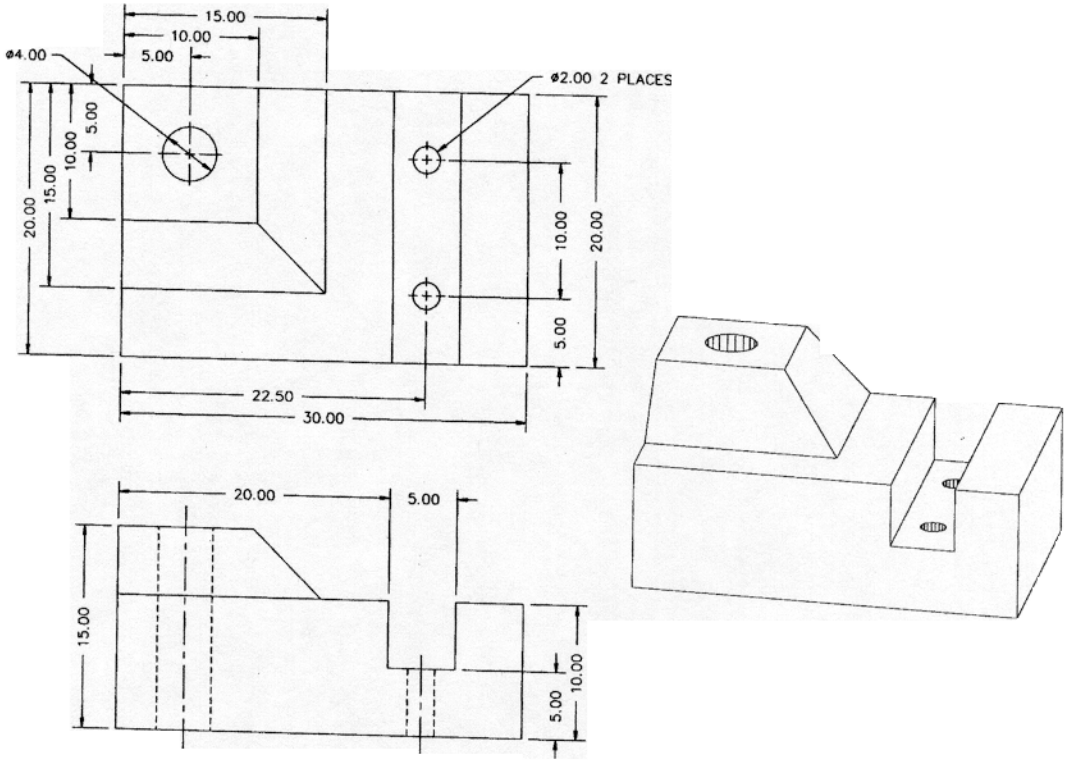
Wedge.Dwg



Purpose:

This tutorial is designed to construct a true 3-D wire-frame model of the wedge illustrated above.

System settings

Begin a new drawing called "Wedge". Use the Units command to change the number of decimal places past 0 from 4 to 0. Keep the remaining default unit values. Using the Limits command, keep 0,0 for the lower left corner and change the upper right corner from 12,9 to 60, 45.

Layers

Create the following layers with the format:
Name-Color-Linetype

Wire-frame-Yellow-Continuous

Suggested commands:

The Line command is used exclusively for this drawing of the Wedge. A combination of absolute and polar coordinates is used for precision of placement entities. The holes of the wedge will represented by entities. The wedge may be surfaced using 3Dface command.

Dimensioning

This object does not require dimensioning.

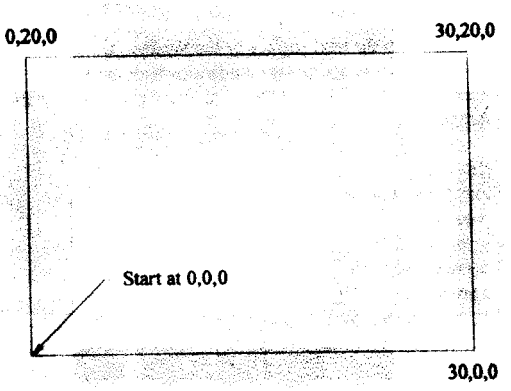
Plotting

This tutorial exercise may be plotted on "B" size paper (11"x17"). Be sure to set the units to measure from inches to millimeters. Plot the objet to a scale value of 1=1.

Step # 1

Begin the drawing by drawing the base of the wedge. Use the line command and absolute coordinates to perform this operation.

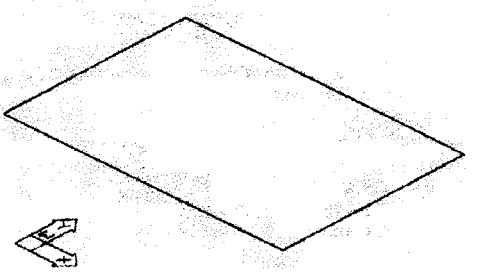
Command: **Line**
From point: **0,0,0**
To point: **30,0,0**
To point: **30,20,0**
To point: **0,20,0**
To point: **C**



Instead of typing the value for the last coordinate, enter the letter "**C**" which stands for "Close". This will close the box and exit the line command.

Step #2

Use the Vpoint command and the Rotate option to view the box in 3D. As you construct the next lines, they will show up in 3D.



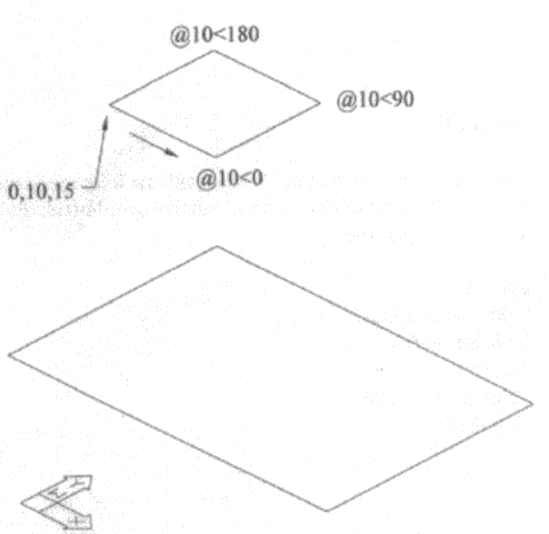
Command: **Vpoint**
Rotate/<View point><0,0,1>: **R**

Enter the angle in X-Y plane form X axis<270>: **-45**
Enter the angle in X-Y plane <90>: **30**

Command: **Zoom**
All/Center/Dynamic/Extents/Left/Previous/Vmax/Window/<Scale(X/XP)>: **0.6x**

Step # 3

Begin the upper surface of the wedge. Again, use the Line command with an absolute coordinate value to begin the line, followed by polar coordinates.

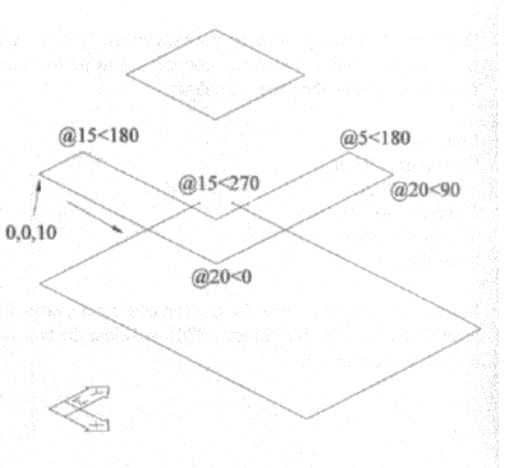


Command: **Line**
From point: **0,10,15**
To point: **@10<0**
To point: **@10<90**
To point: **@10<180**
To point: **C**

Perform Zoom-All to display the entire model.

Step # 4

Begin work in the next surface of the wedge. Use a combination of absolute and polar coordinates with the line command to construct the geometry at the right.

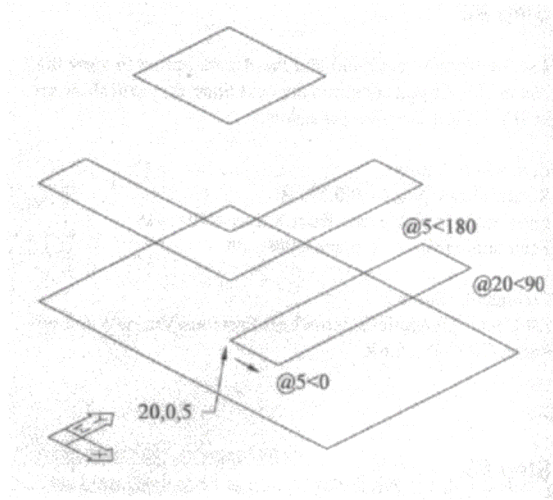


Command: **Line**
From point: **0,0,10**
To point: **@20<0**
To point: **@20<90**
To point: **@5<180**
To point: **@15<270**
To point: **@15<180**
To point: **C**

Step # 5

Construct the next surface of the wedge using the following prompts of the Line command:

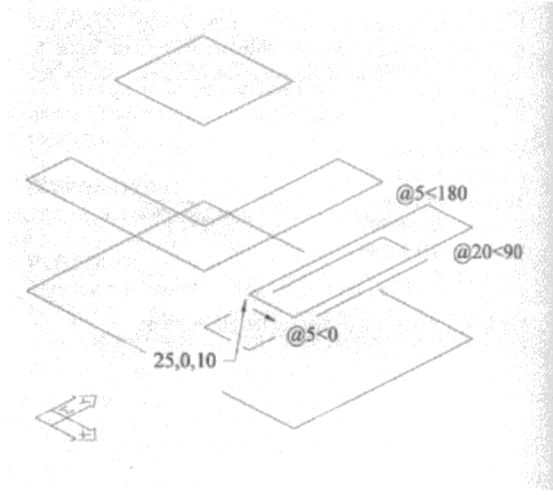
Command: **Line**
From point: **20,0,5**
To point: **@5<0**
To point: **@20<90**
To point: **@5<180**
To point: **C**



Step # 6

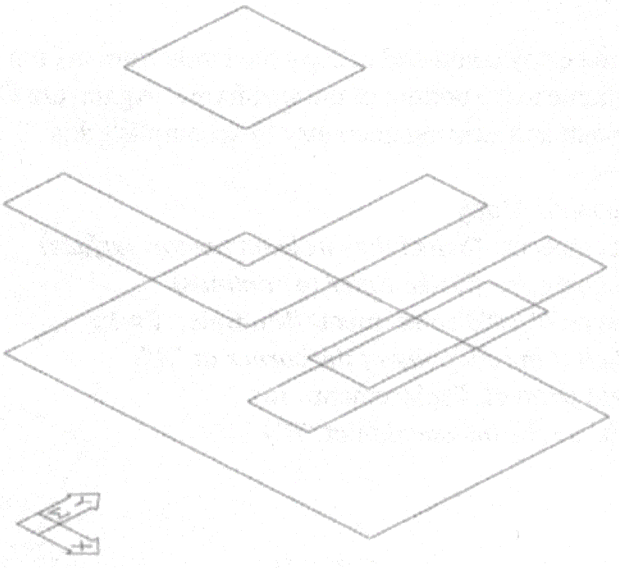
Construct the last level of the wedge with the Line command and a combination of absolute and relative.

Command: **Line**
From point: **25,0,10**
To point: **@5<0**
To point: **@20<90**
To point: **@5<180**
To point: **C**



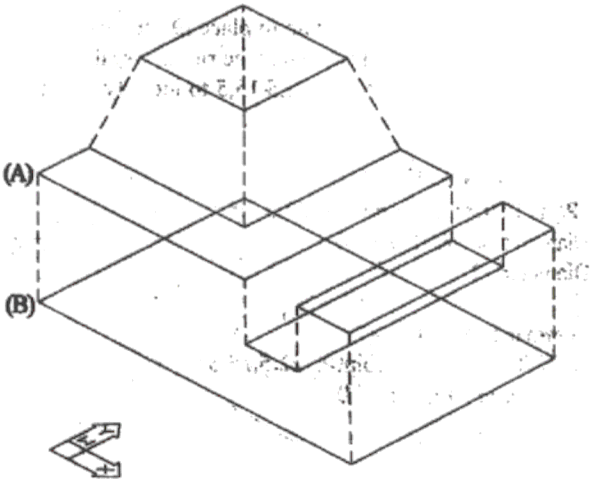
Step #7

The wire-frame should appear similar to the illustration at the right. The next series of steps consist of all levels with lines and adding circles to complete the wire-frame.



Step #8

Use the Line commnad to connect the all levels to complete the outline of the Wedge. Be sure to use Osnap-Endpoint option at all times.



Command: **Osnap**
Object snap modes: **Endp**

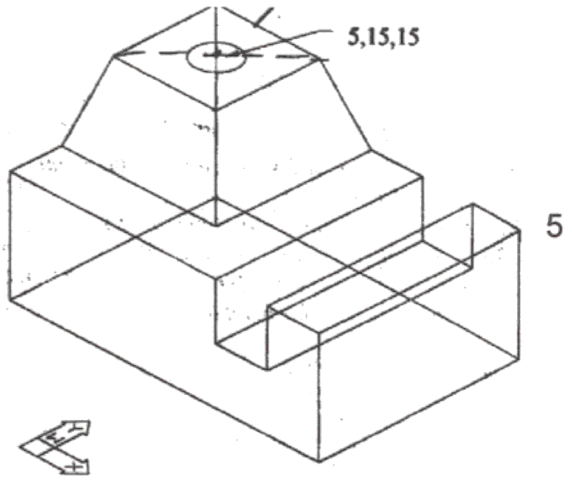
Command: **Line**
From point: *(select the endpoint of the line at "A")*
To point: *(select the endpoint of the line at "B")*
To point: *(Strike Enter to exit this command")*

Repeat the above procedure to connect the remaining edges of the wire-frame model. When completed, set the Osnap command to None.

Command: **Osnap**
Object snap modes: **None**

Step #9

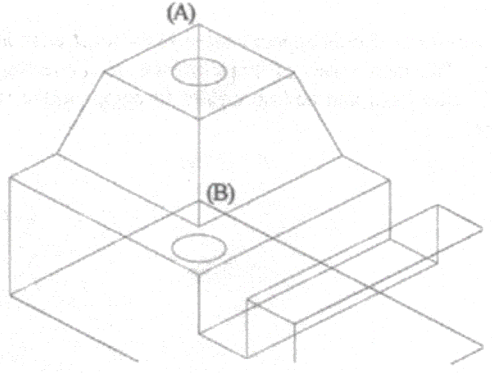
Begin representing the holes in the Wedge by constructing circles at the beginning of the hole and the end of the hole. Use the Circle command and enter the absolute coordinate 5,15,15 for the center of the circle. (This will place the center of the circle units in X direction, 15 units in Y direction and 15 units in Z direction). Enter **D** for the diameter of the circlefollowed by the number 4.00.



Command: **Circle**
3P/2P/TTR/<Center point>: **5,15,15**
Diameter or <Radius>: **D**
Diameter: **4**

Step #10

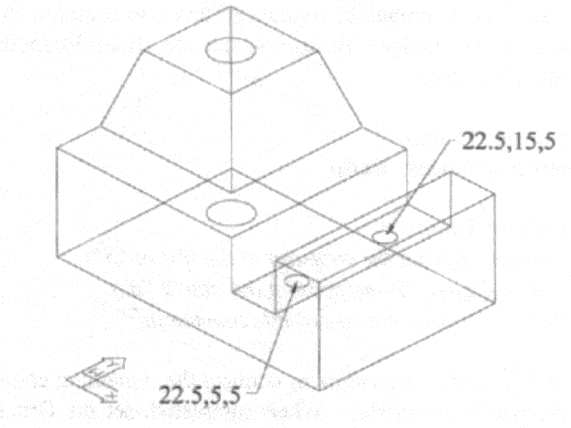
Use the Copy command to copy the circle from the top of the wire-frame to the bottom of the wire-frame. Again, use Osnap-Endpoint and the existing geometry to accomplish this.



Command: **Copy**
Select objects: *(select the circle on the top surface)*
Select objects: *(Strike Enter to continue)*
<Base point or displacement>/Multiple: **Endp**
of (*Select the endpoint of the corner at "A"*)
Second point of displacement: **Int**
Of (*Select the intersection at "B"*)

Step # 11

Use the Circle command again to place the circles of diameters 2.00 in the slot as illustrated at right. Use the absolute coordinates of 22.5,5,5 and 22.5,15,5 to identify the centers of the circles.

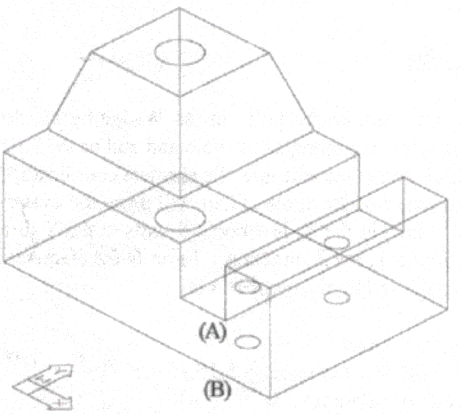


Command: **Circle**
3P/2P/TTR/<Center point>: **22.5,5,5**
Diameter or <Radius>: **D**
Diameter: **2**

Command: **Circle**
3P/2P/TTR/<Center point>: **22.5,15,5**
Diameter or <Radius>: **D**
Diameter: **2**

Step #12

Us the Copy command again to copy the two holes from the top of the slot to the bottom of the base of the Wedge. A hint to performing this on existing geometry is to use the Osnap-Perpendicular options.



Command: **Copy**
Select objects: *(select the two small circles at the right)*
Select objects: *(Strike Enter to continue)*
<Base point or displacement>/Multiple: **Endp**
of (*Select the endpoint of "A"*)
Second point of displacement: **Per**
To (*Select the perpendicular point to "A" and "B"*)

Step 13:

Vports: 4 views

Top,	Front,	Right
3D		