

## UNIT 4 – OTHER DRAWING FEATURES

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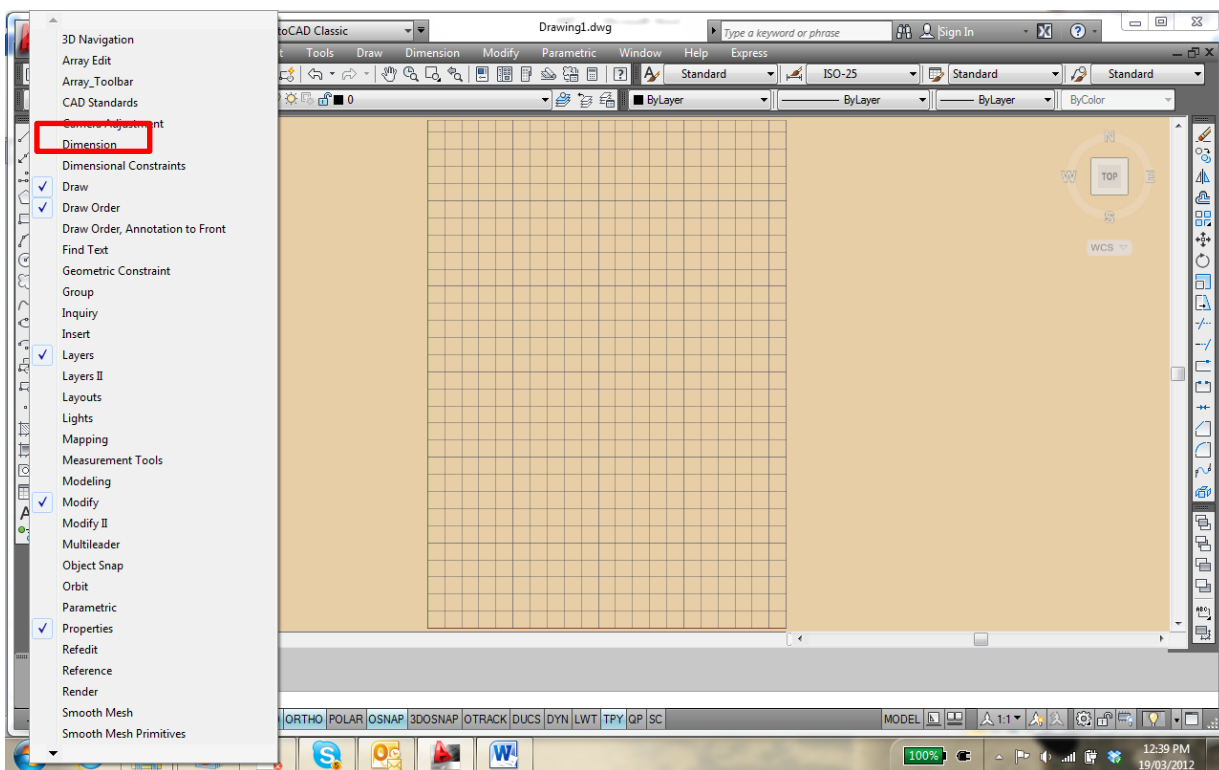
Objectives: At the end of this unit, you will be able to familiarise with:

- ❶ dimensioning
- ❷ layers
- ❸ orthographic projection
- ❹ isometric view

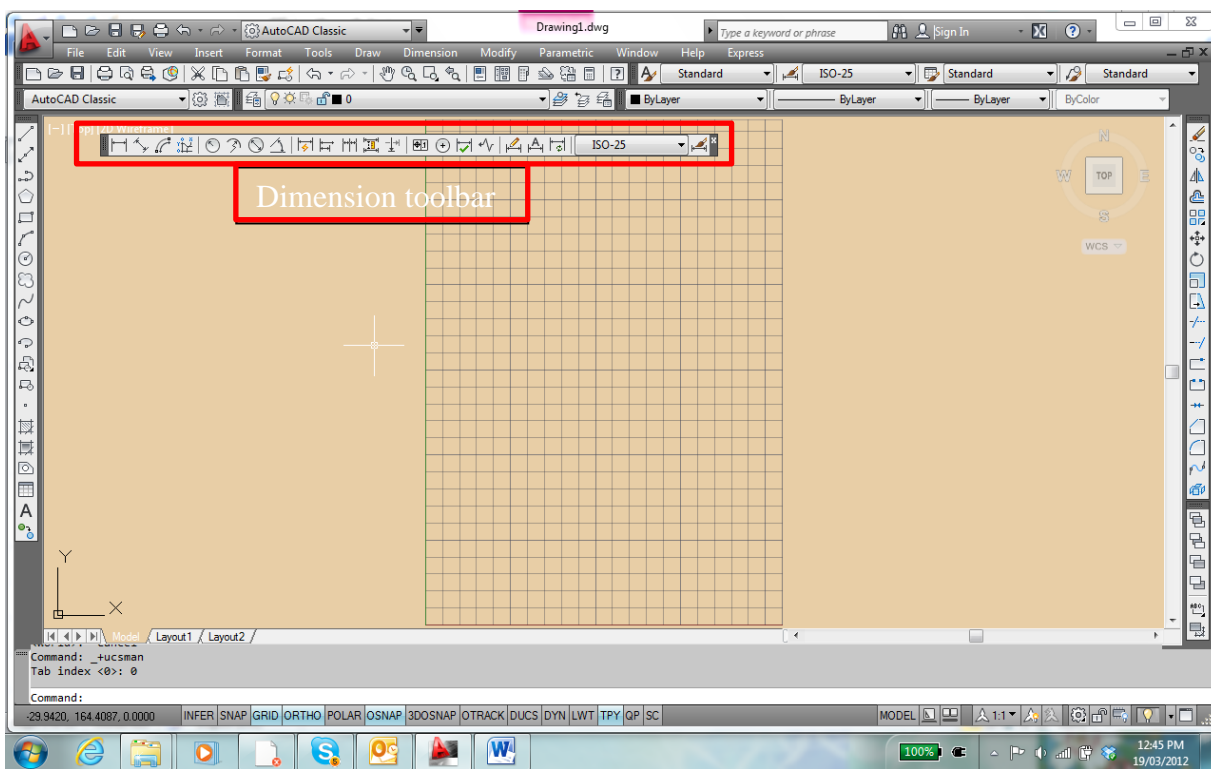
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### (1) Dimensioning

- To obtain dimension toolbar
  - ❶ View → Toolbars → Check the Dimension checkbox.
  - ❷ Right click any toolbar and select Dimension in the resulting menu.
- The Dimension toolbar is shown in **Figure 4-1 & 4.1A**.



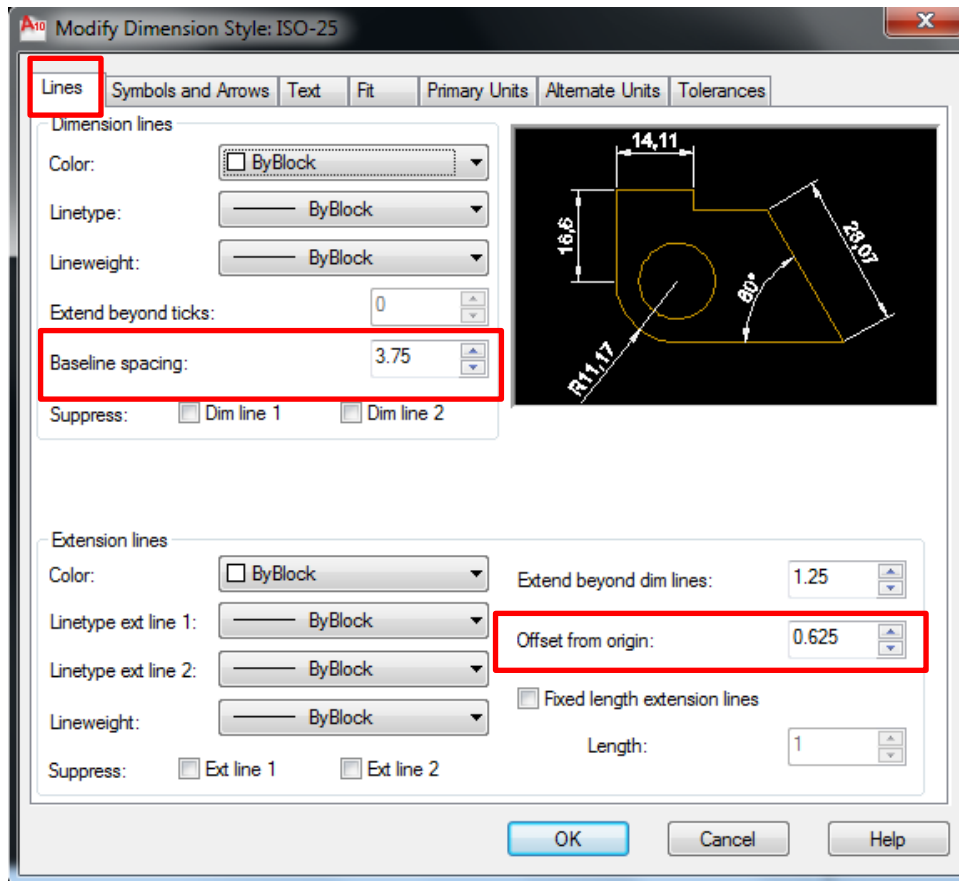
**Figure 4-1:** Right click any existing toolbar & Check the Dimension



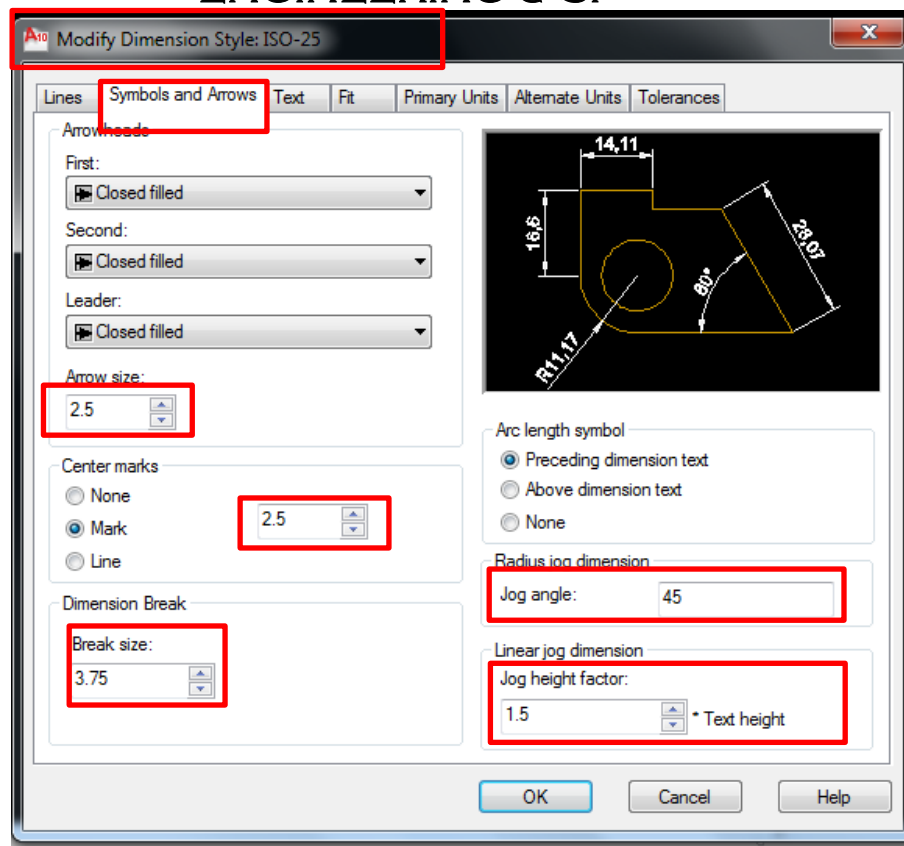
**Figure 4-1A:** Dimension toolbar appears

- Format → Dimension Style → Modify → set dimension style

- Default settings for Lines and Arrows are shown in **Figure 4-2 & 4-2A**.
- **Offset from origin** sets the distance from the point on the object where the extension line starts.
- The extension line will touch the drawing if **offset from origin** equals zero.
- Baseline spacings are boxed as shown in **Figure 4-2**.

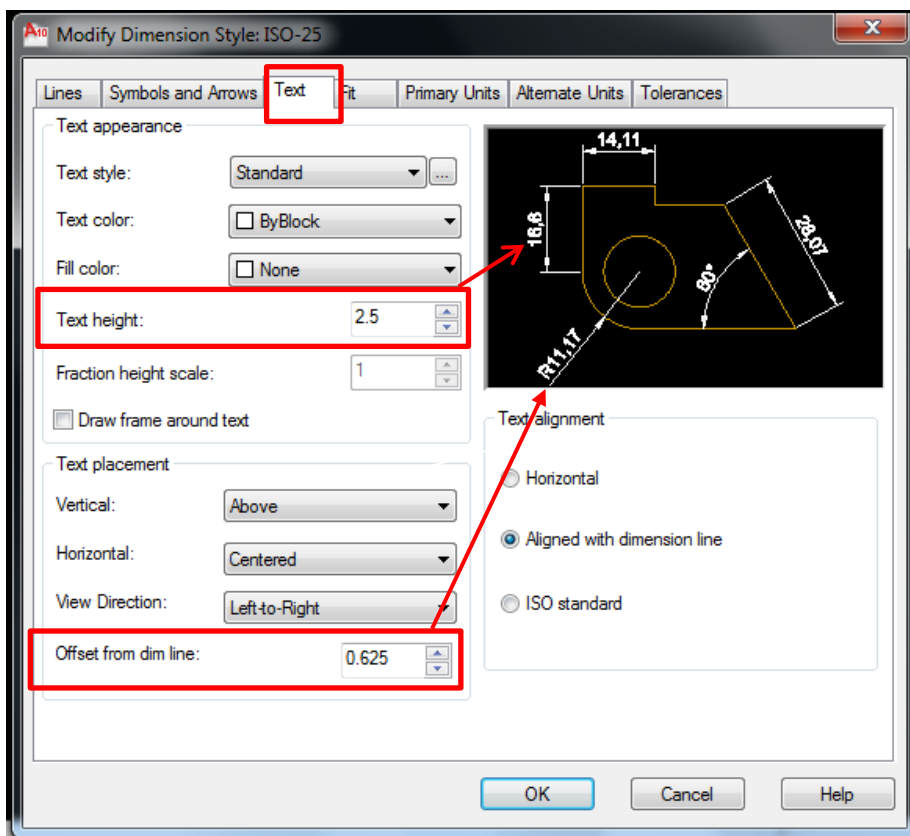


**Figure 4-2:** Default settings for Baselines settings



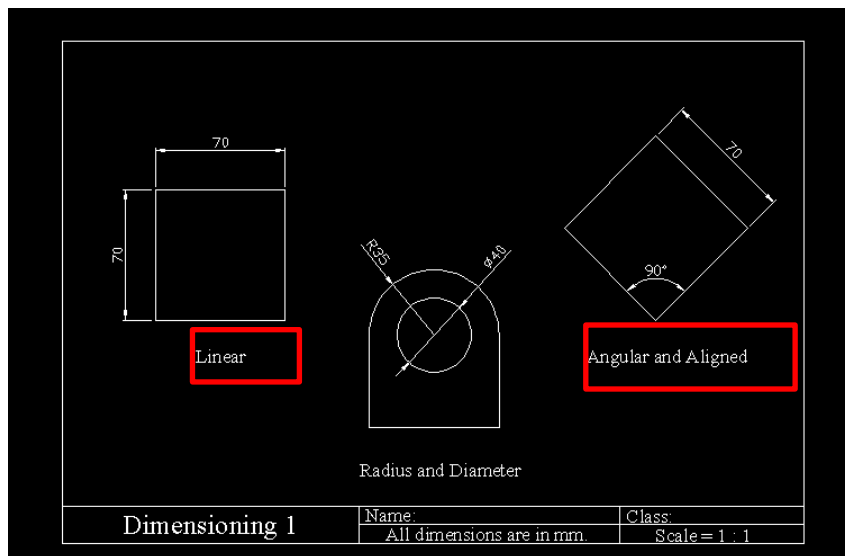
**Figure 4-2A:** Default settings for Symbols & Arrows

- Default settings for text is shown in **Figure 4-3**.
- **Offset from dim line** sets the gap between the text and the dimension lines.
- The text will touch the dimension line if **offset from dim line** equals zero.

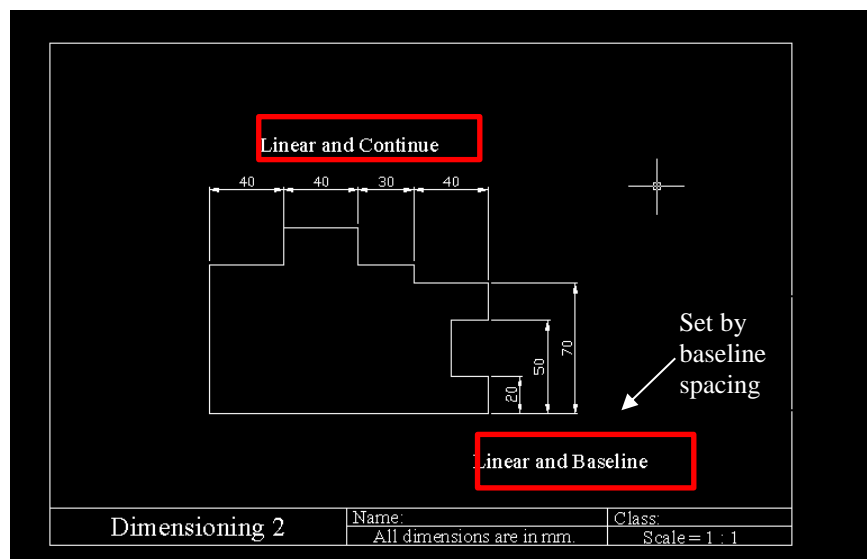


**Figure 4-3:** Default text (for dimensions) settings

- Figures 4-4 and 4-5 show the use of dimensioning.



**Figure 4-4: Dimensioning 1**



**Figure 4-5: Dimensioning 2**

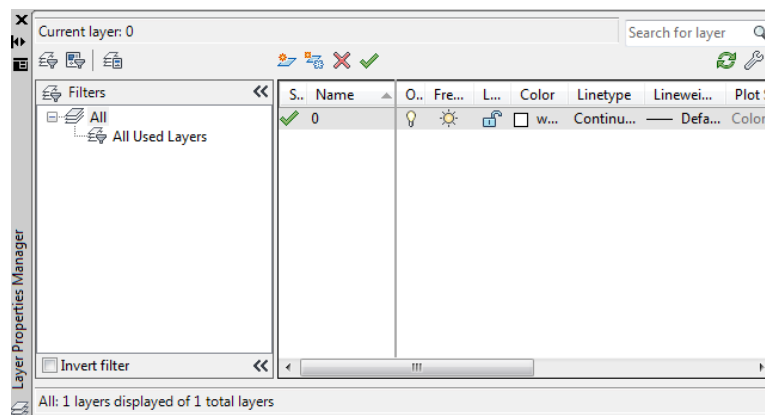
## (2) Layers

- The Layer Properties Manager is located on the Object Properties Toolbar as shown in **Figure 4-6**.



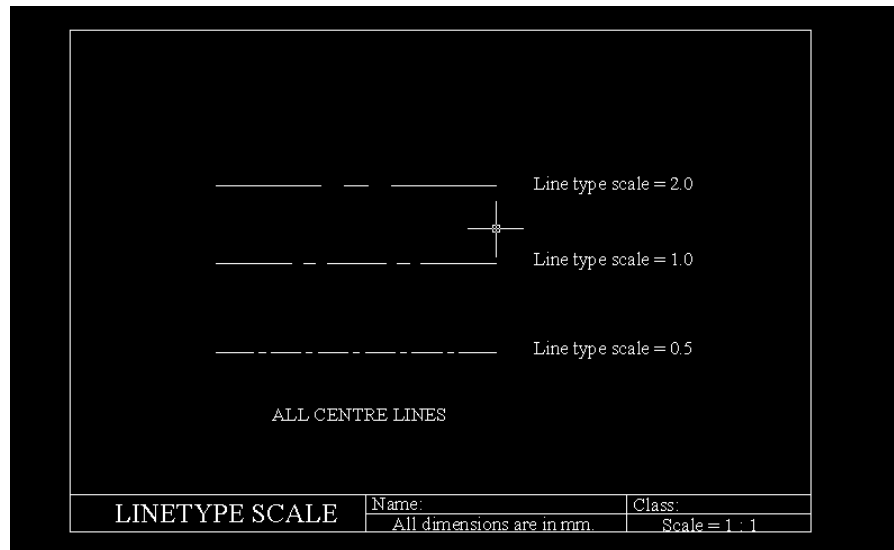
**Figure 4-6:** Layer Properties Manager button

- The Layer Properties Manager dialogue box is shown in **Figure 4-7**.
- First column is the layer name, e.g. text, dimension, etc. Current layer is 'zero'.
- Second column is an icon of lightbulb to turn layer ON or OFF. The layer which is OFF will not be seen. If you plan to switch between visible and invisible states frequently, use this ON/OFF setting.
- The layer cannot be edited when it is frozen. Freeze the layers that you want to be invisible for long periods.
- You cannot edit objects on a locked layer. Locking a layer is useful if you want to view but not edit objects on that layer.
- Choose different color for different layers from the Color dialogue box.



**Figure 4-7:** Layer Properties Manager dialogue box

- **Figure 4-8** shows the use of the linetype scale.

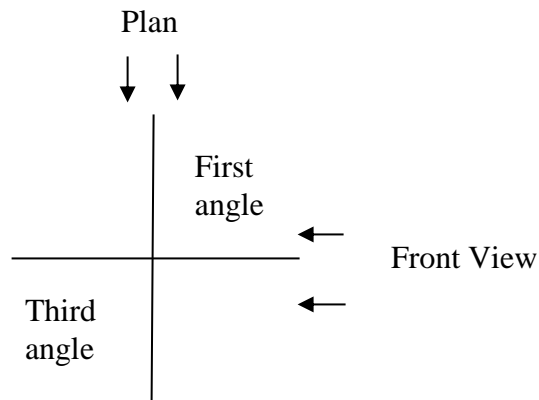


**Figure 4-8:** Use of Linetype Scale



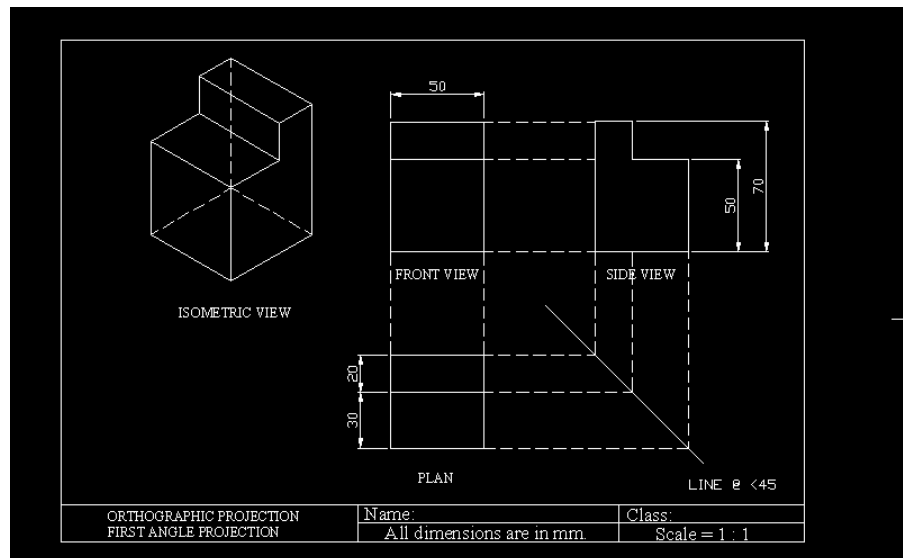
### (3) Orthographic Projection

- It is a method to describe an object from different directions.
- Usually, it has three view, namely **FRONT VIEW**, **PLAN** and **SIDE VIEW**.
- It has **first angle projection** and **third angle projection**. Basically, the PLAN is below the FRONT VIEW in first angle projection, while the PLAN is above the FRONT VIEW in third angle projection. It can be illustrated in **Figure 4-9**.



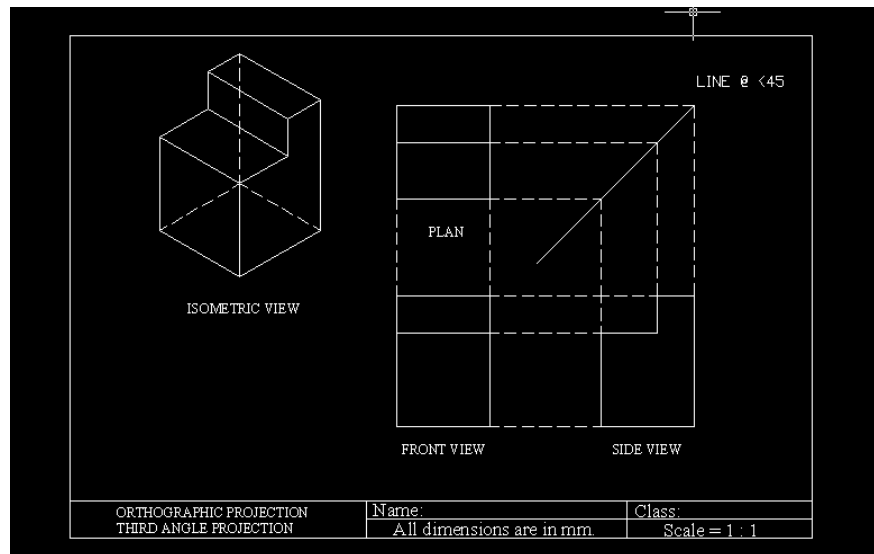
**Figure 4-9:** First angle and third angle projection

- Figure 4-10** shows the first angle projection (orthographic projection) and the isometric view.



**Figure 4-10:** Orthographic projection 1: First Angle Projection

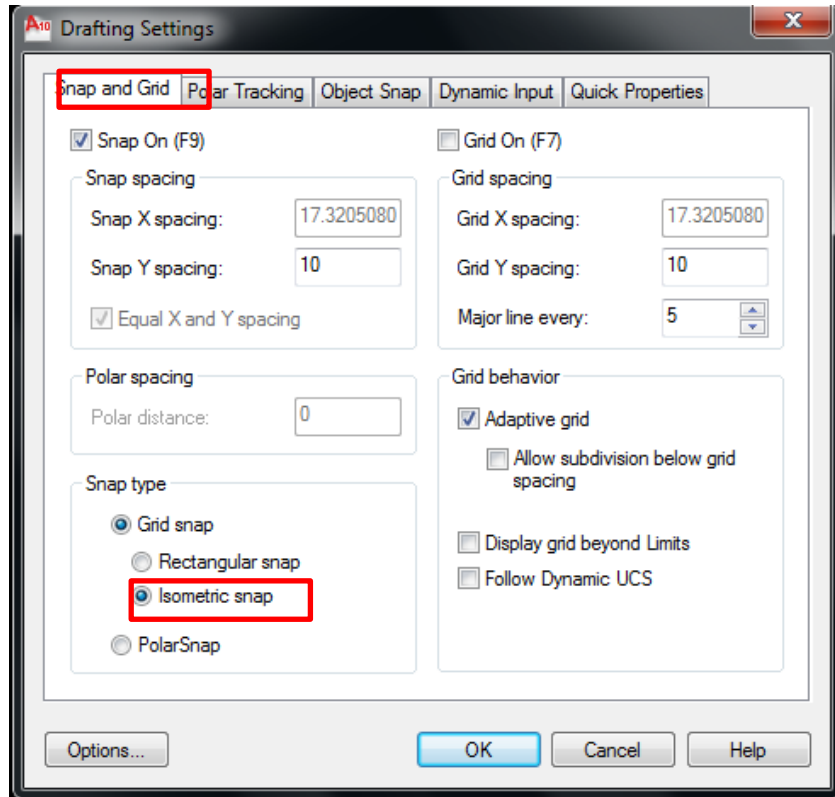
- **Figure 4-11** shows the third angle projection.



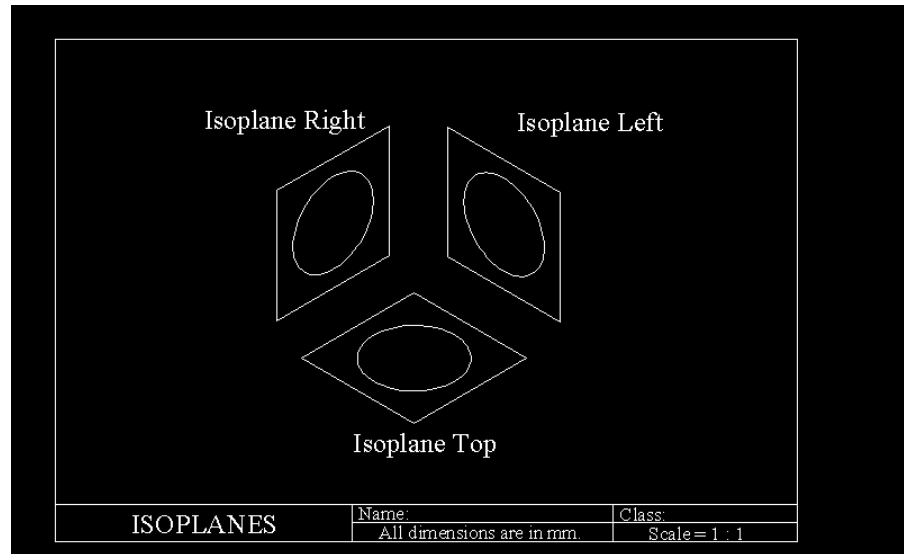
**Figure 4-11:** Orthographic projection 2: Third Angle Projection

**(4) Isometric View**

- This is the simplest way to give a 3D representation when using 2D commands. Note that isometric view is NOT a 3D drawing.
- In order to construct an Isometric View, you have to use **Isometric snap** under Drafting Settings as shown in **Figure 4-12**.
- You are strongly advised **NOT** to use **OFFSET** command when you construct Isometric View.

**Figure 4-12: Isometric snap**

- Ellipse → Choose I (for isocircle) // to construct isocircle as shown in **Figure 4-13**.



**Figure 4-13:** Isoplanes (Isoplane Right, Left & Top can be changed by using function key F5)

----- END OF UNIT 4 -----

