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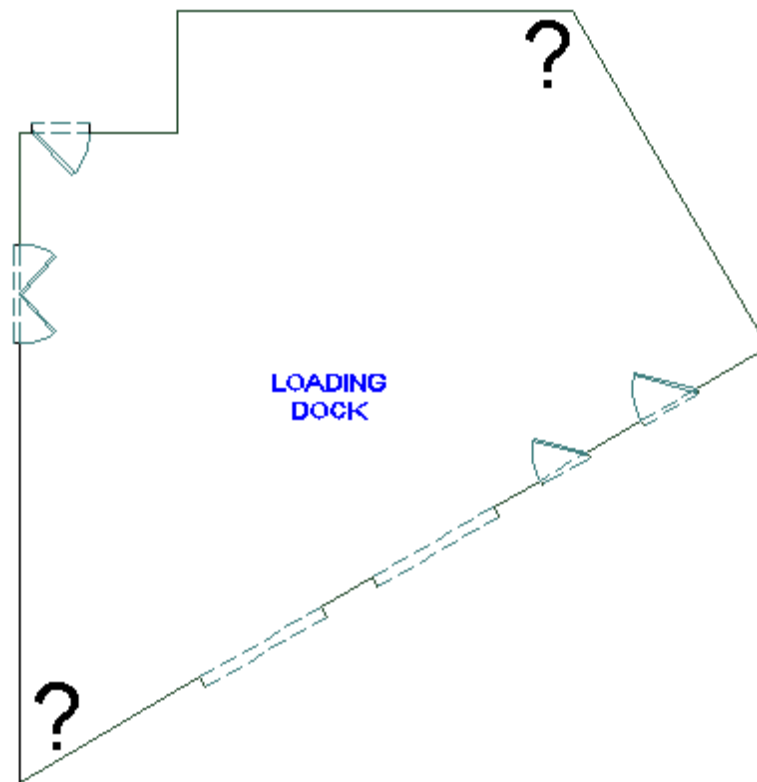
**Topics covered in this Lesson:**

Working with real world examples.

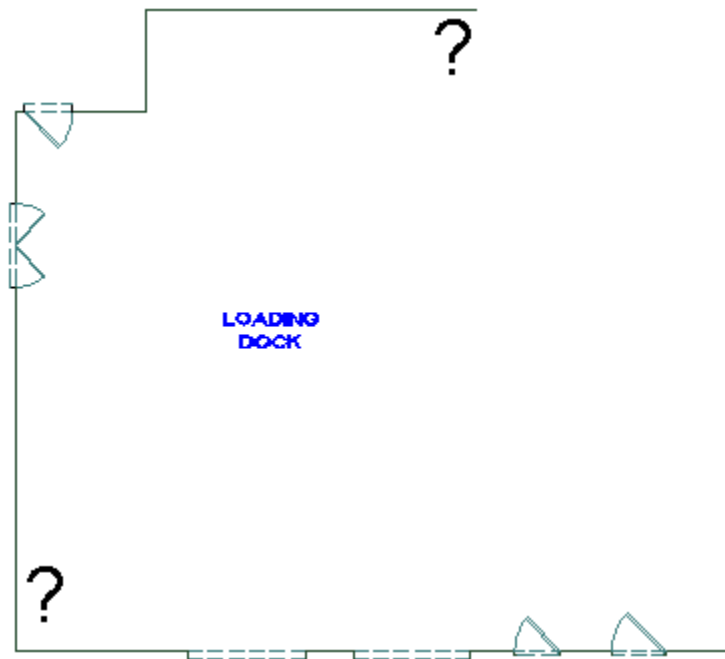
This tutorial will give you some drawing practice using real world examples. You will be asked to draw the sample drawing using some techniques you haven't been shown yet. This lesson requires you to have Adobe's [Acrobat reader](#) for PDF files. Here I'm using an example of someone who has to measure and draw a room.

**Example 1 - Loading Dock**

When you are doing a survey and measuring rooms, it goes quickly as long as you have nice rectangle walls that the contractors built square, and you don't have to deal with angles or other problems. This example will deal with drawing a room that has angles. Below is the room you will be drawing, notice that some of the walls are at an angle, and you don't know those angles.



Here is the [drawing](#) with all the dimensions on it (print it out if you can). Imagine that you have just sketched out all the measurements and you need to draw it now. How do you start? The best way to start is to draw what you can - in this case, you can draw the horizontal and vertical lines easily. Next draw the lines for the angles lines, but draw them horizontal and vertical as well (as shown below):



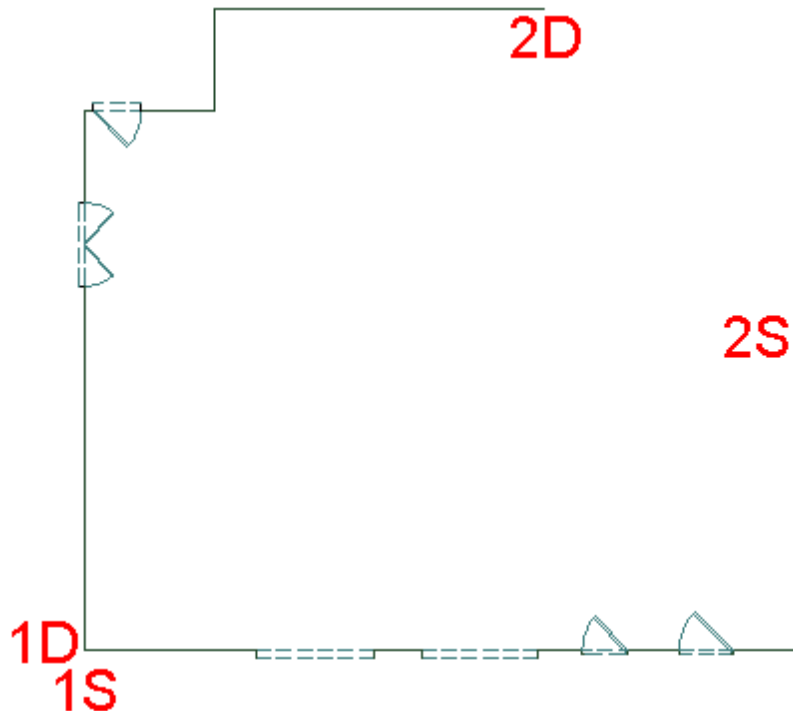
Now you should have all the lines drawn, and the door blocks inserted or drawn in. Make sure that everything is on the right layer.

Finally you will adjust the 'soon to be angled lines' using the Align command.

Command	Keystroke	Icon	Menu	Result
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Align	<b>ALIGN</b>	None	Modify > 3D Operations > Align	Aligns (and scales) selected objects to specific points.
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This command requires that you follow the command line prompts carefully. Start the command and use the input shown below. You are selecting source points (where it starts) and destination points (where it will end up). Choose the endpoints nearest the text.



**Command:** ALIGN

Select objects: <SELECT BOTTOM AND RIGHT SIDE LINES> Specify  
opposite corner: 28 found

Select objects: <ENTER>  
Specify first source point: <1S>  
Specify first destination point: <1D>  
Specify second source point: <2S>  
Specify second destination point: <2D>  
Specify third source point or <continue>: <ENTER>

Scale objects based on alignment points? [Yes/No] <N>: N

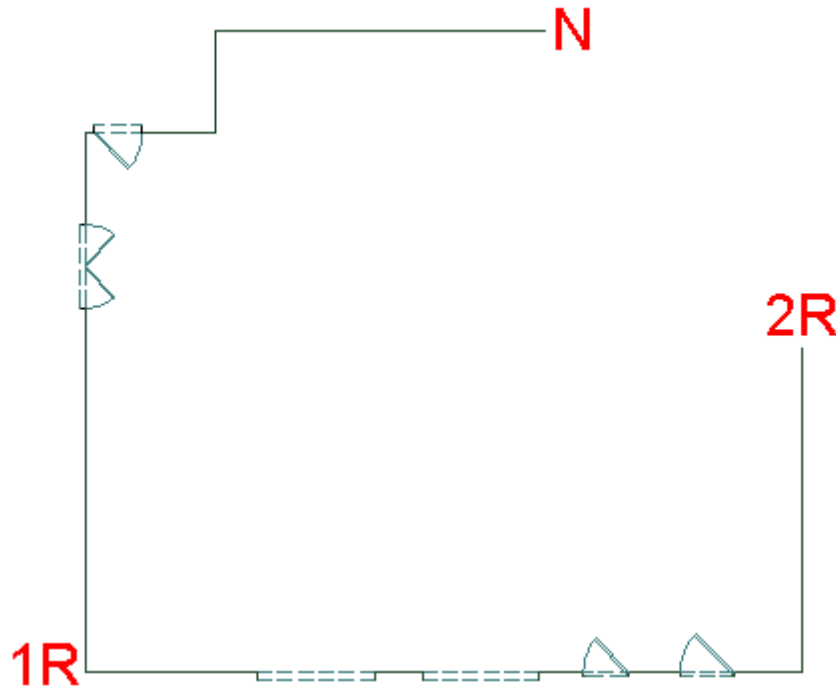
If everything went correctly, your lines should have aligned properly. If it didn't, make sure you had your OSnaps on and selected the points in the right order. Of course in the real world, your lines won't usually line up 'exactly'. When that happens, you'll need to re-check your measurements, and correct the lines. Just so you know, the 3rd source point is used in 3D drawing. Also, if you have drawn your lines to specific lengths, you don't want to scale them.

But what if you have AutoCAD LT? It doesn't have the align command. You're screwed, right? Not really - you can use the Rotate command.

Undo the align command so that your lines are back to horizontal and vertical.

Here's how you can use the rotate command to rotate objects at an angle you don't know. Once again,

follow the command line prompts carefully. What you need to do is tell AutoCAD what the existing angle is (Reference angle) and what the new angle is.



**Command:** ROTATE  
 Current positive angle in UCS: ANGDIR=counterclockwise  
 ANGBASE=0.0000

Select objects: <SELECT OBJECTS> Specify opposite corner: 28 found

Select objects: <ENTER>  
 Specify base point: <1R>  
 Specify rotation angle or [Copy/Reference] <329.8507>: R

Specify the reference angle <0.0000>: <2R> Specify second point:  
 <2R>  
 Specify the new angle or [Points] <0.0000>: <N>

Both commands work well and quickly. Which one you use depend on the situation. If your lines are connected like they were in this example, the Rotate command works fine. If they aren't then the align command works easier. Personally, I use the Align command each time for consistency.



[View the video about the Align and Rotate>Reference commands.](#)

**Extra Practice:** Open this [drawing](#) and then draw this [drawing](#) inside the first. Align or rotate the new objects to line up with the existing walls of the original drawing. Use the correct layers.



[View the video for the Extra Practice.](#)

**Review:** The real world isn't all straight lines and right angles. Knowing how to draw lines at strange and weird angles can be a challenge. Accuracy is always the priority, but quickness is a close second. Remembering all the commands you have learned (even if you don't use them all the time) is essential to being a good CAD drafter.



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