Page Setup for Plotting to Scale: Model Versus Paper Space—Which Way Is Best for You?

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About the speaker

Kendall Casey

Kendall Casey is a Master Instructor and Director of the Career Education Division at Arkansas State University-Beebe. He has been educating students in CAD since 2004, with graduates scattered across the nation. His education includes a Master of Science in Geographic Information Systems, Bachelor of Science in Mechanical Engineering Technology, and Associate of Applied Science in Computer-Aided Drafting and Design. He began using AutoCAD in 1991 with release 11. After spending roughly ten years using AutoCAD and Mechanical Desktop in product design for a commercial refrigerator manufacture a chance to impart his nerdy CAD skills became a reality. Kendall is very passionate about AutoCAD and loves to help others grow their knowledge.

Class summary

This course will demonstrate 3 different methods of plotting your drawings to scale. The “old school” method, the “worst way,” and the “best way.”

Regardless of the means you decide to use, ALWAYS design your projects at full scale.

Key learning objectives

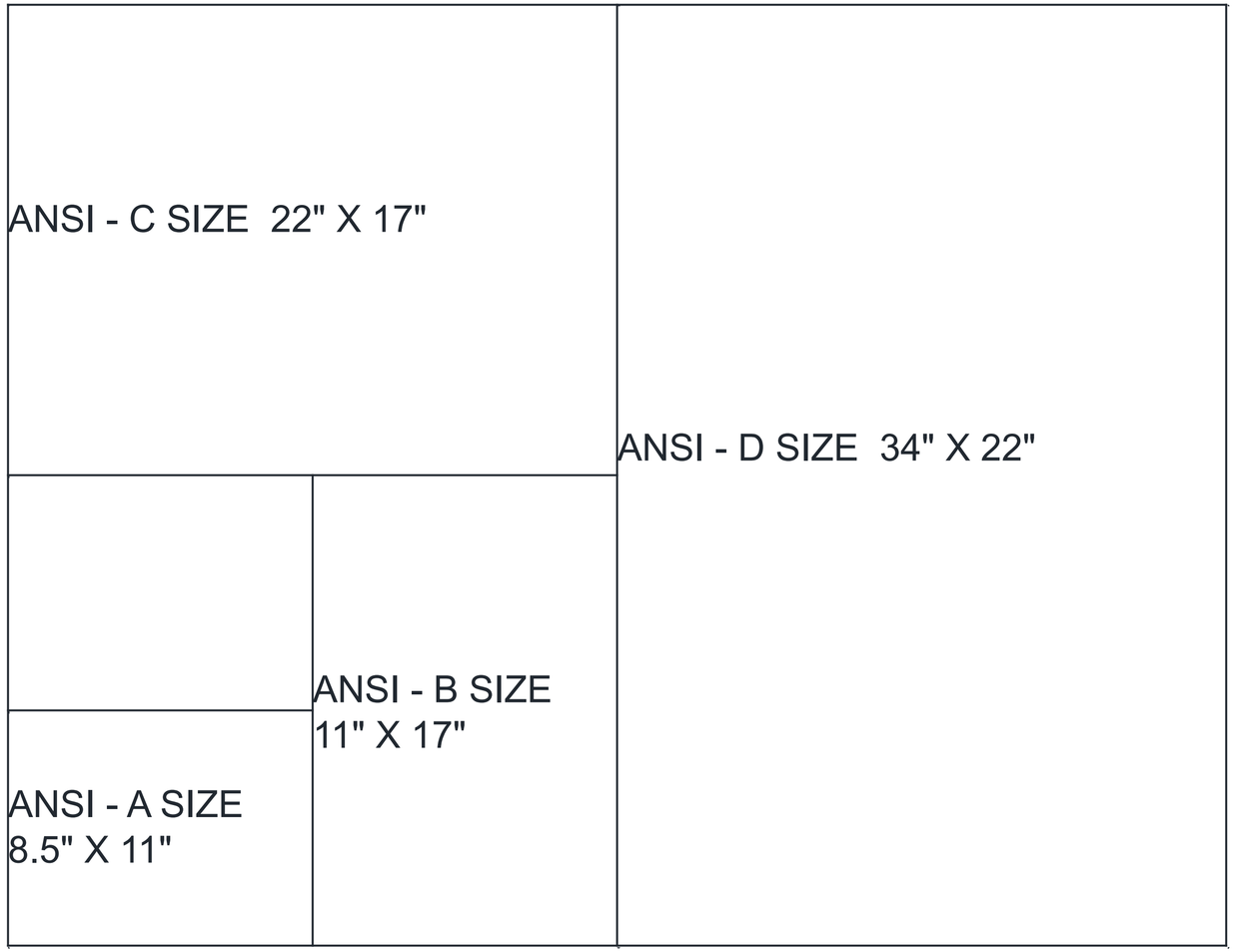
AT THE END OF THIS CLASS, YOU WILL BE ABLE TO:

- Discover 3 different methods of plotting drawings to scale
- Understand the necessary settings and workflow to plot to scale from both Model and Paper Space
- Compare and contrast the pros and cons of plotting from Model Space versus Paper Space
- Determine which plotting method is best for you

Knowledge you need regardless of method

Knowledge you need regardless of method

You need to know your paper sheet sizes!

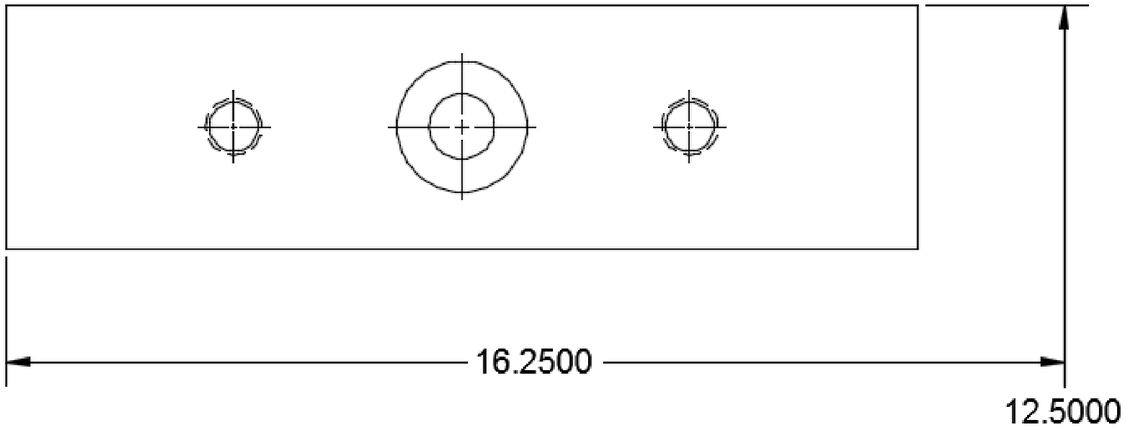


Knowledge you need regardless of method

You have to know your project size!

Account for Dimensions and Notes

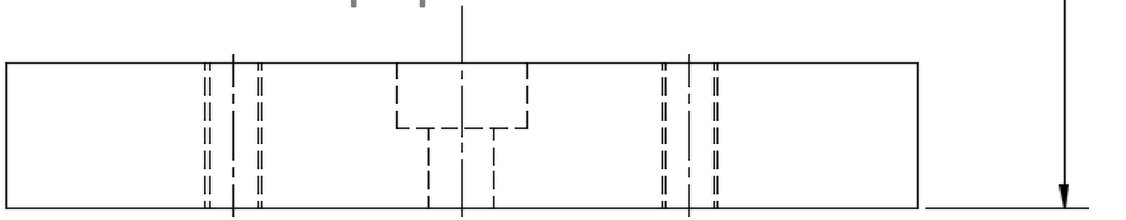
1. Determine Paper Size
2. Calculate the scale Do the MATH



In this case I want to use ANSI A (landscape).

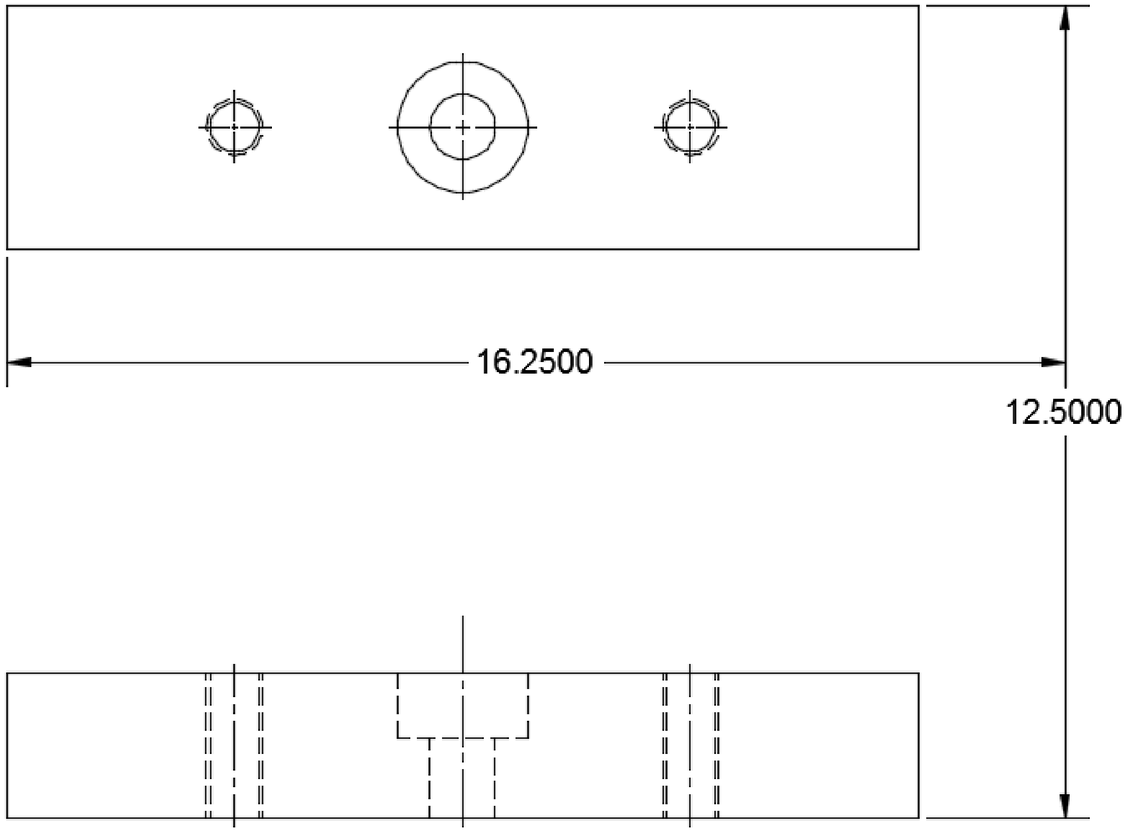
We need to squeeze 16.25 inches into about 9 inches of paper.

16.25/9 = 1.80 so a scale of 1:2 will fit.



Knowledge you need regardless of method

Determine your drawing scale.



Consider the Scale in both X and Y directions. So in the Y direction:

We need to squeeze 12.5 inches into about 6.5 inches of paper. 12.5/6.5 = 1.92 so a scale of 1:2 will fit.

Knowledge you need regardless of method

A few Common Drawing Scales

Mechanical Drawings

Description	Effect	Scale Factor	Paper Units	Project Units
1:2	Reduce	2	1	2
1:4	Reduce	4	1	4
1:8	Reduce	8	1	5
2:1	Enlarge	0.5	2	1
4:1	Enlarge	0.25	4	1

Knowledge you need regardless of method

A few Common Drawing Scales

Architectural Drawings

Description	Effect	Scale Factor	Paper Units	Project Units
1/4" = 1'	Reduce	48	0.25	12
1/2" = 1'	Reduce	24	0.5	12
1" = 1'	Reduce	12	1	12

Knowledge you need regardless of method

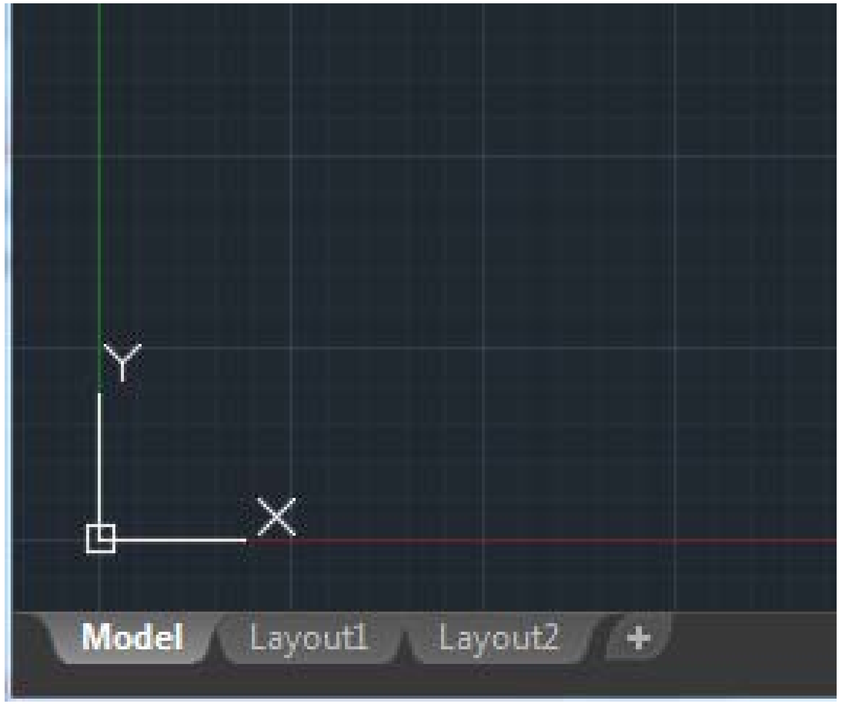
A few Common Drawing Scales

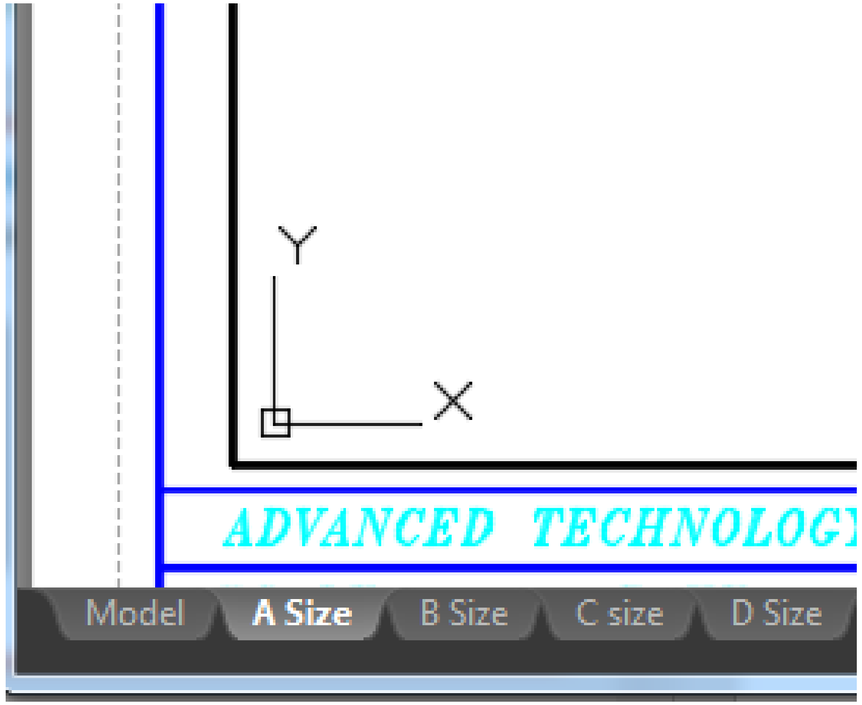
Civil Drawings

Description	Effect	Scale Factor	Paper Units	Project Units
1" = 10'	Reduce	120	1	120
1" = 50'	Reduce	600	1	600
1" = 100'	Reduce	1200	1	1200

Knowledge you need regardless of method

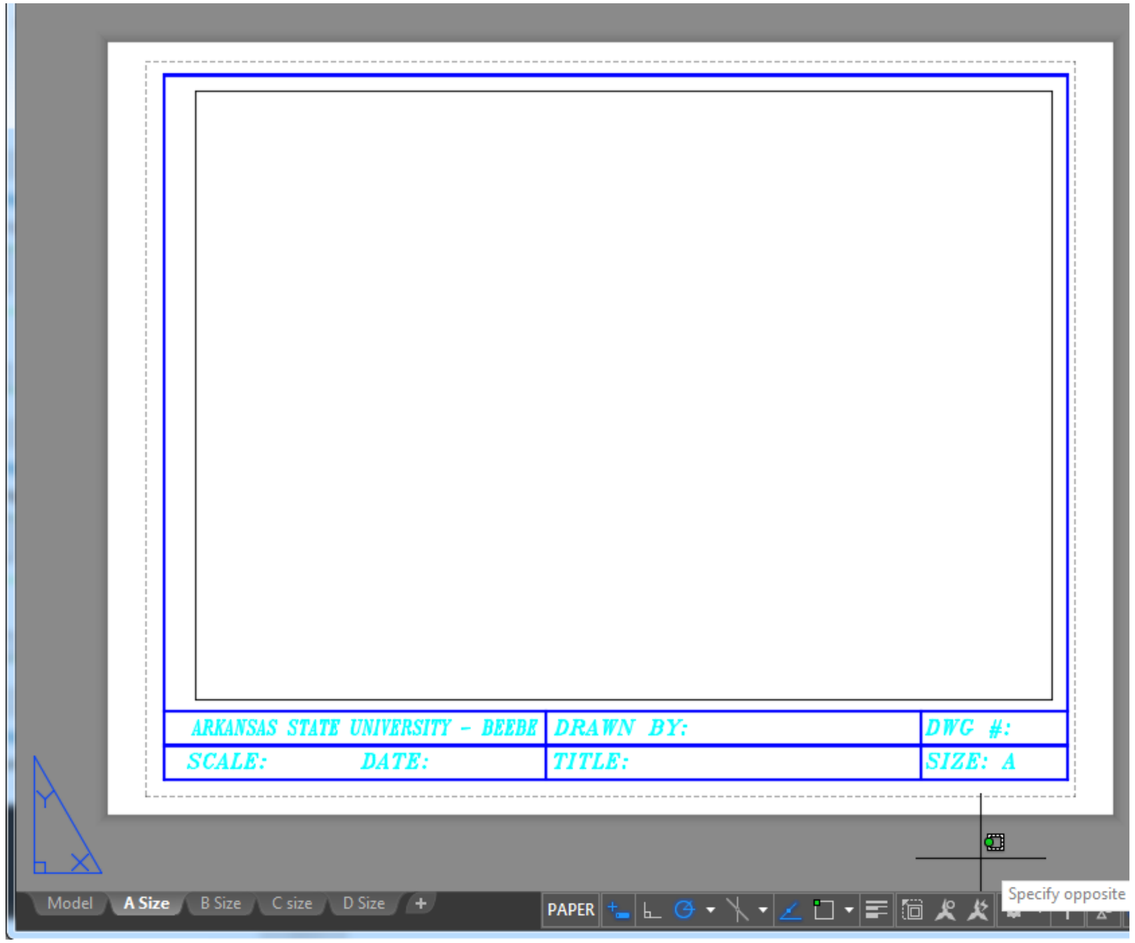
What is Model Space and how do I know whether or not I’m in it?





Knowledge you need regardless of method

What is Paper Space and how do I know whether or not I’m in it?



Old School Method of Plotting to Scale

Old School Method of Plotting to Scale

- To fully appreciate where we are, we need to understand where we have been.
- Model Space is where it all began.
- Drawings were created and plotted from Model Space.
- Let us explore how…

Old School Method of Plotting to Scale

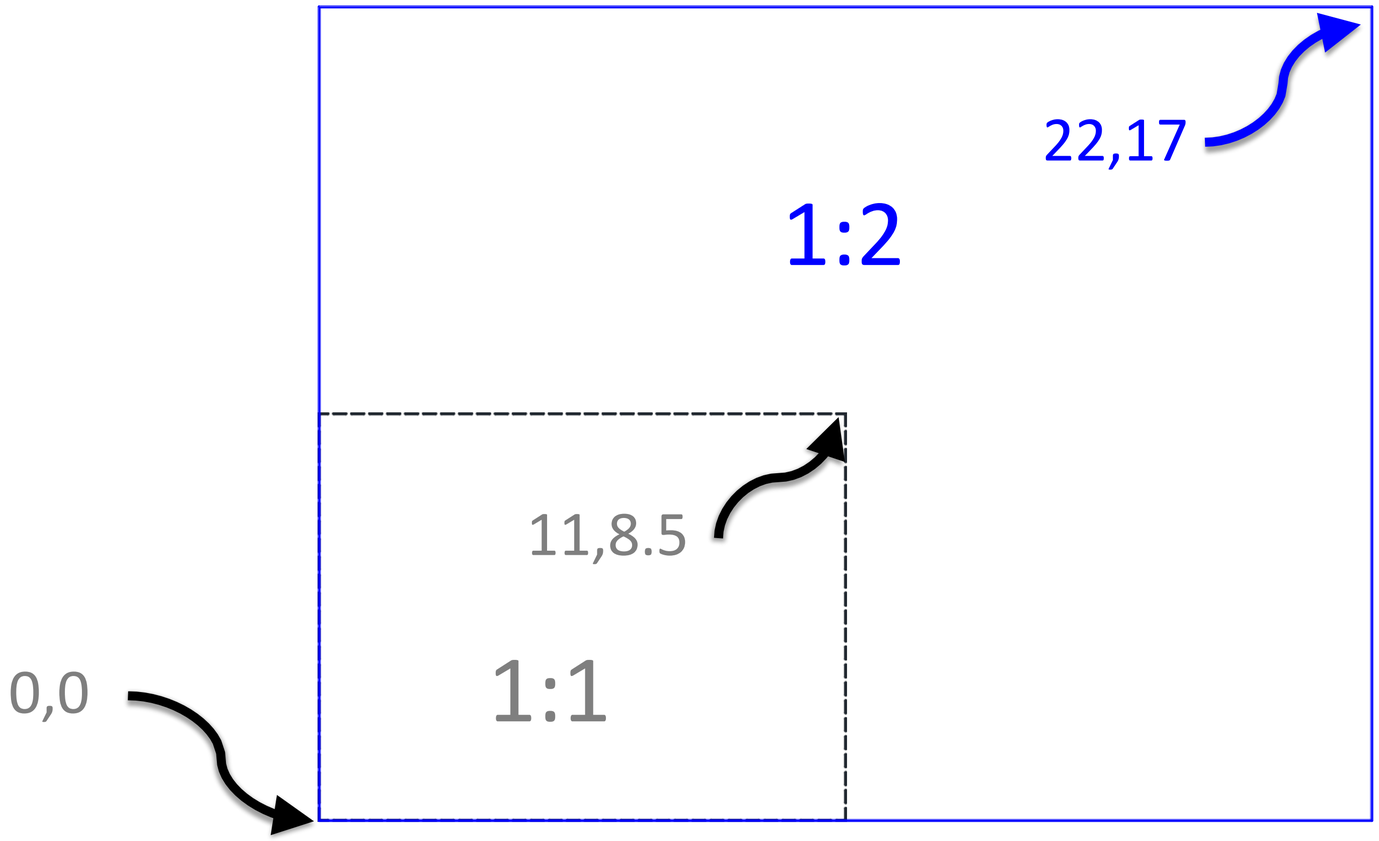
We Know our Paper Size (11x8.5), our Project Size, and our Necessary Scale is 1:2 making the scale factor 2.

Old School Method of Plotting to Scale

Set Drawing Limits to:

Lower Left corner: 0,0

Upper Right corner: 22, 17 (2*11, 2*8.5)

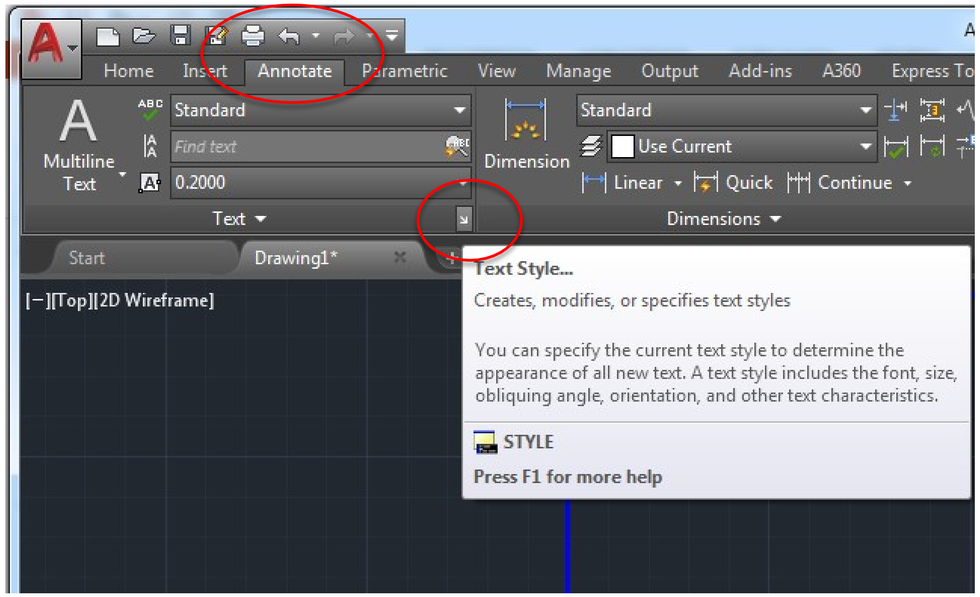


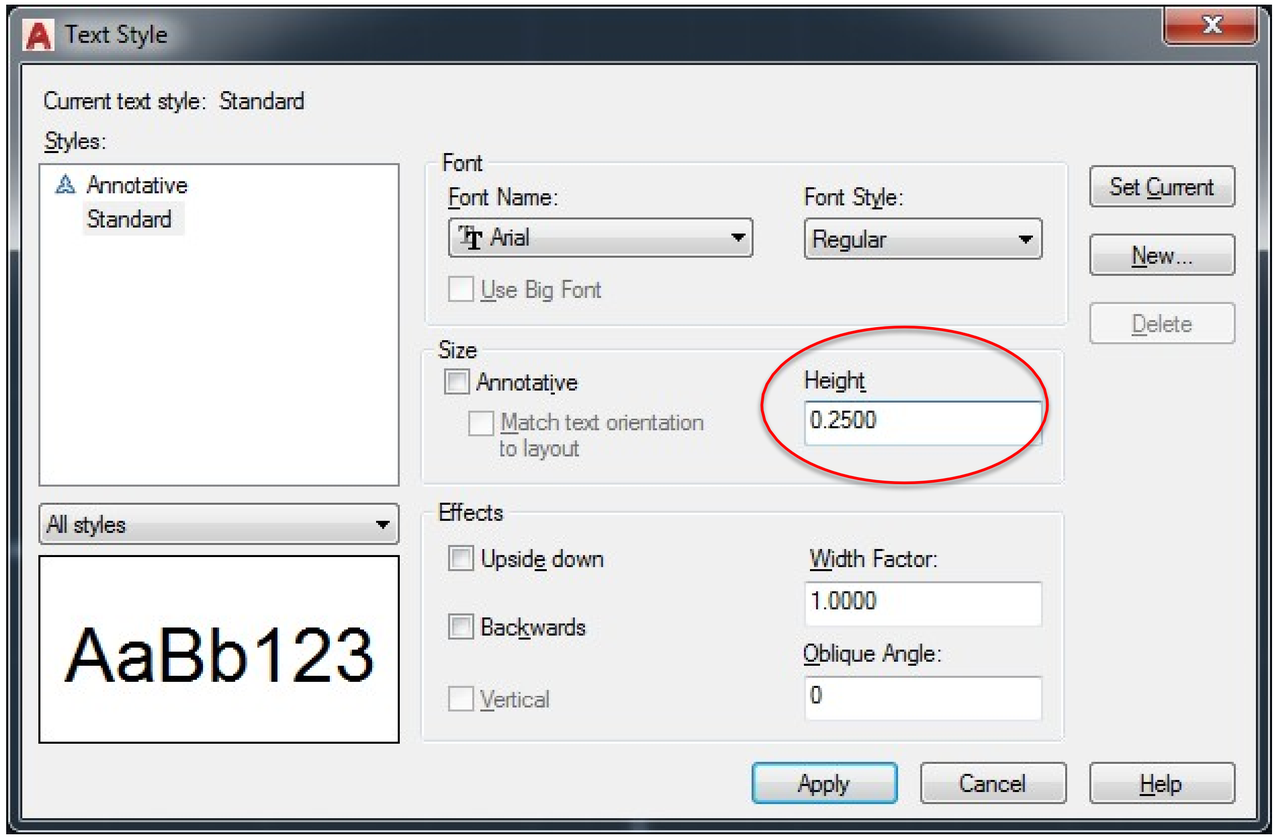
Old School Method of Plotting to Scale

Establish Text Sizes

Multiply Desired text size by scale factor, 2 in this case

0.125 * 2 = 0.25

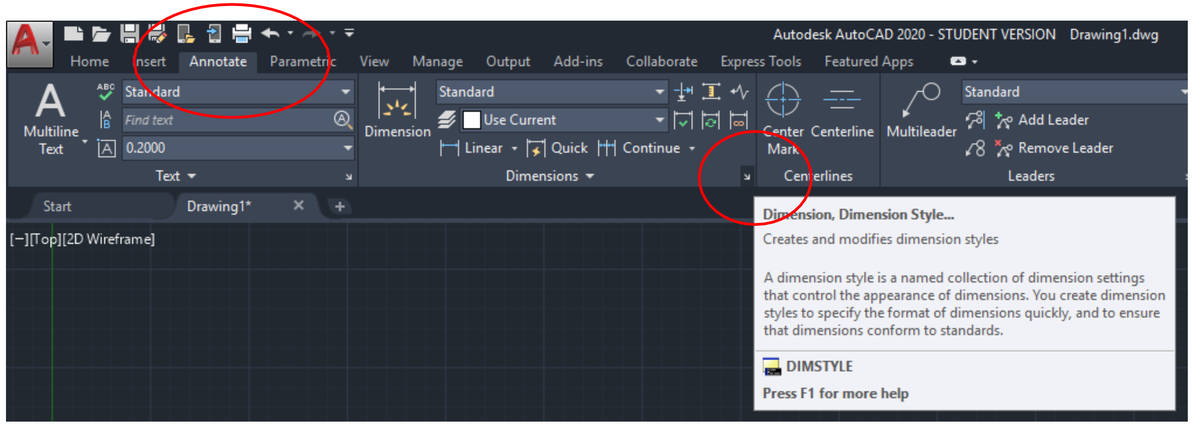


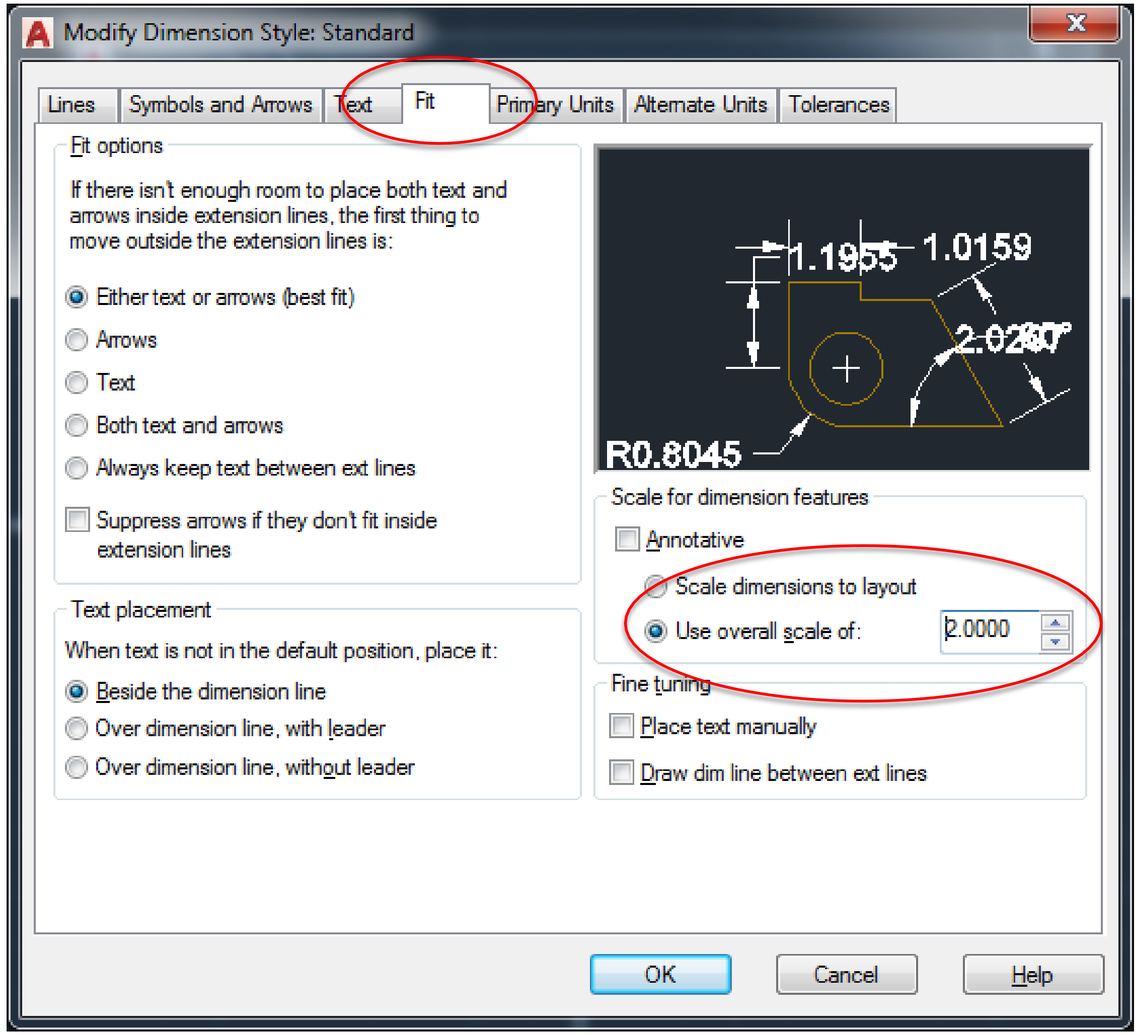


Old School Method of Plotting to Scale

Set Dimscale – System Variable

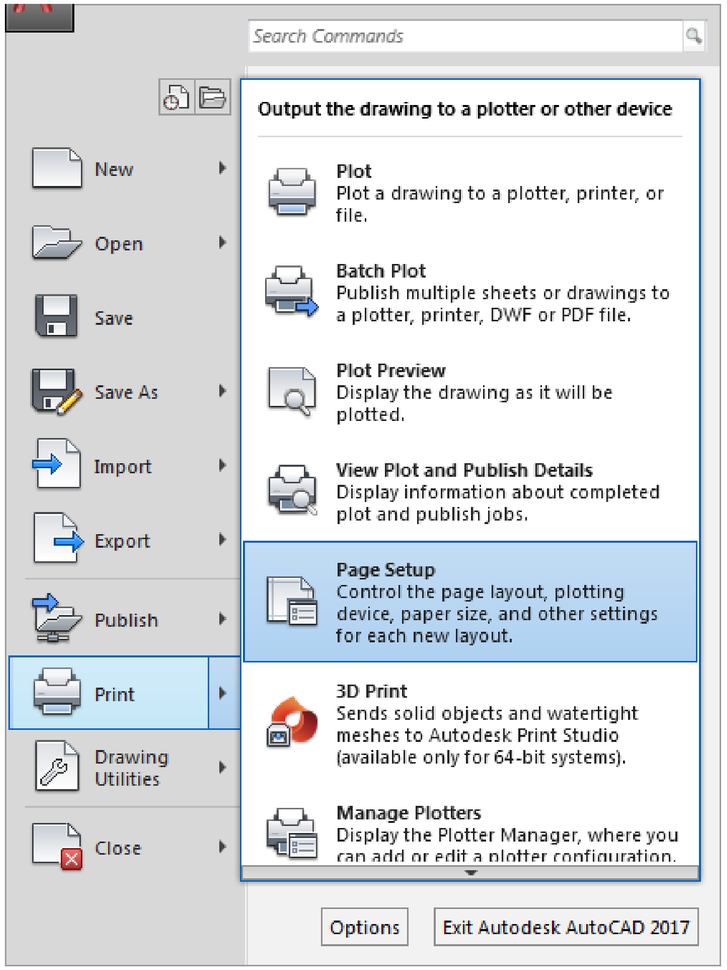
Dimscale = scale factor, 2 in this case

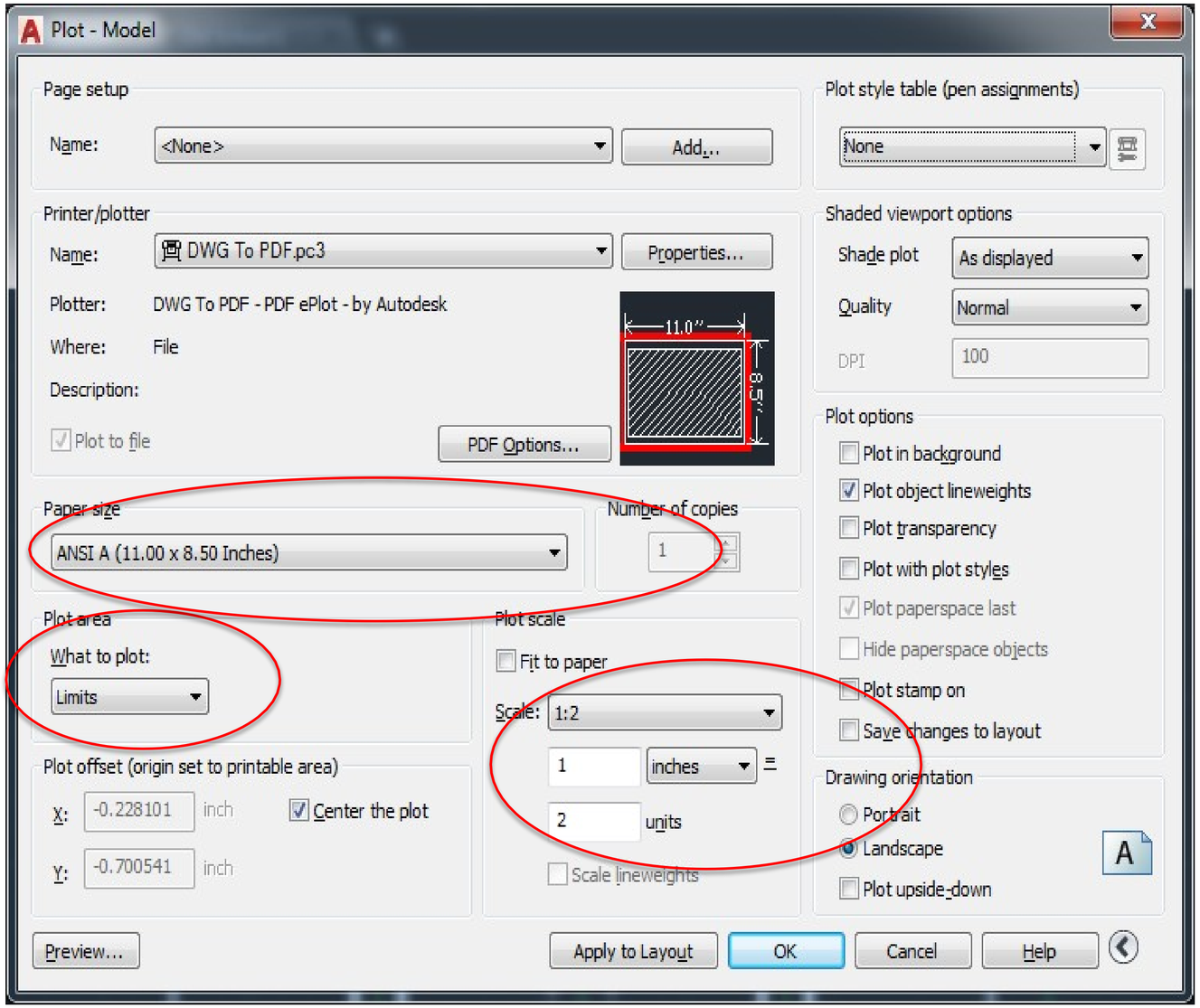




Old School Method of Plotting to Scale

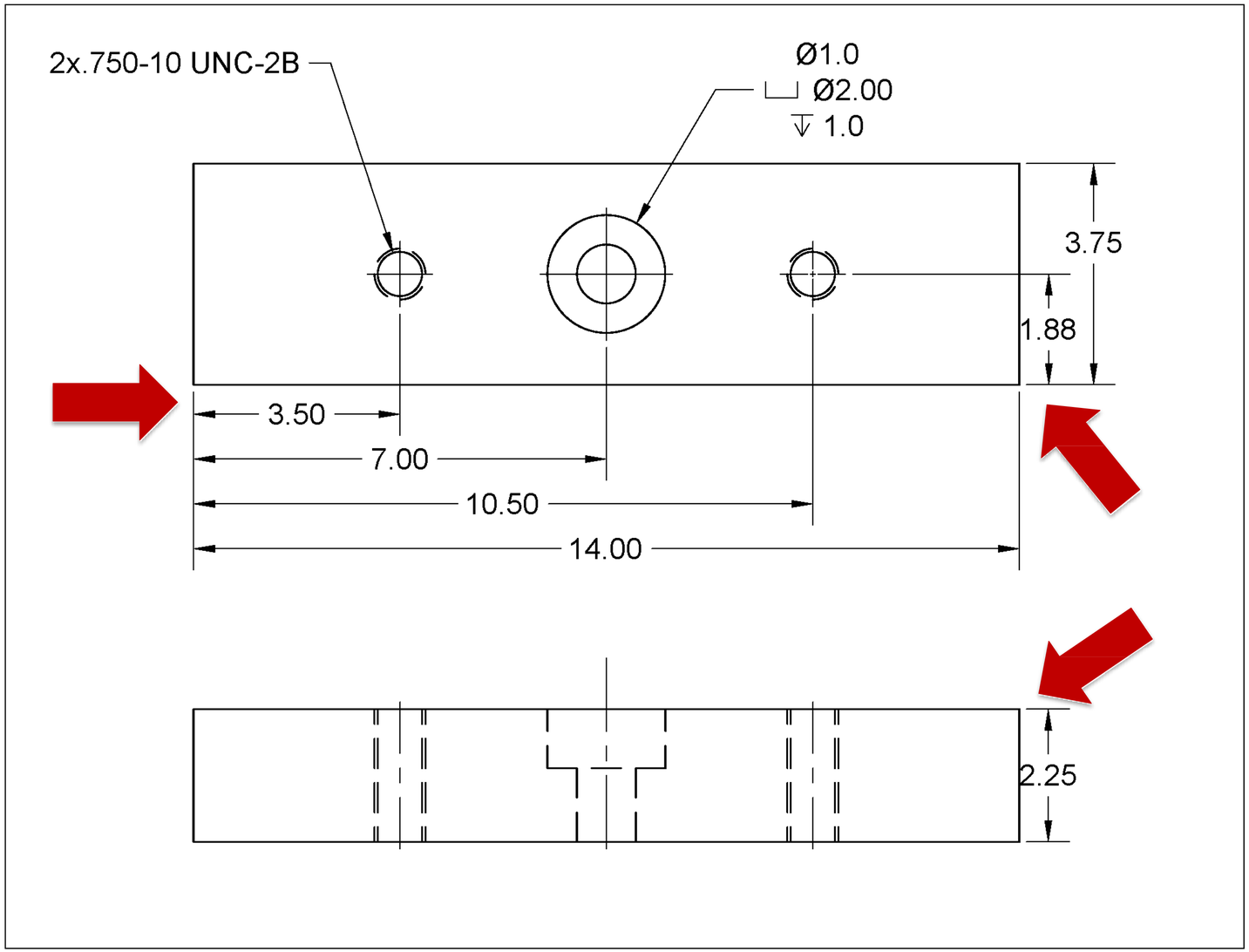
Page Setup





Old School Method of Plotting to Scale

Pitfall -There is nothing to correct dimension spacing from the part.



Just multiply the desired spacing by the Dimscale value

0.5 x 2 = 1

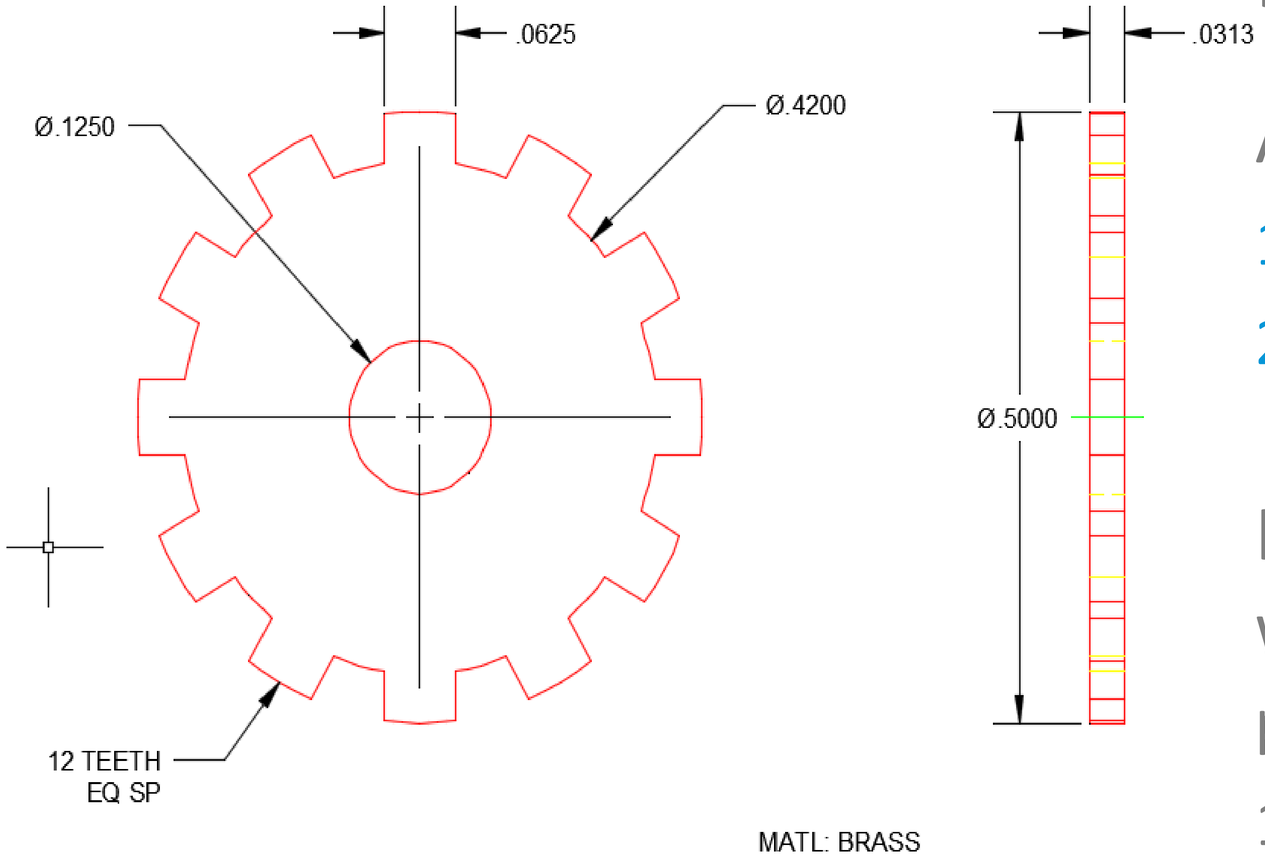
Place your 1st dimension 1 inch away from the part.

The Best Method of Plotting to Scale

The Best Method of Plotting to Scale

- The Page is Always set to the actual paper sizes at full scale (1:1)
- Scaling is set in the Viewport Window
- Use Annotative text, dimensions, leaders…

The Best Method of Plotting to Scale



You have to know your project size!

Account for Dimensions and Notes

1. Determine Paper Size
2. Calculate the scale Do the MATH

In this case I want to use ANSI A.

We need to fit 1 inch into about 9 inches of paper.

1/9 = .111 so a scale of 8:1 will fit.

The Best Method of Plotting to Scale

We Know our Paper Size (11x8.5), our Project Size, and our Necessary Scale is 8:1 making the scale factor .125.

NOTE: This drawing is enlarged instead of reduced!

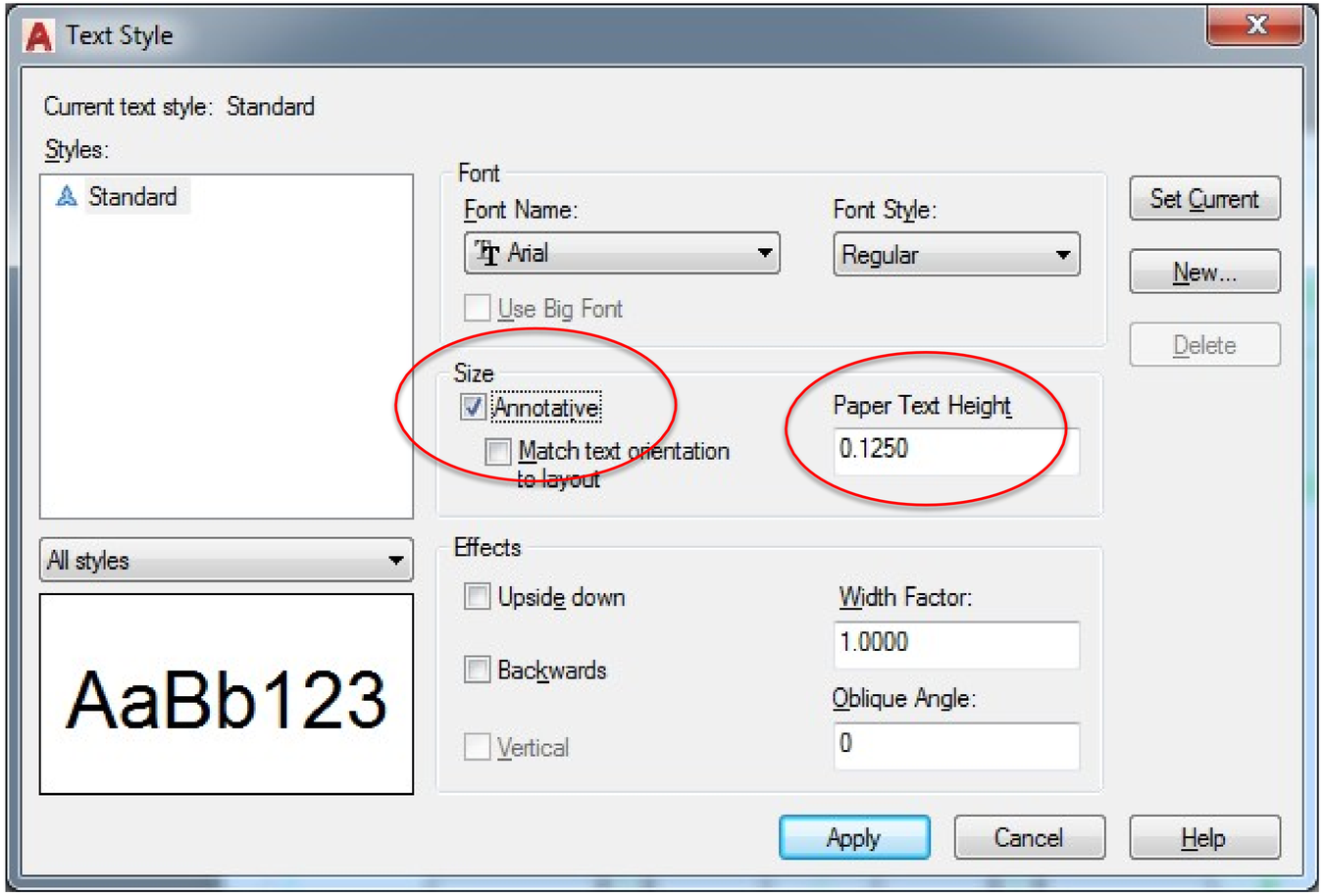
The Best Method of Plotting to Scale

Drawings Limits?

The Best Method of Plotting to Scale

Text Sizes

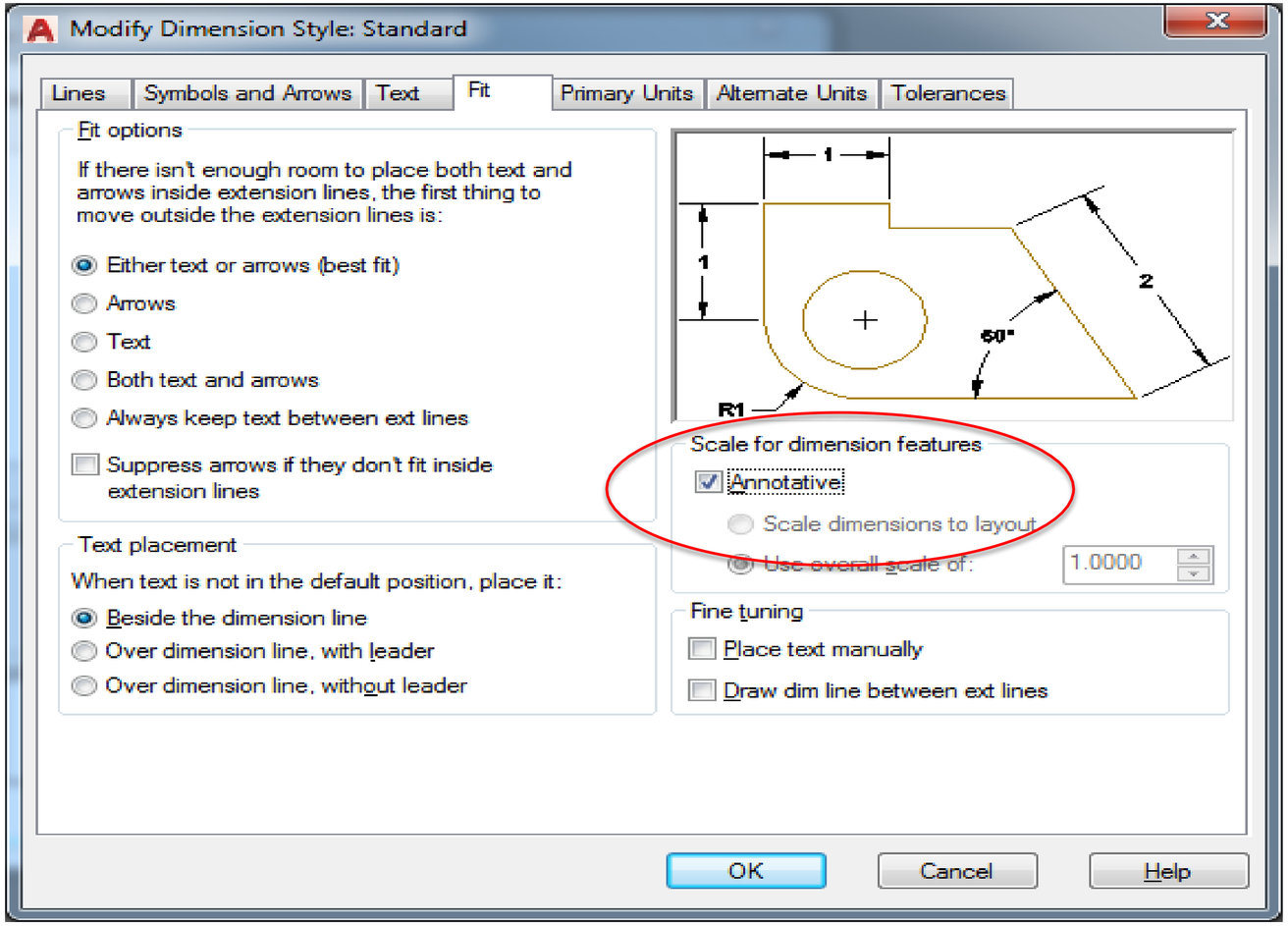
Use Annotative Text Styles and set the desire paper height, AutoCAD will do the rest.



The Best Method of Plotting to Scale

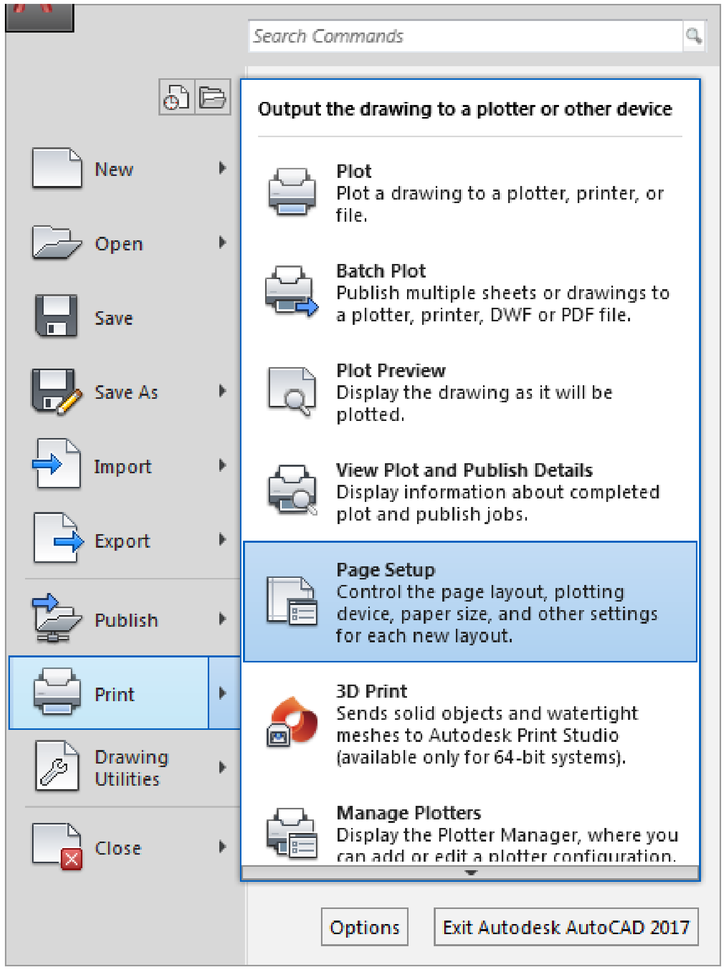
Dimension Sizes

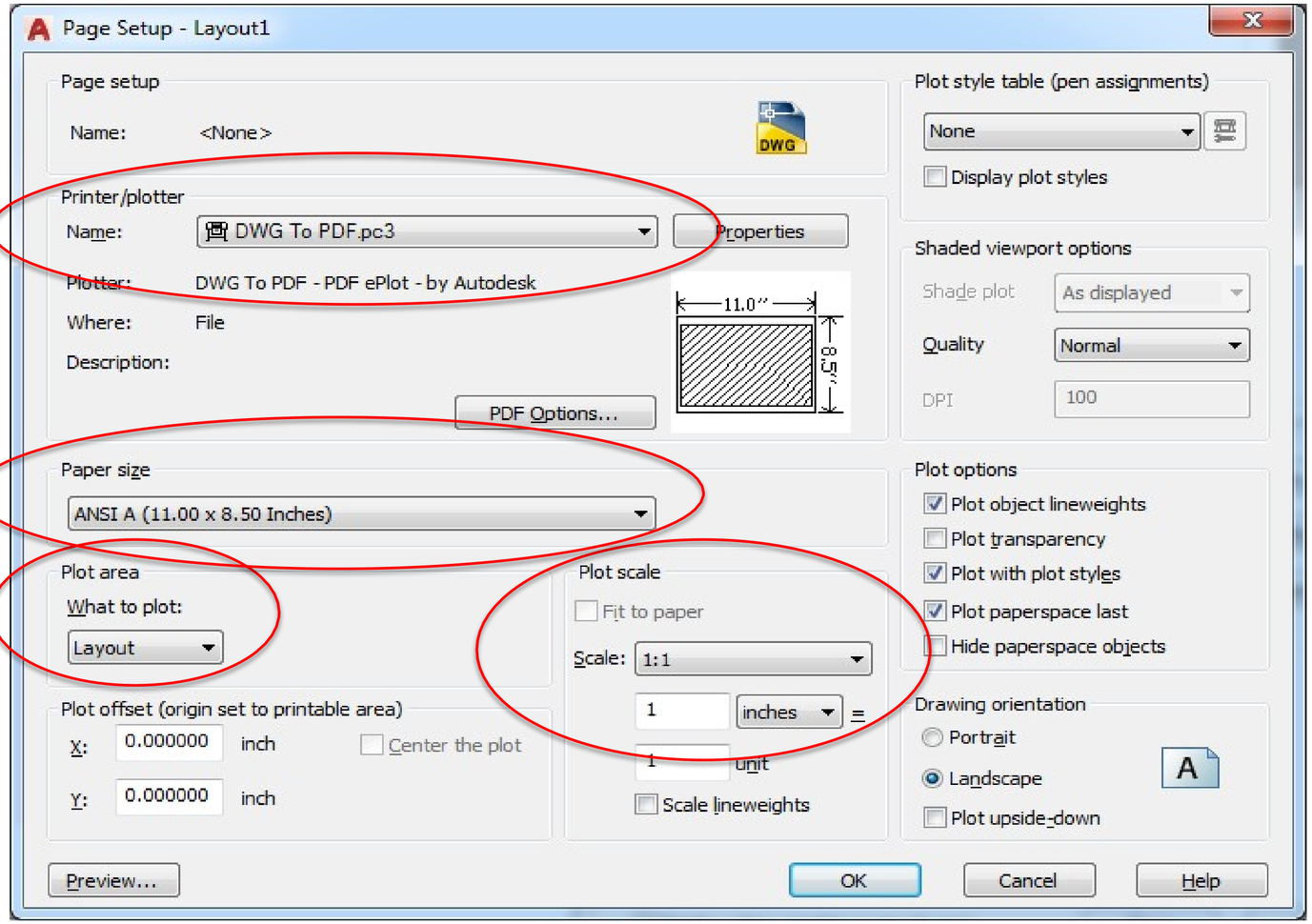
Use Annotative Dimension Style and once again AutoCAD will take care of the rest.



The Best Method of Plotting to Scale

Page Setup

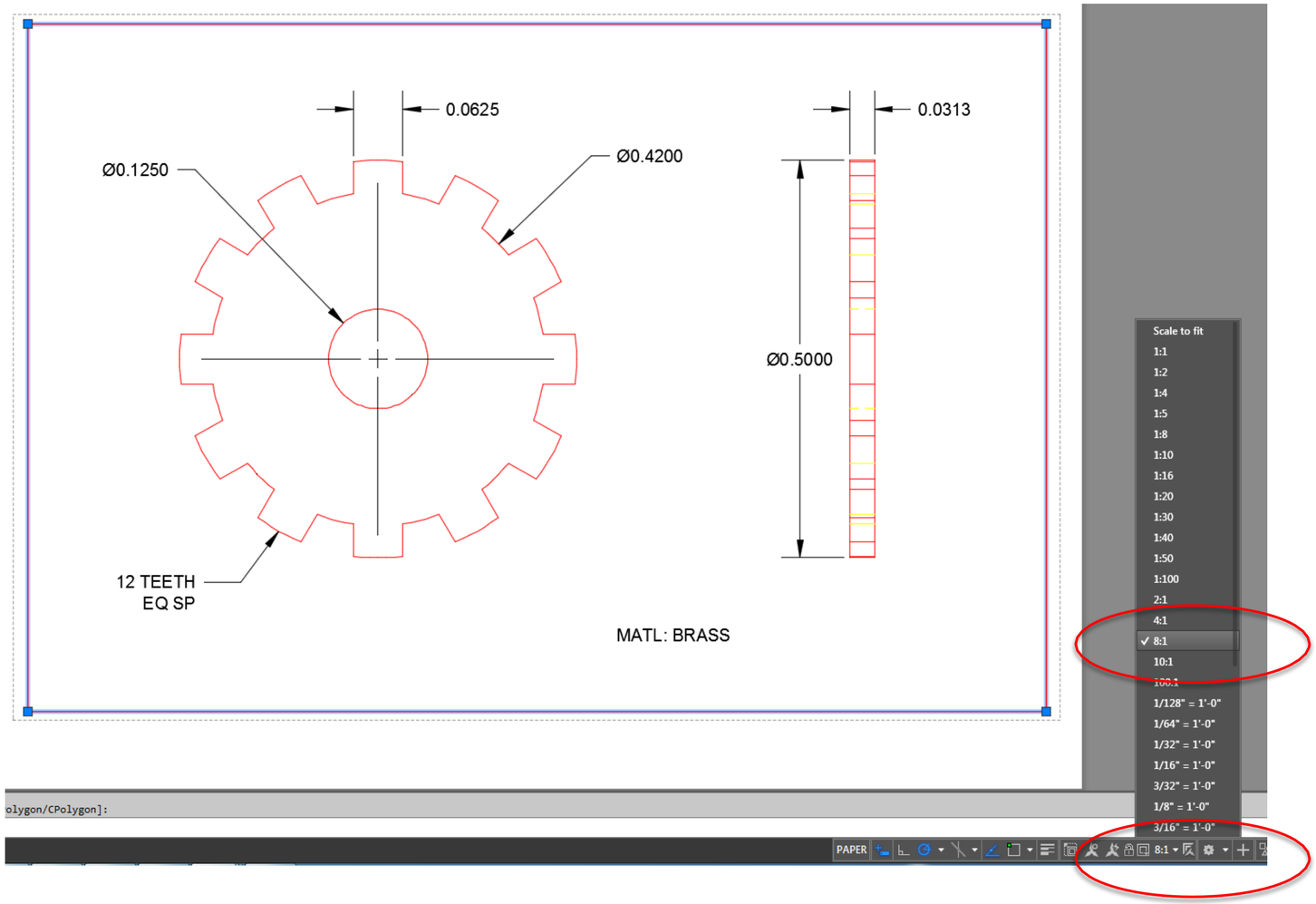




The Best Method of Plotting to Scale

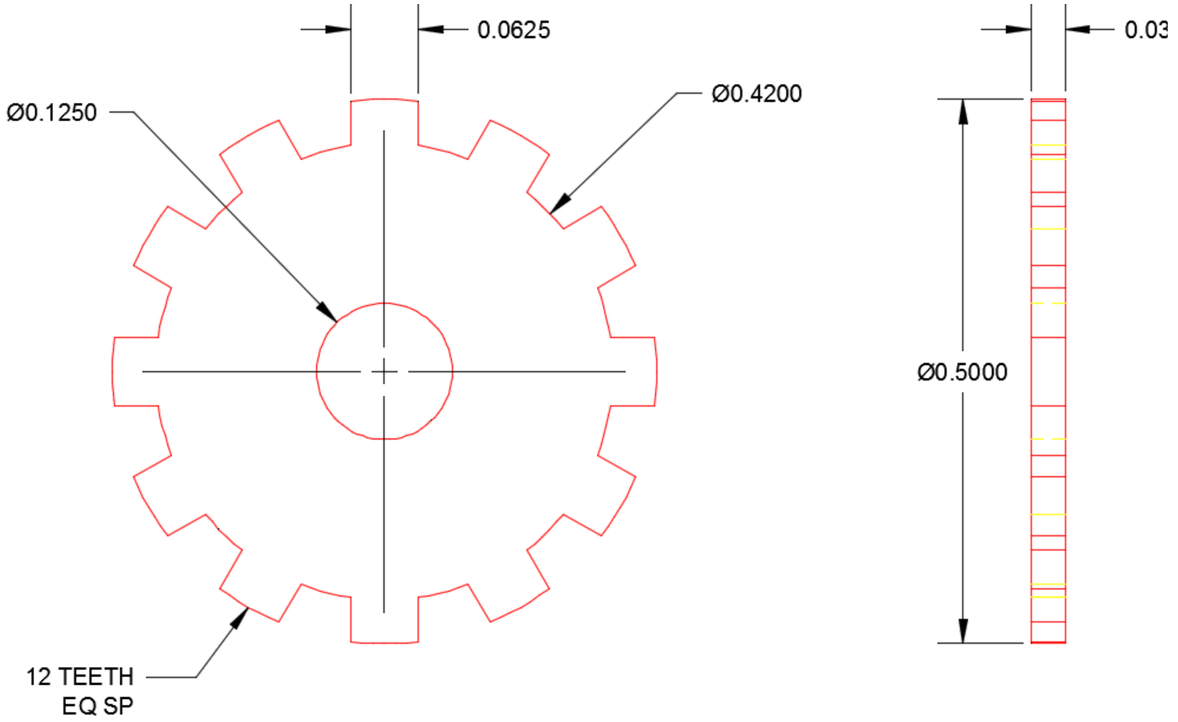
How do you set the scale?

So I just set my page up with 1:1 scale, how do I get the 8:1 scale I need?



The Best Method of Plotting to Scale

Pitfall -There is nothing to correct dimension spacing from the part. This is actually a pitfall for all three methods.



Just multiply the desired spacing by the scale factor value

0.5 x .125 = .0625
Place your 1st dimension .0625 inches away from the part.

The Worst Method of Plotting to Scale

The Worst Method of Plotting to Scale

The Worst Method of Plotting to Scale

- The Page either gets larger or smaller depending on the scale
- Scaling is set in the Page Setup Manager
- The Viewport will be 1:1 scale
- You can use Annotative text, dimensions, leaders… or set the fixed sizes based on the scale factoras in the Old School Method

The Worst Method of Plotting to Scale

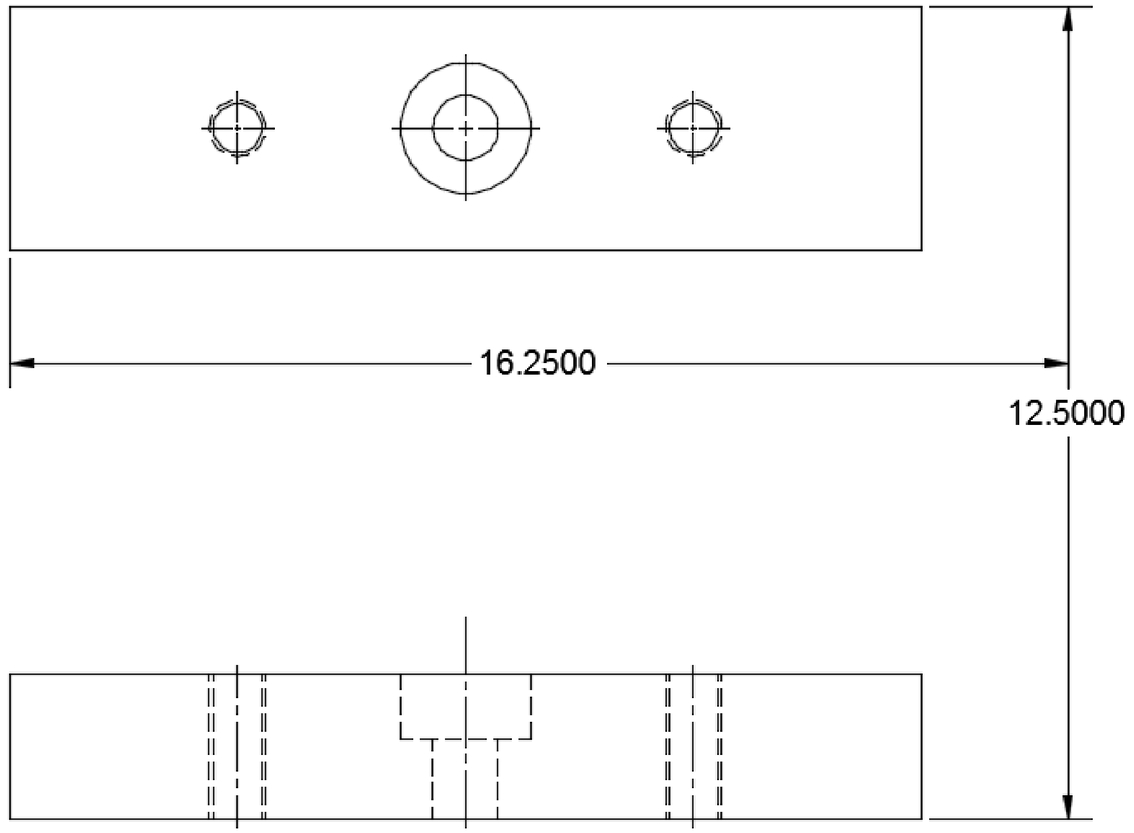
You have to know your project size!

Account for Dimensions and Notes

1. Determine Paper Size
2. Calculate the scale Do the MATH, we already have for this one.

In this case I want to use ANSI A.

From earlier we know a scale of 1:2 will fit.



The Worst Method of Plotting to Scale

We Know our Paper Size (11x8.5), our Project Size, and our Necessary Scale is 1:2 making the scale factor 2.

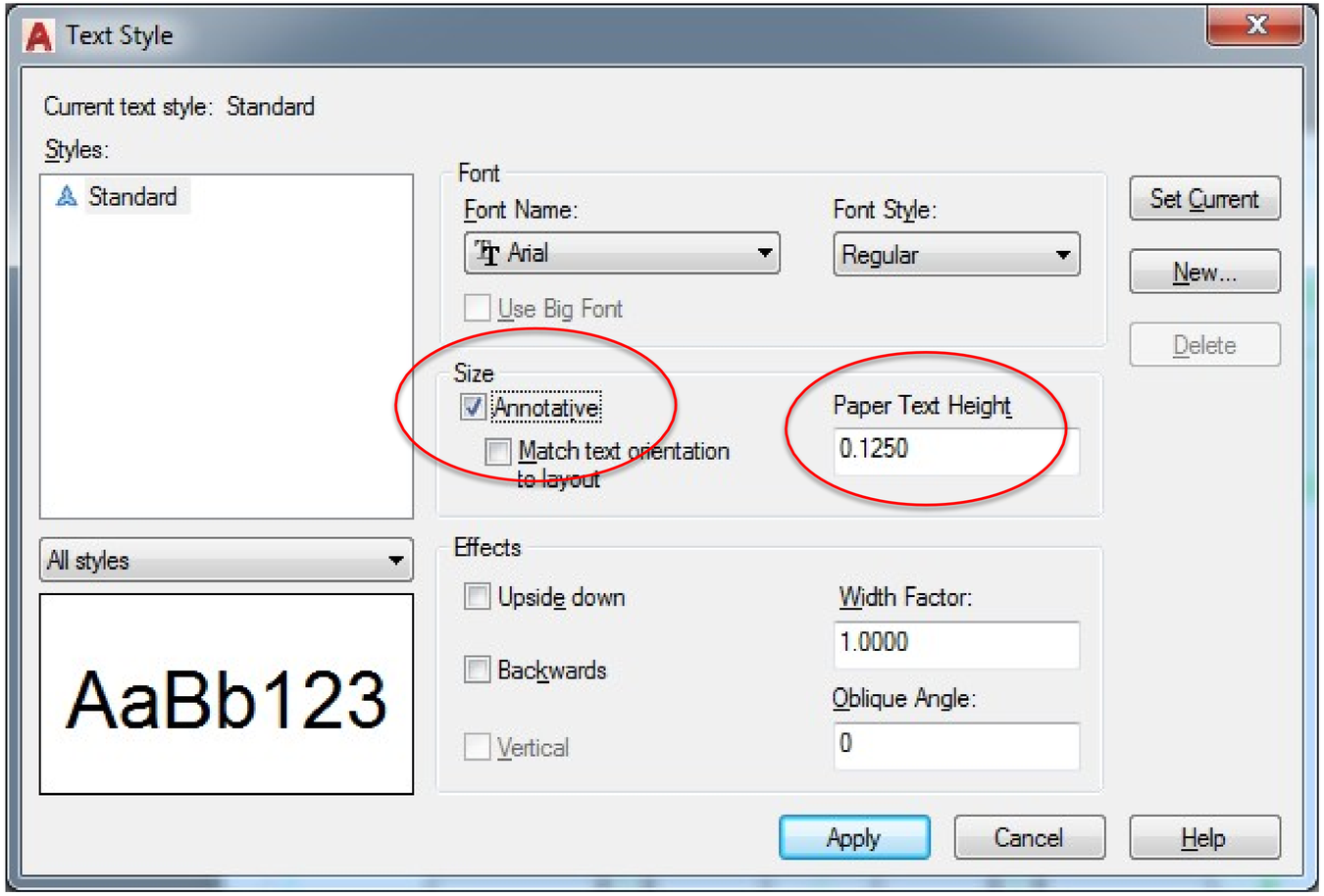
The Worst Method of Plotting to Scale

Drawings Limits?

The Worst Method of Plotting to Scale

Text Sizes

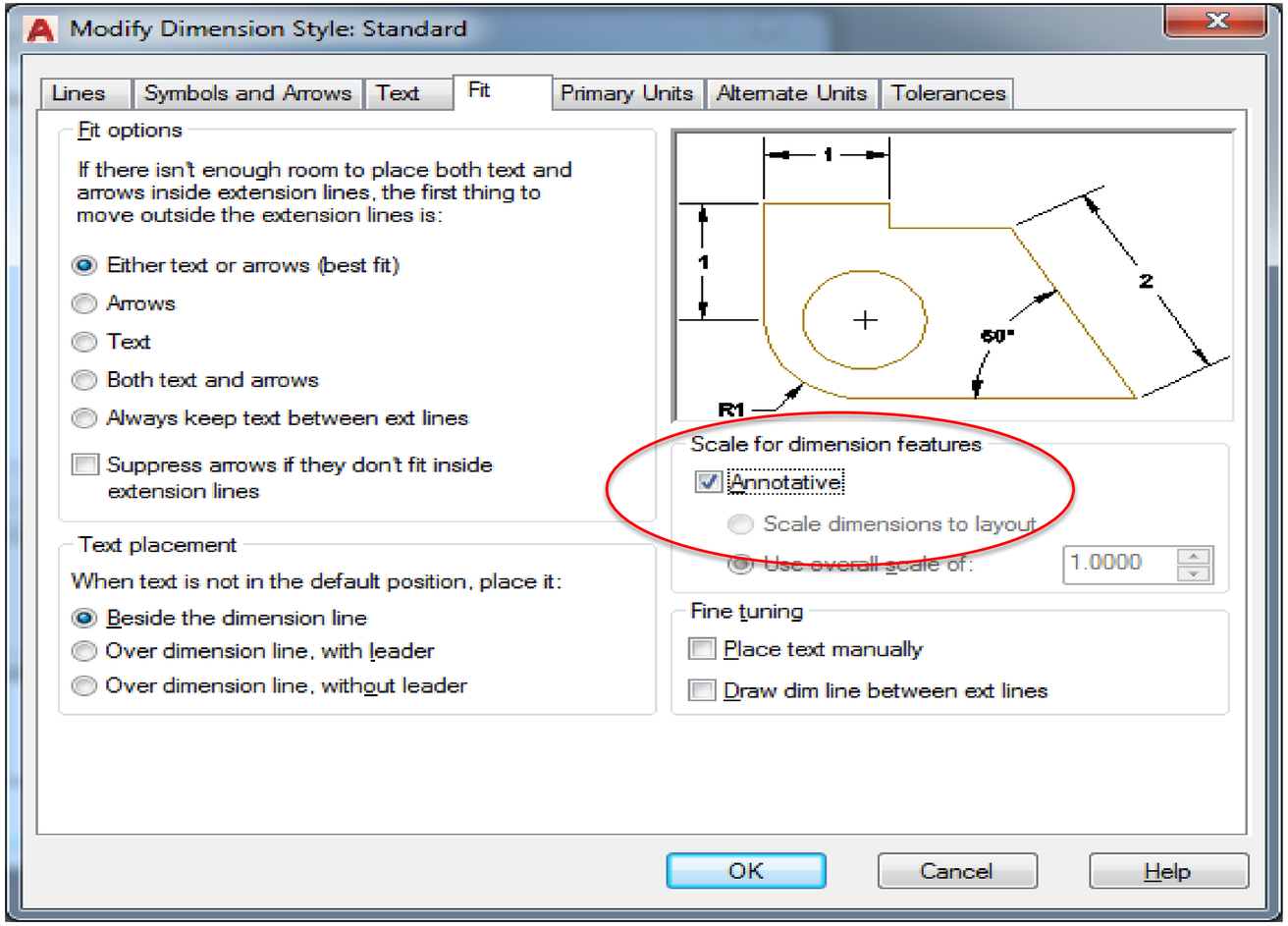
I recommend using Annotative Text Styles and set the desire paper height.



The Worst Method of Plotting to Scale

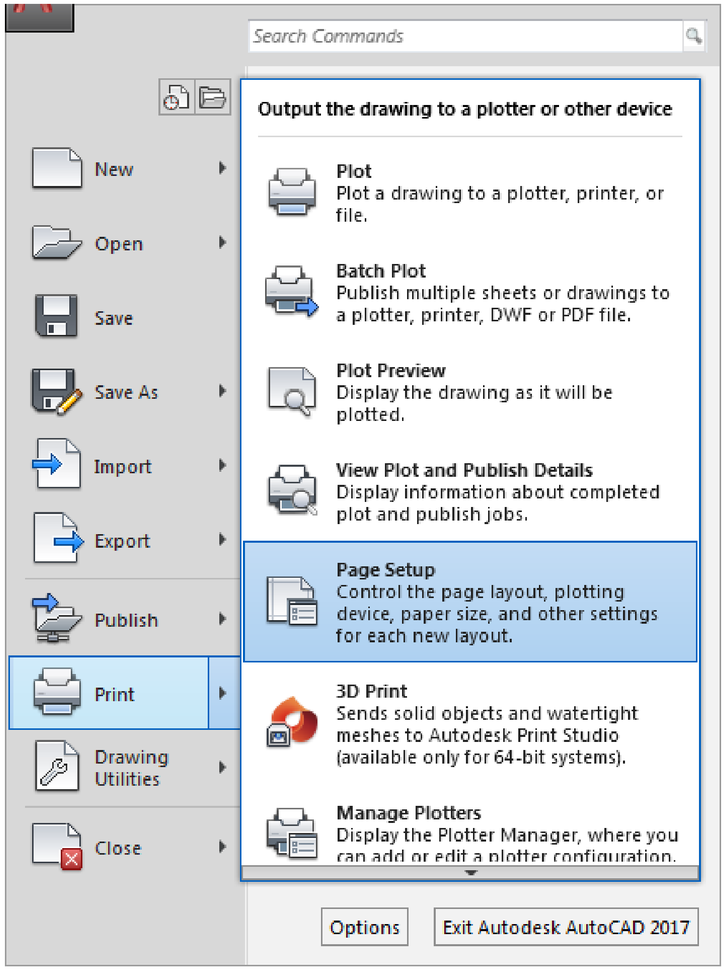
Dimension Sizes

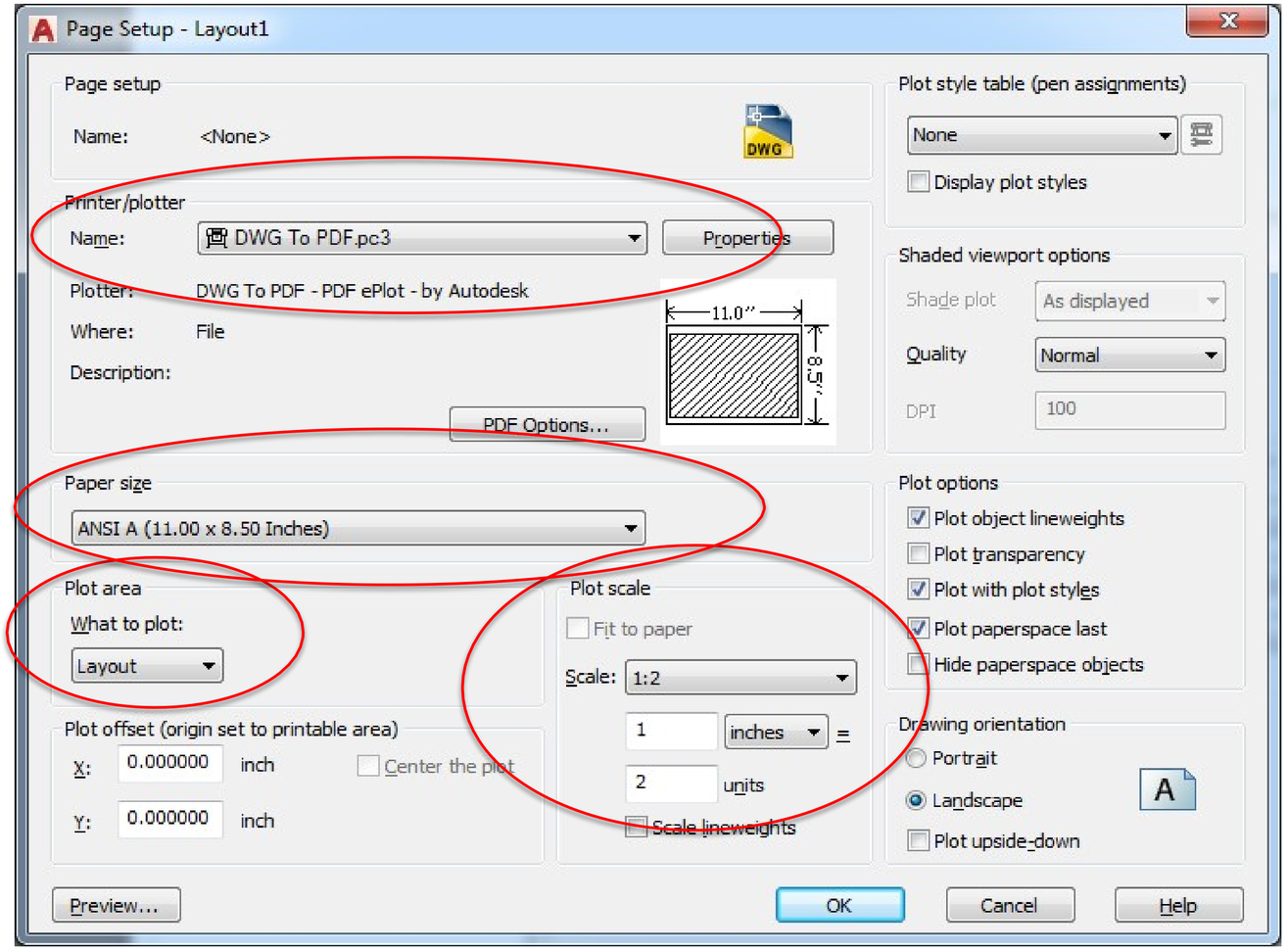
Use Annotative Dimension Style.



The Worst Method of Plotting to Scale

Page Setup

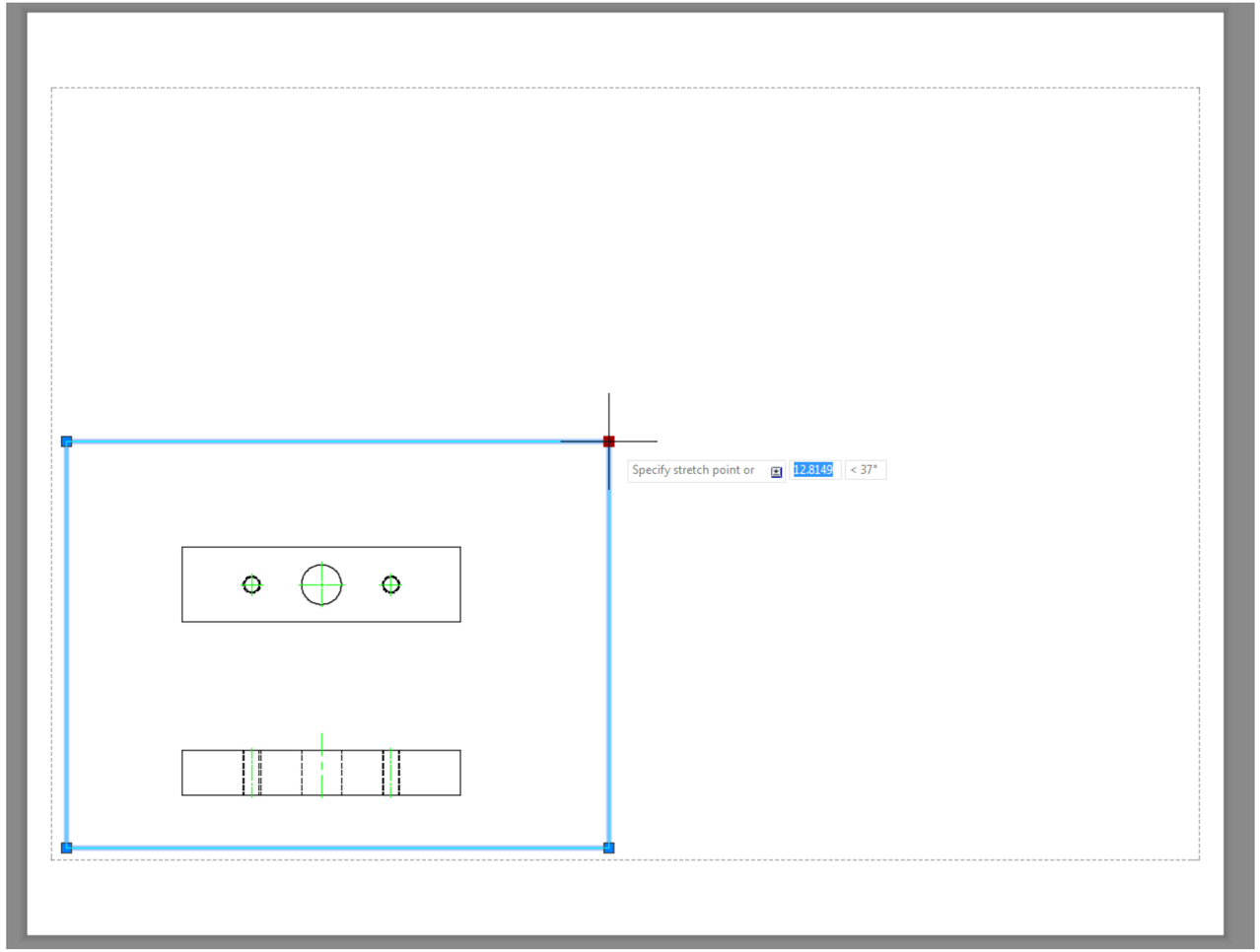




The Worst Method of Plotting to Scale

Adjust your Viewport Window.

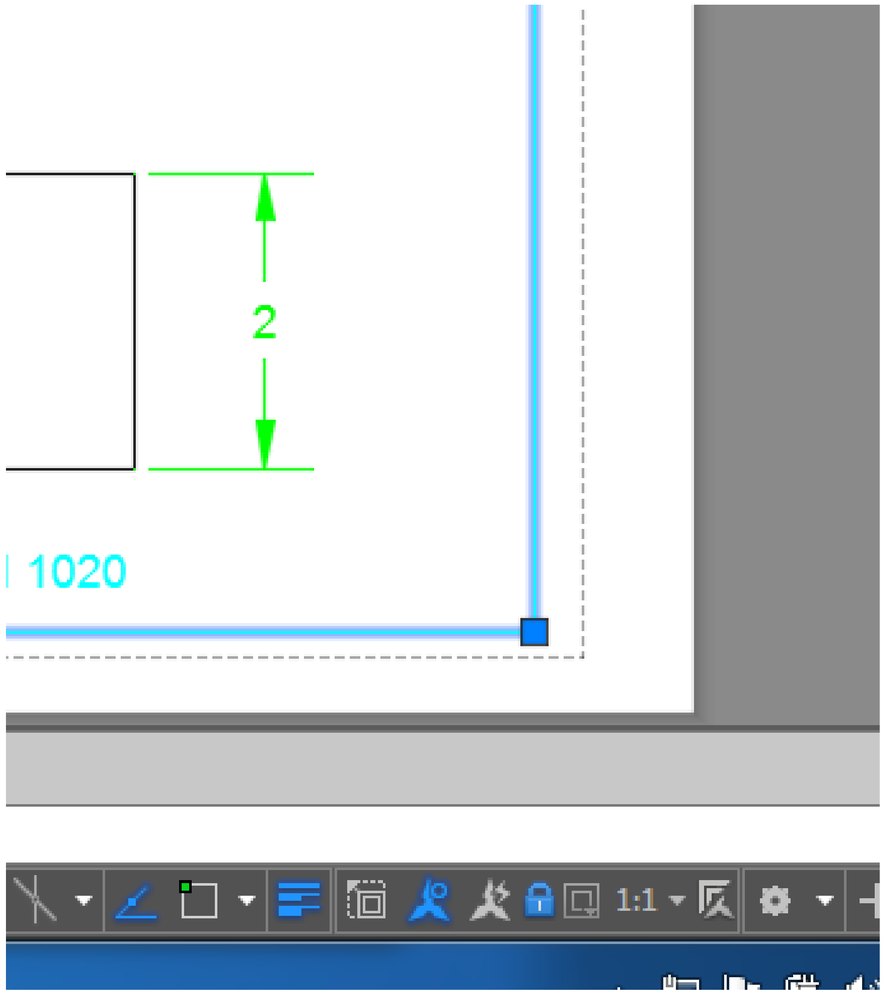
Because the Page is either enlarged or shrunk you will need to adjust the viewport window on the page.



The Worst Method of Plotting to Scale

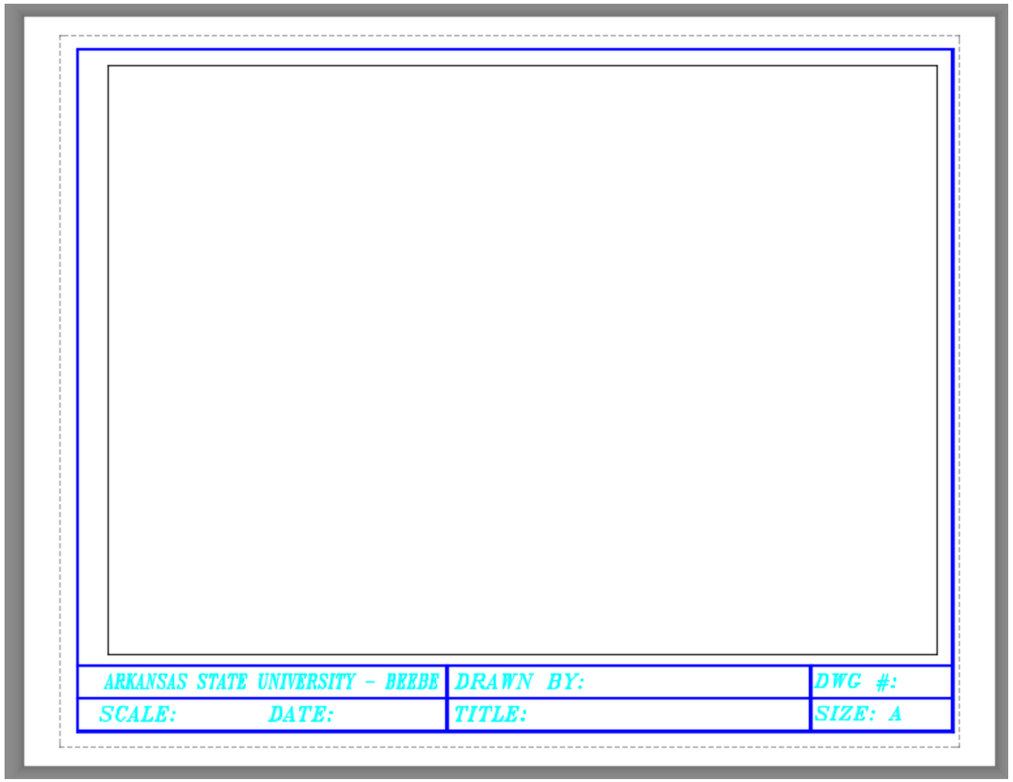
How do you set the viewport scale?

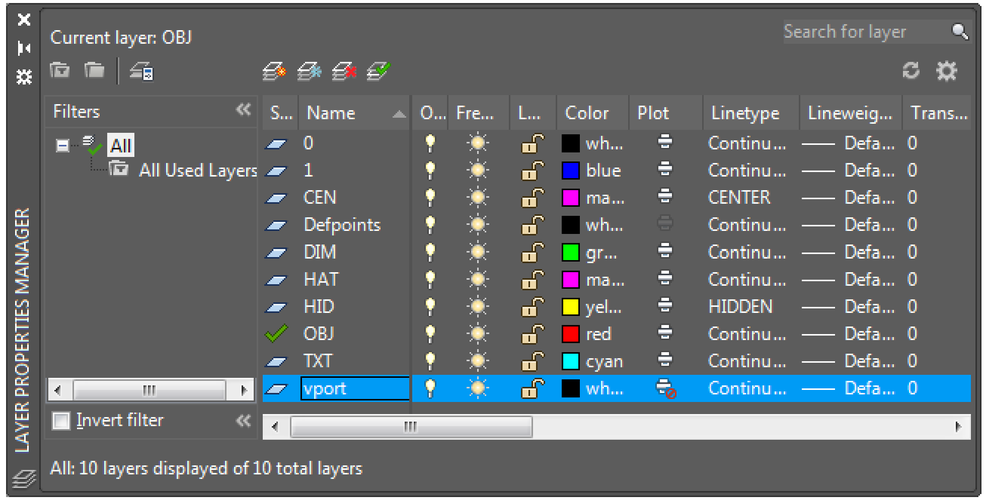
So I just set my page up with 1:2 scale, what should my viewport scale be? 1:1



Useful tips

- Place your borders and title blocks in Paper Space.
- Use template files with all of your sheet sizes already setup using the Best Method, see the inch_units.dwt file.
- Keep your viewport window in a special layer that doesn't plot.





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