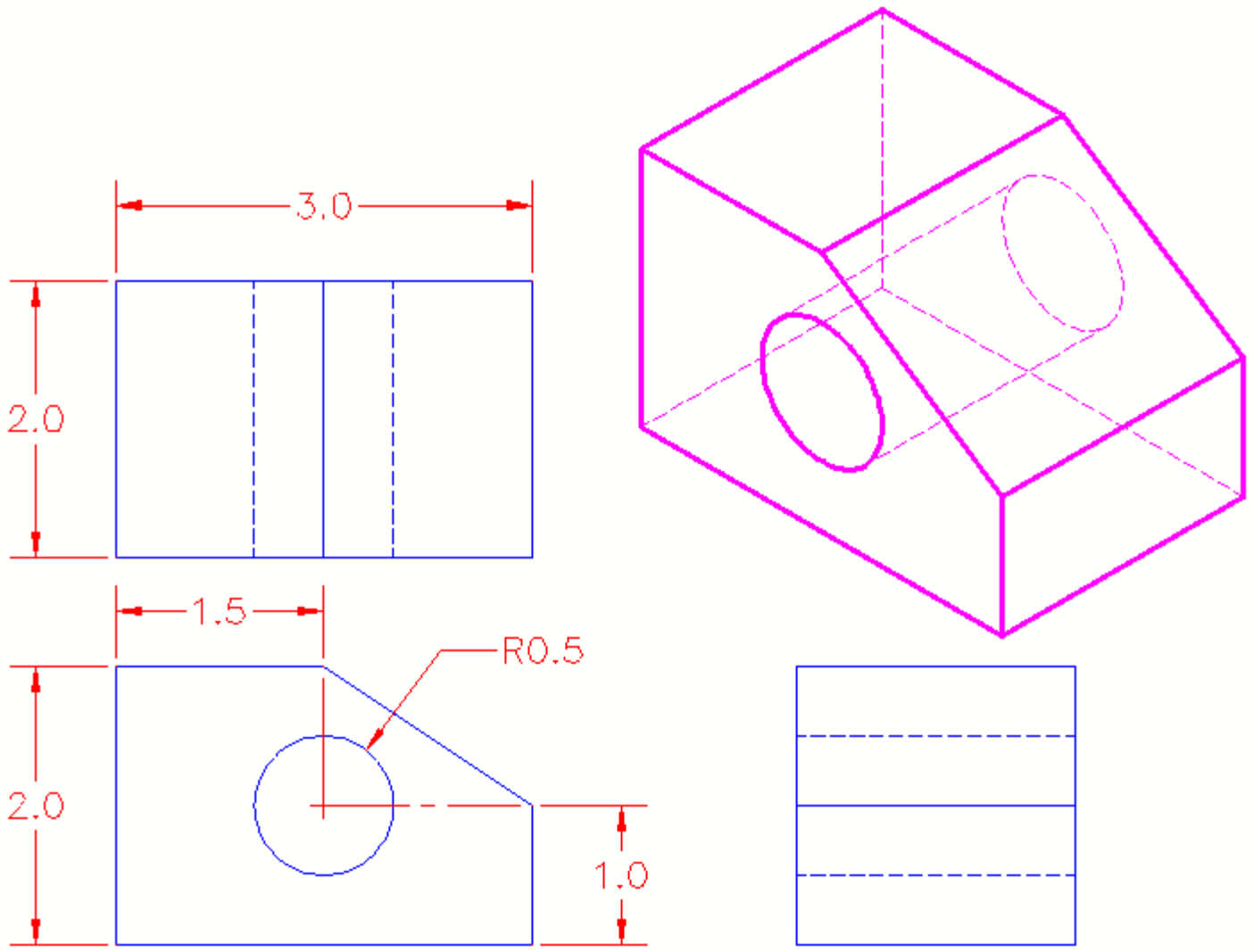


LESSON 3-2 - ISOMETRIC DRAWING

Using Isometric commands is one of the simplest ways to give a 3-D representation while using only 2-D commands. This has been the usual way of doing things before CAD allowed true 3-D work to be done. Many times an isometric drawing is used to compliment or give more information to a **3 view orthographic drawing**. See the sample below.



You can see that it is a very simple drawing. This basic isometric drawing of the object gives a very good idea of what it looks like. If this is all that is needed then isometric works well. Unfortunately, as soon as you change anything, like the block's height, you'll need to redraw all four views.

AutoCAD has a command called **ISOPLANE** which allows you to easily draw at a 30 degree angle as needed for an isometric drawing. You can switch between the three 'isoplanes' (top, right, left) by using this command or by pressing the **F5** key.

Command: ISOPLANE <ENTER>
Current isoplane: Right

Enter isometric plane setting [Left/Top/Right] <Left>: T <ENTER>

Current isoplane: Top

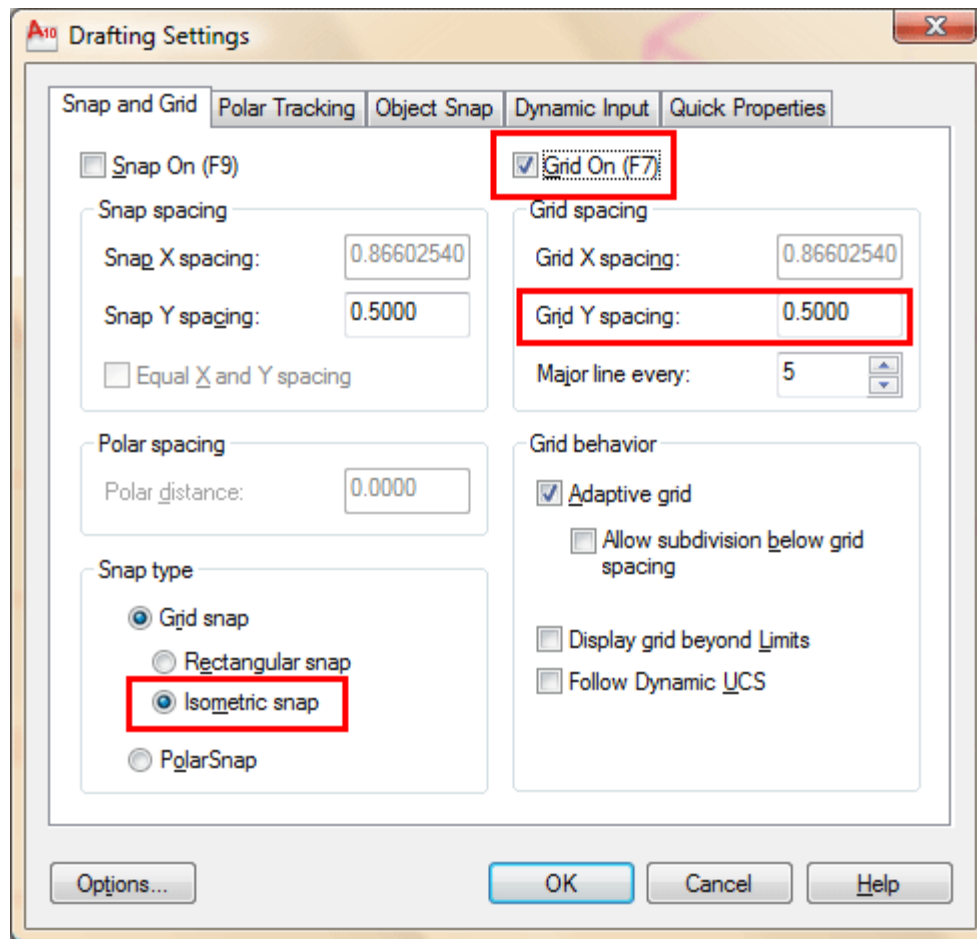
By invoking this command, AutoCAD is now set to draw on the top isoplane. Your other choices would be **Left** or **Right**. Your first exercise will be to draw the object shown above using isometric methods.

Exercise 1 - ISOMETRIC DRAWING

Begin a **new** drawing using the acad.dwt template

Create a **layer** called **OBJECT** and give it a green color. Make this your current layer.

Type in **DDRMODES** to bring up the Drawing Aids dialog box. Make your settings the same as what you see below (just turn on Isometric Snap).



Press **OK** and you'll see that the grid is set up for isometric drawing for the left isoplane in 1/2" increments. Your crosshairs are now angled to show you which isoplane you are currently on and the Grid is laid out differently from what you may be used to..

Begin by drawing the left side of the box (shown at the top of the lesson) using the **line** command. Ignore the hole at this point. You will want to use the **Direct Distance Entry System** for this exercise and make sure that you have Ortho (**F8**) and Osnaps (**F3**) turned

on.

Switch to your right isoplane (**F5**) and draw the right side.

Switch to your top isoplane (**F5**) and draw the top view.

Create the angle lines to add the angled surface.

Switch back to the left isoplane and start the **ELLISPE** command. At the command prompt, press **I** for isocircle. This will allow you to create an ellipse at the correct angle based on the radius of the circle in the orthographic drawing. Use the Osnap to pick the correct center point.

Save your drawing in your CAD folder.

To dimension an isometric drawing, you have to do a few things first. Create a text style called Left, and give it a 30° obliquing angle, then create another called right with a -30° obliquing angle. Then create a new dimension style that has the text aligned with the dimension line. After you have placed a dimension, use the **DIMEDIT** command to change the obliquing angle of the dimension + or - 30 degrees. You may also need to use the properties to change the text in the dimension to left or right depending upon the orientation of the dimension.

Keep in mind that this is still only 2D. Remember that in some instances, it may be quicker and easier to use this method rather than the more complex 3-D methods you'll be learning in the following lessons.



[View the video about Isometric Drawing.](#)

Extra Practice: Copy [this drawing](#) using isometric drawing methods.

Extra Practice: Copy [this drawing](#) using isometric drawing methods. If you want to add the hidden lines, jump ahead to **Lesson 4-3** to learn about linetypes.

Even More Practice: Try to reproduce [these drawings](#). (Also keep this link in mind when are looking for practice in 3D techniques.)