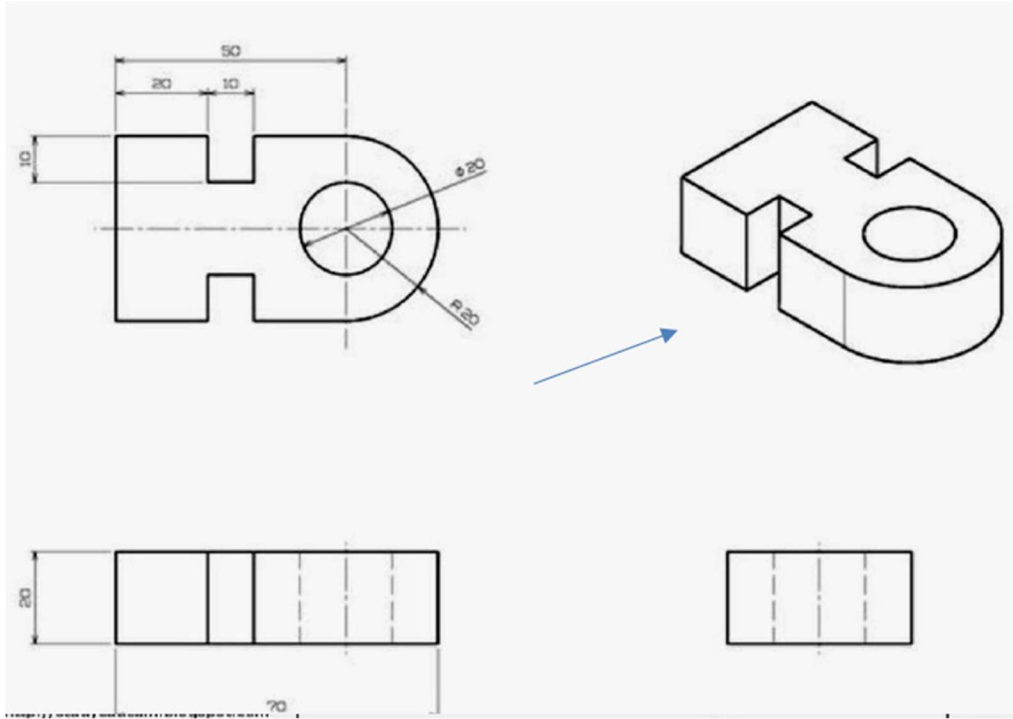


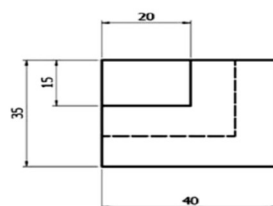
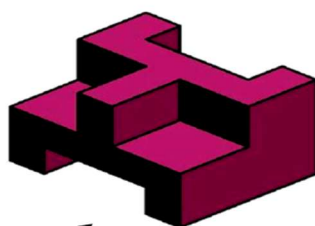
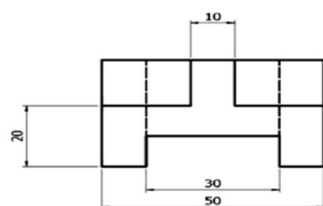
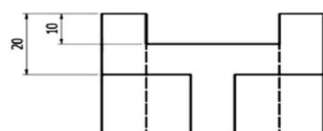
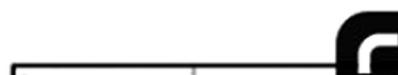
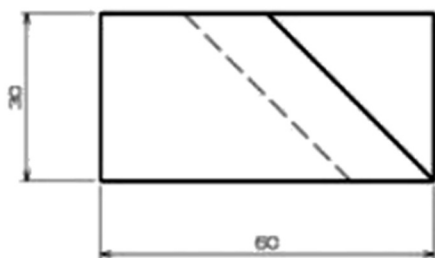
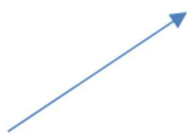
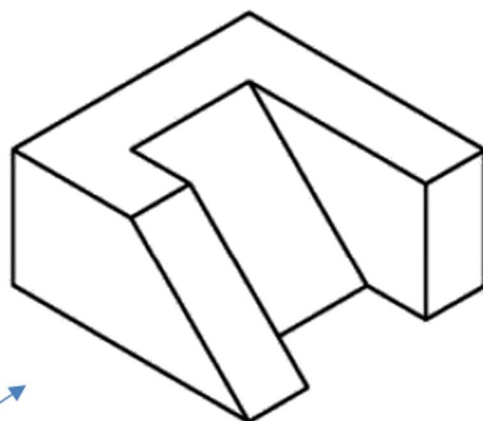
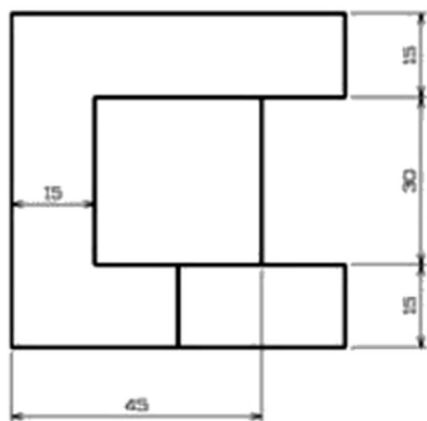


Cylindrical surfaces.
A flat surface is
often tangent to a
curved surface, as
shown in B and D.









Isometric

