Introduction to AutoCAD
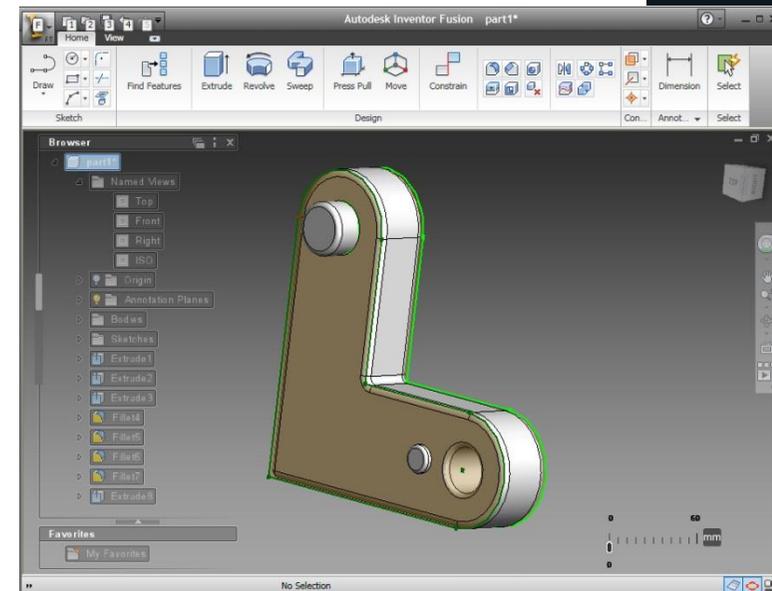
Academic Resource Center

What is CAD?

- Computer Aided Drafting
- Autodesk is the most popular drawing program
- Many student versions available for free online at <u>students.autodesk.com</u>
  - o AutoCAD
  - o Architecture
  - o Mechanical
  - o Revit
  - o Inventor
  - o Civil
  - o MEP
  - o etc.

- Capabilities:
  - o 2D line drawings
  - o 3D constructions
 - o Rendering
  - o Part Assemblies

Workshop Goals

- What we'll cover:
  - Setting up the workspace
  - Basic/common commands
  - Manipulating properties
  - Viewports and printing

- What we won't cover:
  - Rendering
  - External References
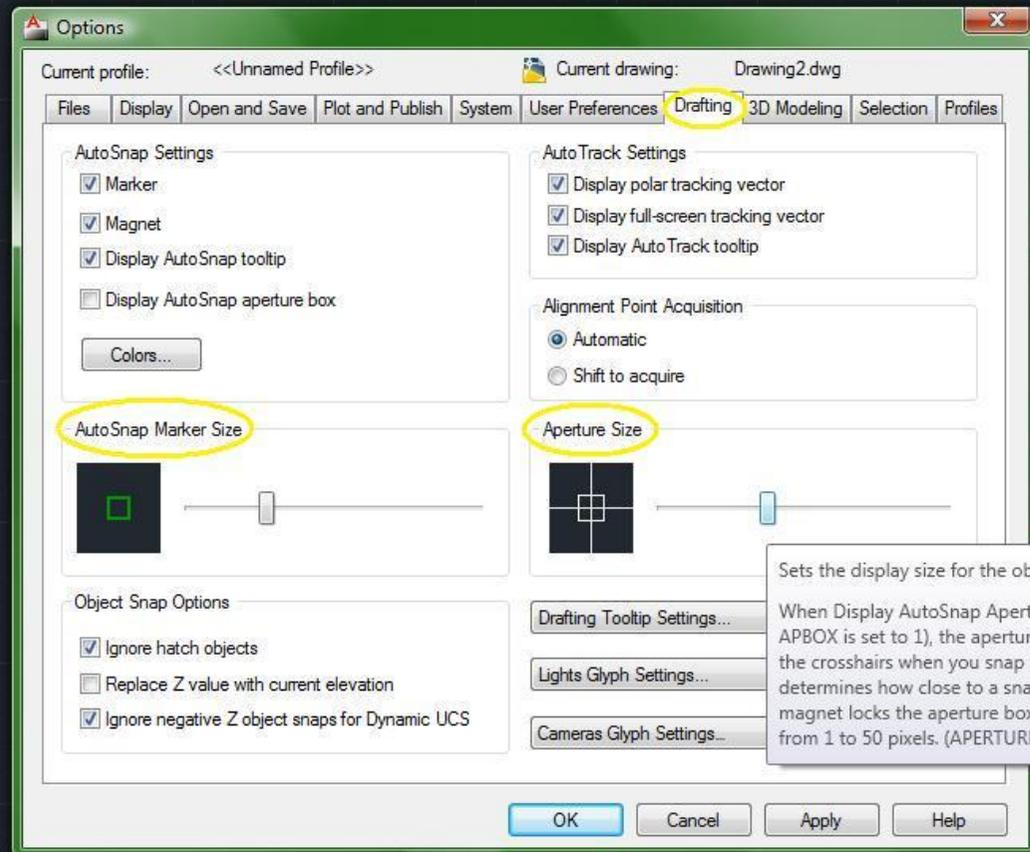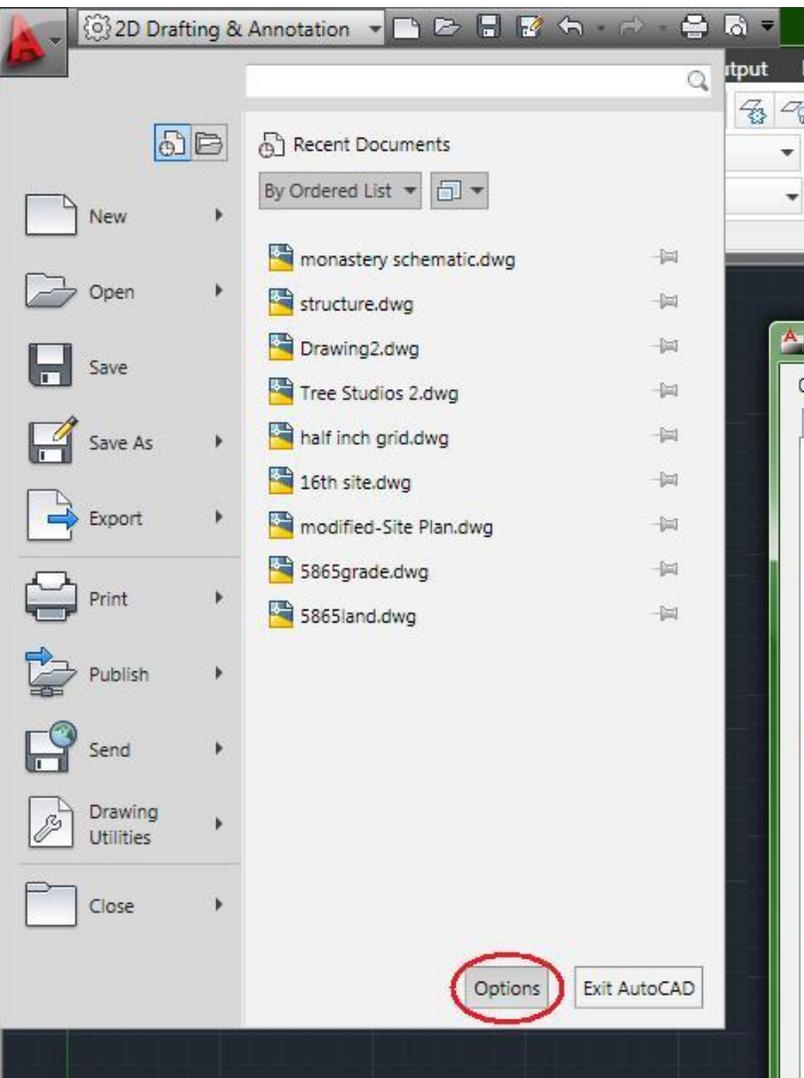 - Block creation
  - Parts/assemblies
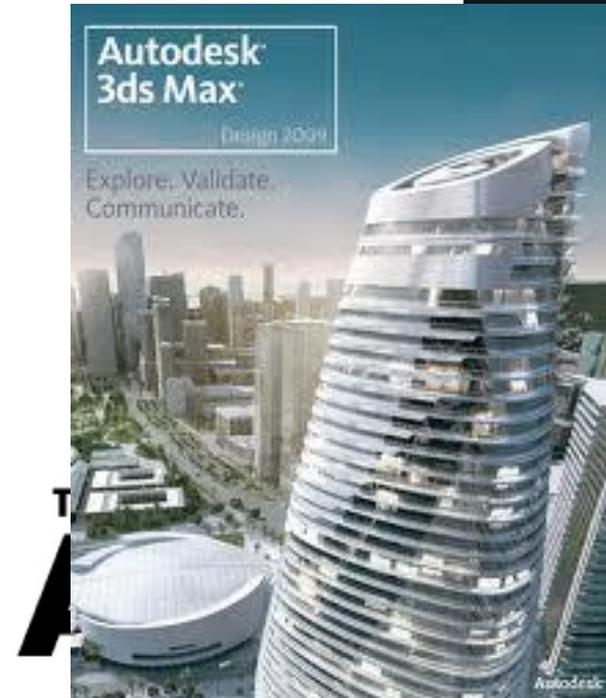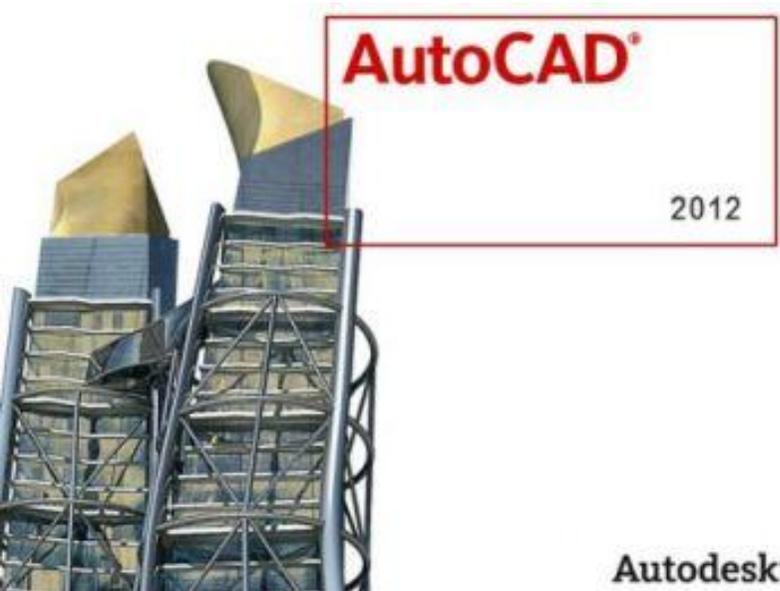
Starting a New Drawing

- The big A is like the home button in MS Office or the File menu in most programs

- The default template is good
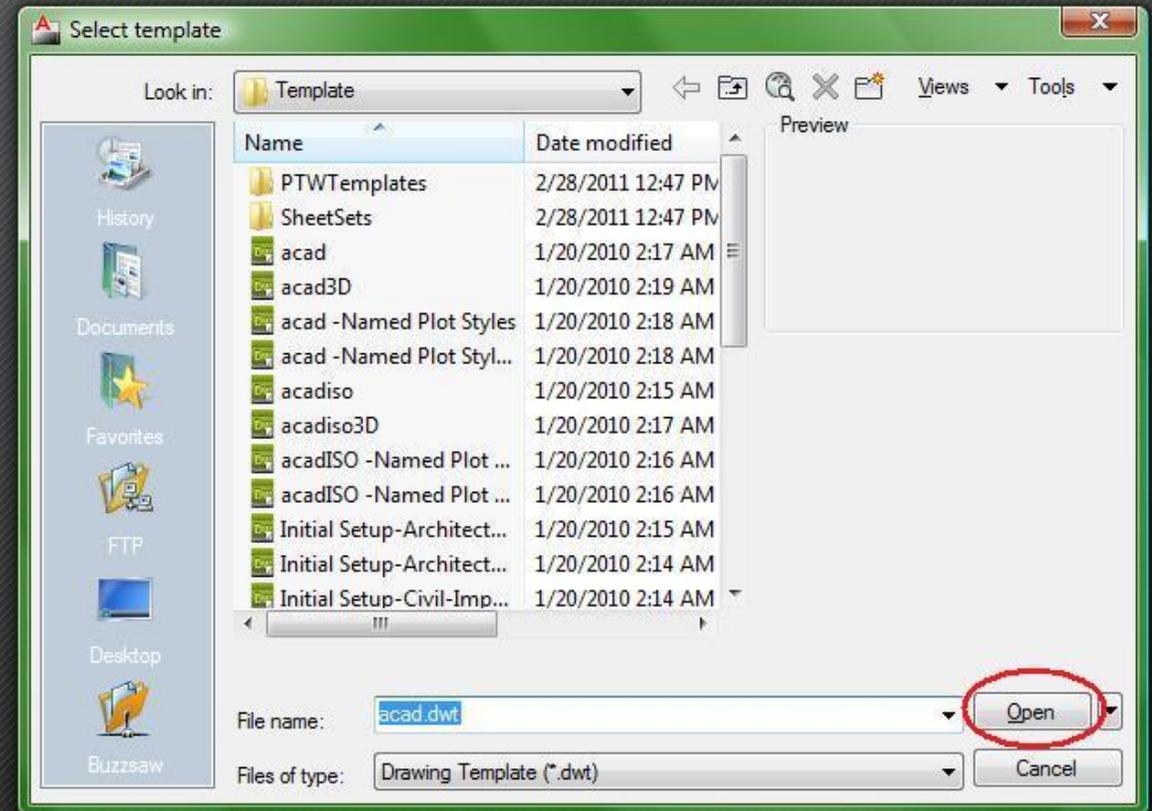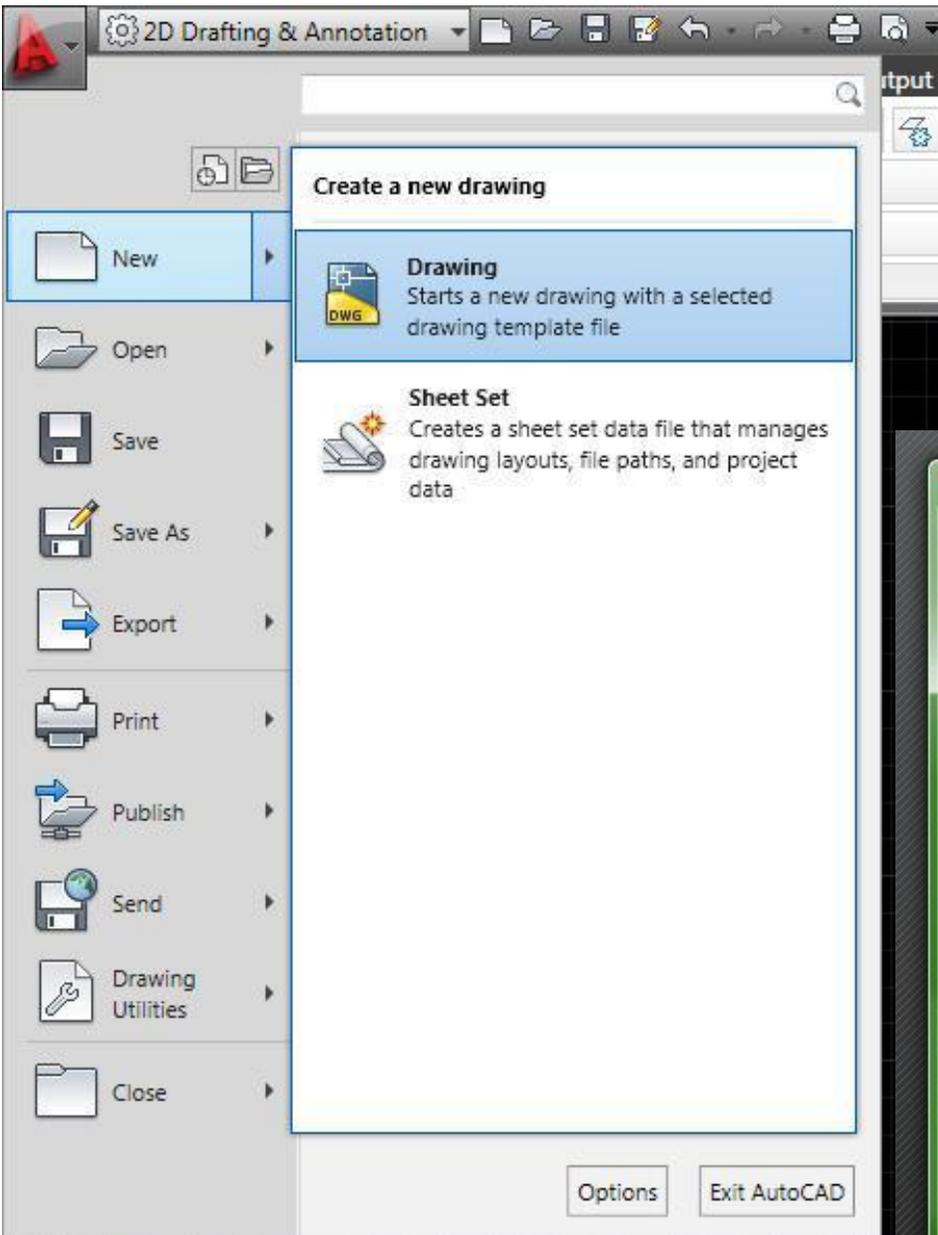
Setting Up the Workspace

- The options window lets you set all your preferences within the drawing
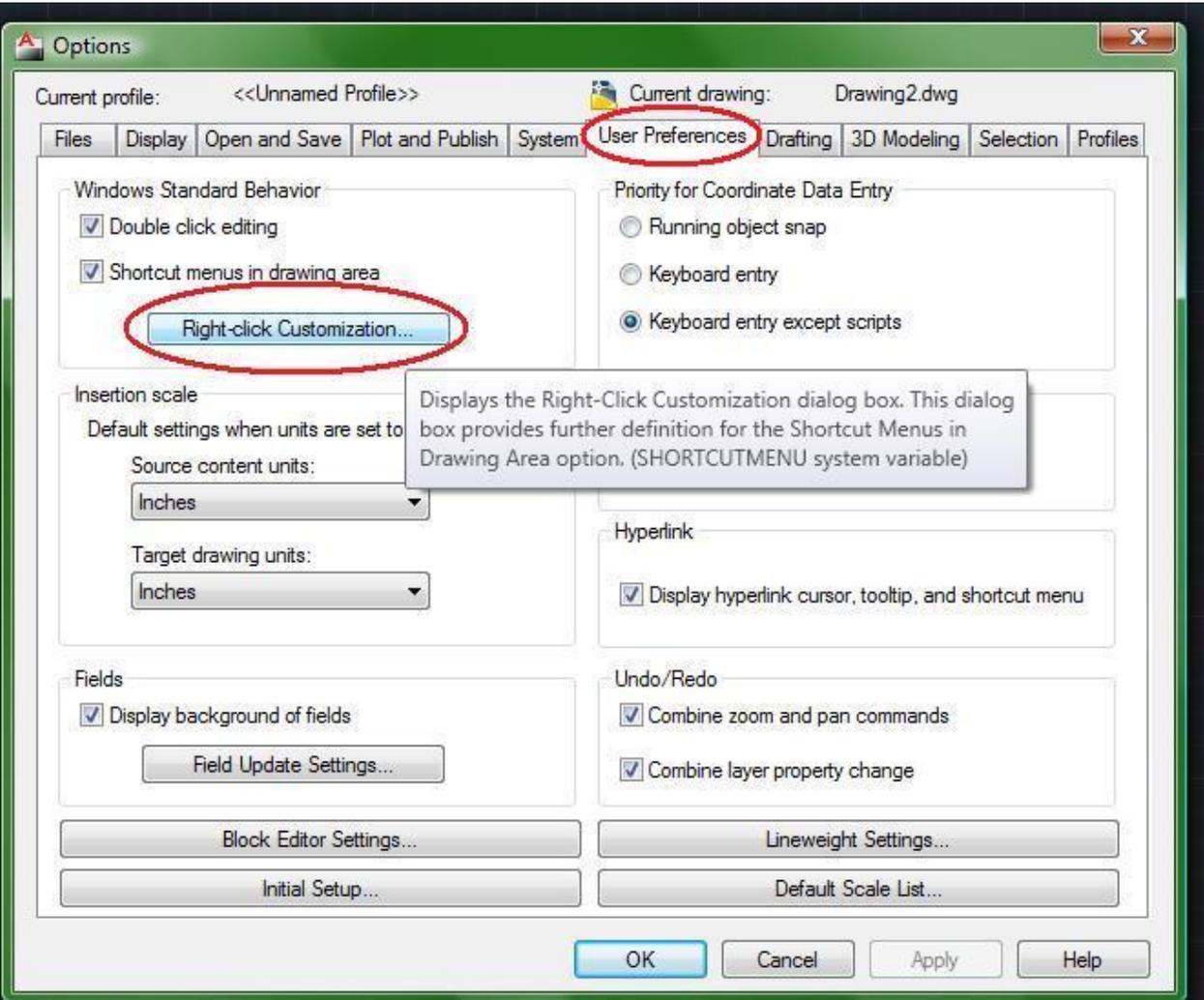- Snap and Aperture settings are on a totally personal basis
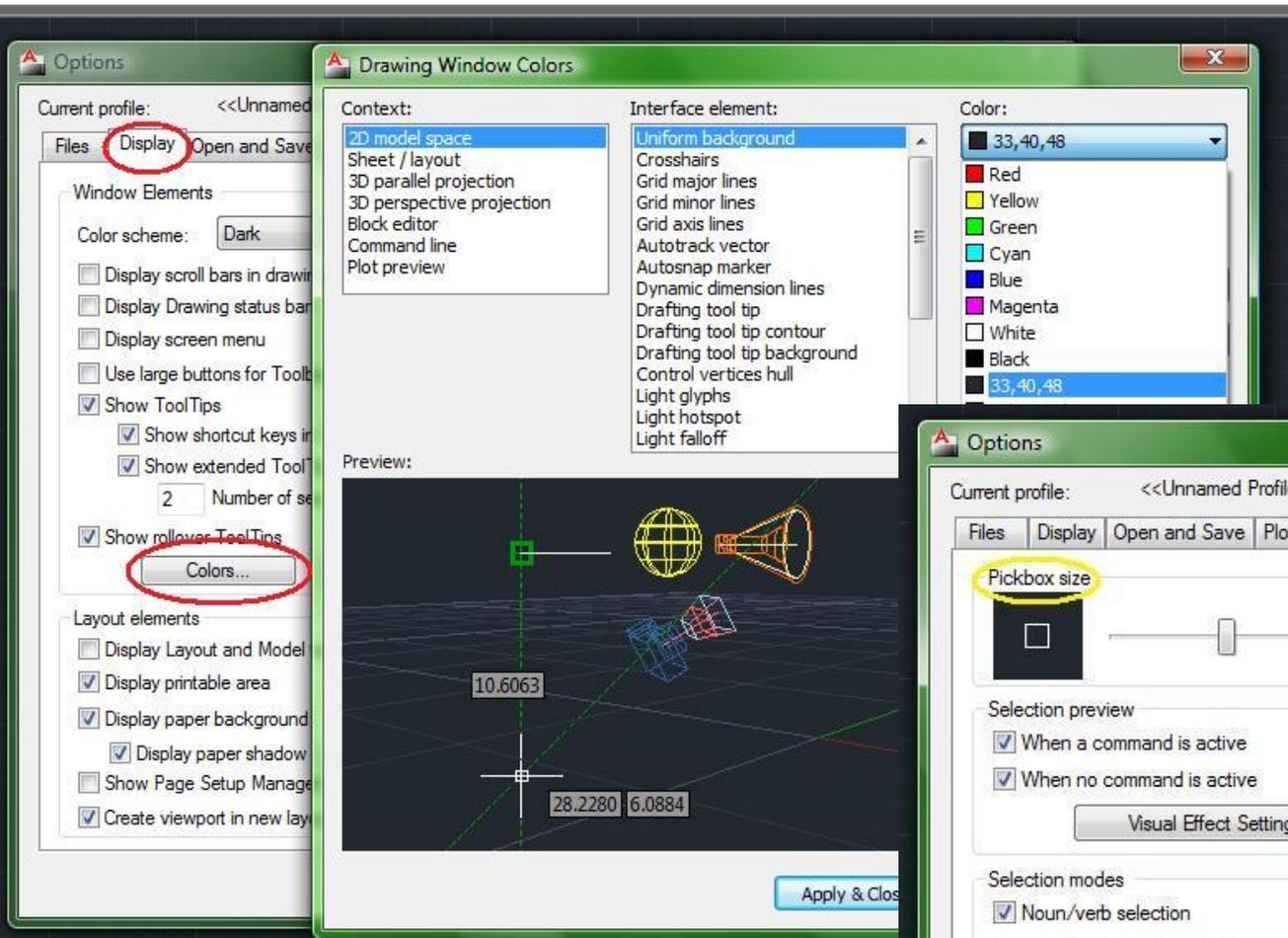
Right Click Customization

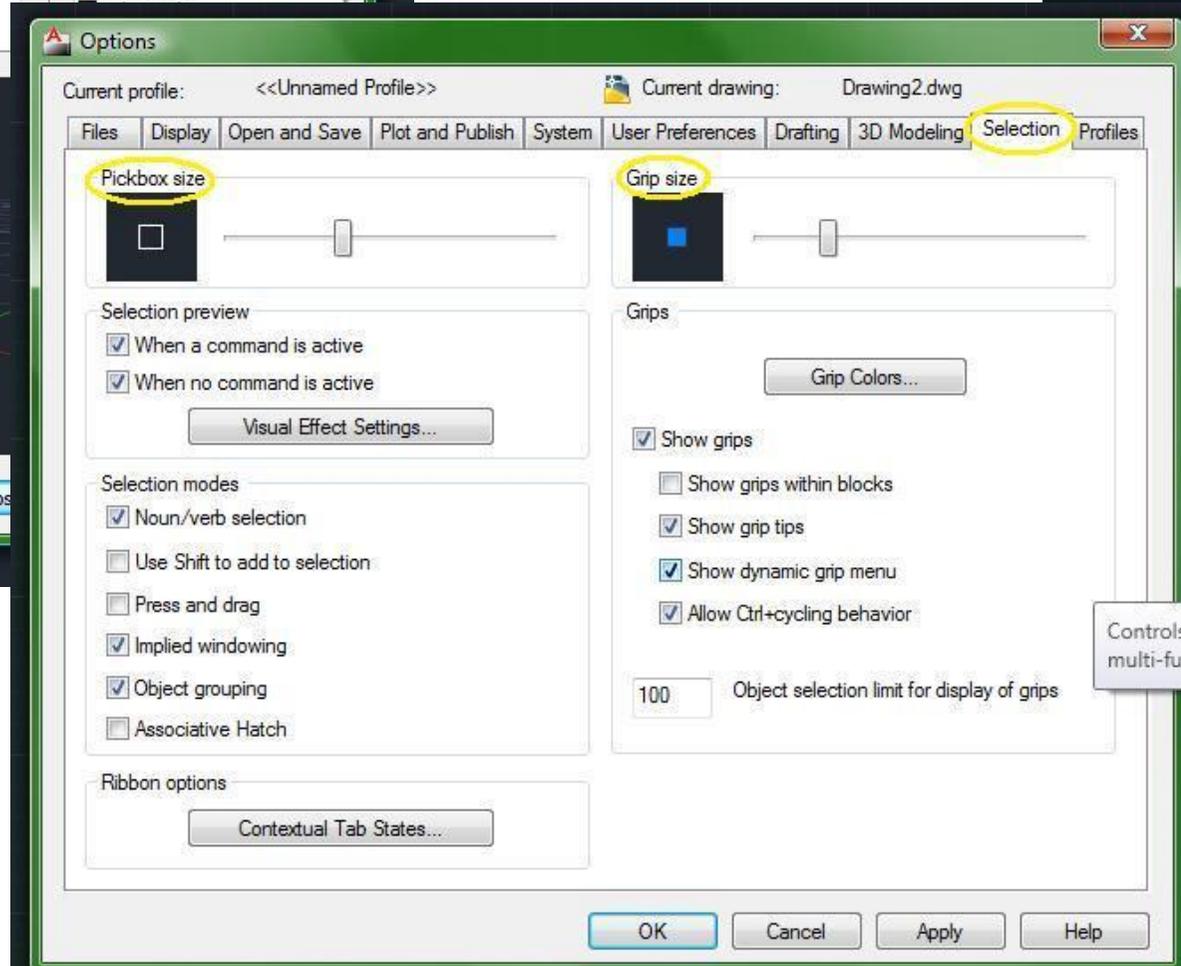- Right-click settings are also personal preference

- Repeating commands and meaning *enter* make the drawing process faster
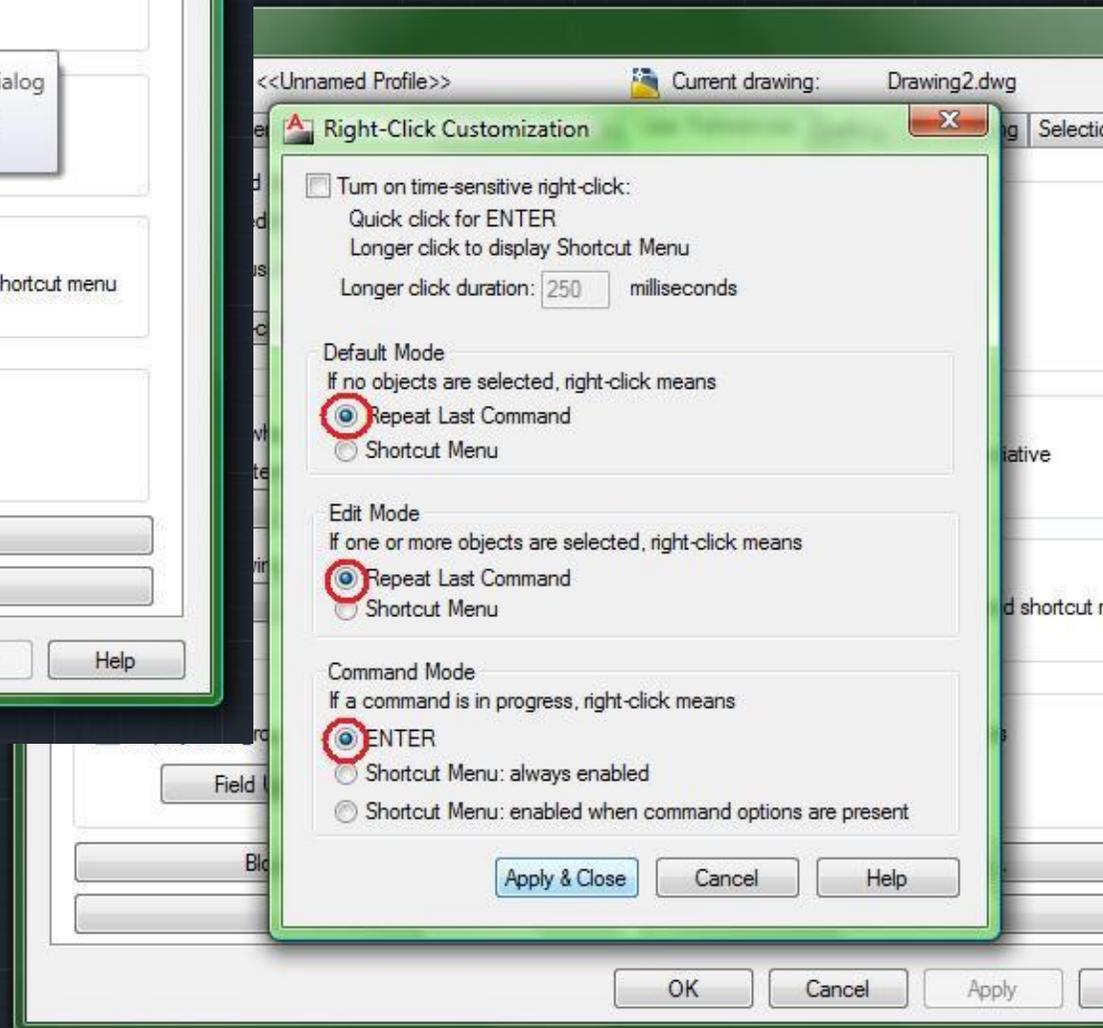
Preferences

- You can set the color of just about anything in the drawing

- The pickbox and grip sizes will help you manipulate your drawing

Snaps, etc.

- ## Snap to Grid
  - cursor snaps to grid points
- ## Show Grid
  - displays grid in model space
- ## Orthographic
  - constrains lines to 90deg angles
- ## Polar Snap
  - constrains lines to other angle increments
- ## Object Snap
  - cursor snaps to points on objects
- ## Dynamic UCS
  - shows UCS at all times
- ## Dynamic Input
  - displays input text in space
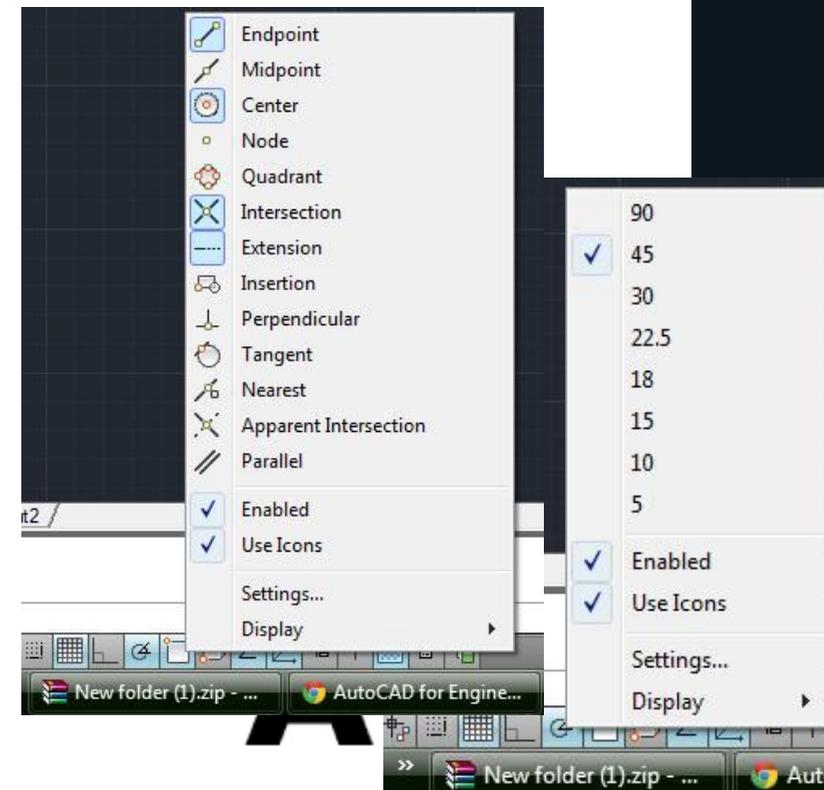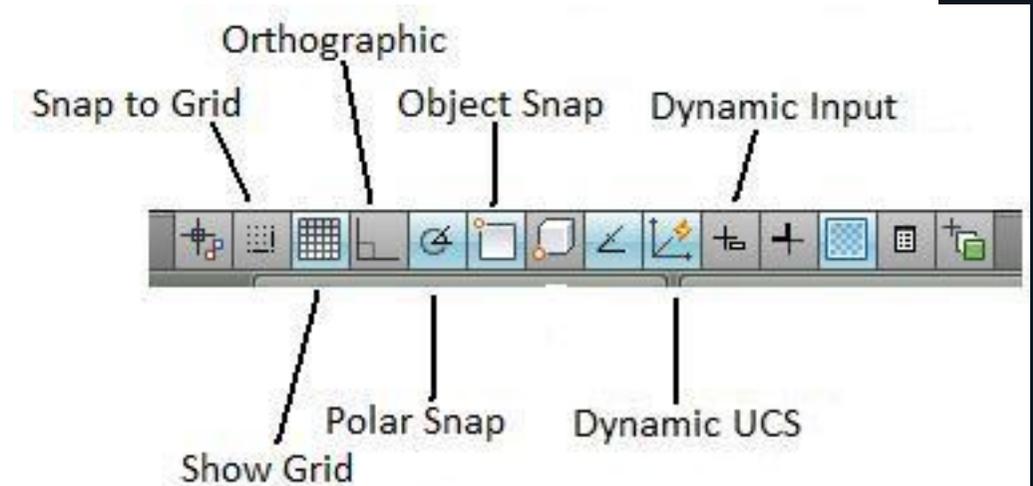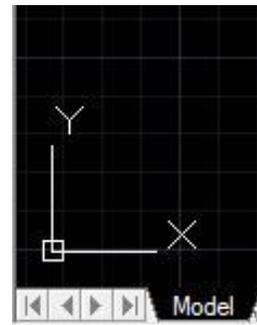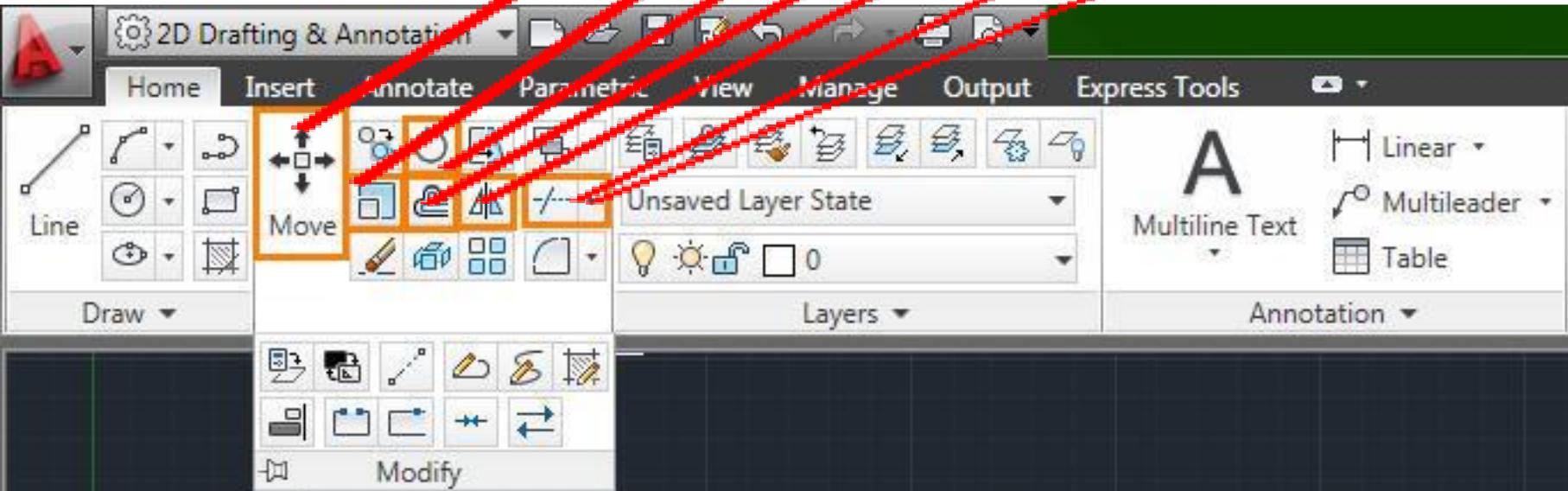
Some Common Commands

- 2D Commands
  - Line
  - Rectangle
  - Circle
  - Polyline
  - Trim
  - Extend
  - Offset
  - Move
  - Mirror
  - Scale
  - Rotate

- 3D Commands
  - Extrude
  - Union
  - Subtract
  - 3D Rotate

- Helpful Commands
  - Units
  - Properties
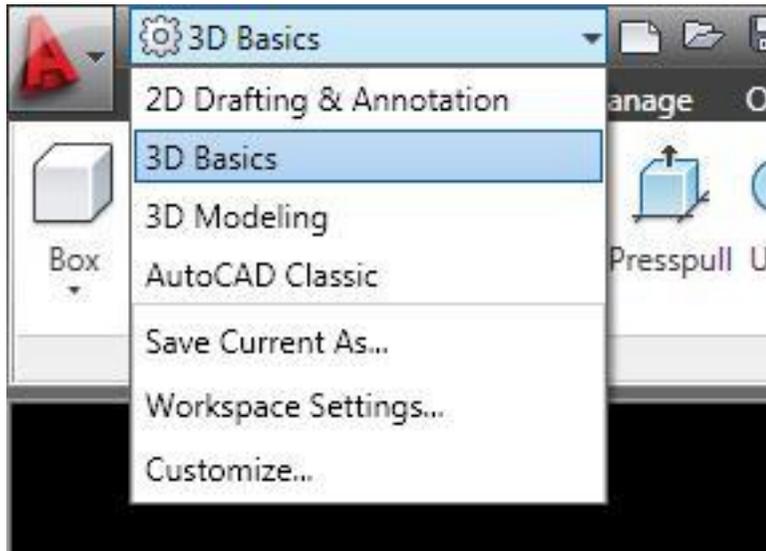 - Measure
  - Dimension

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Command Interface
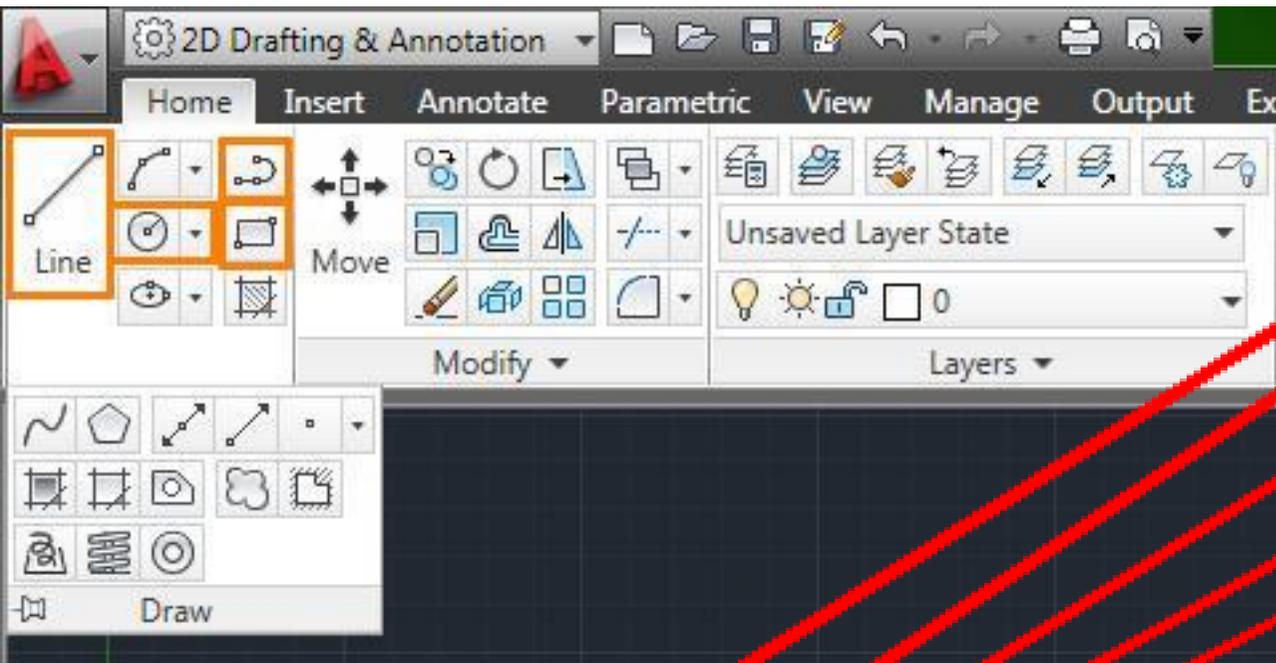
- Line (L)
- Circle (C)
- Rectangle (REC)
- Polyline (PL)
- Move (M)
- Scale (SC)
- Rotate (RO)
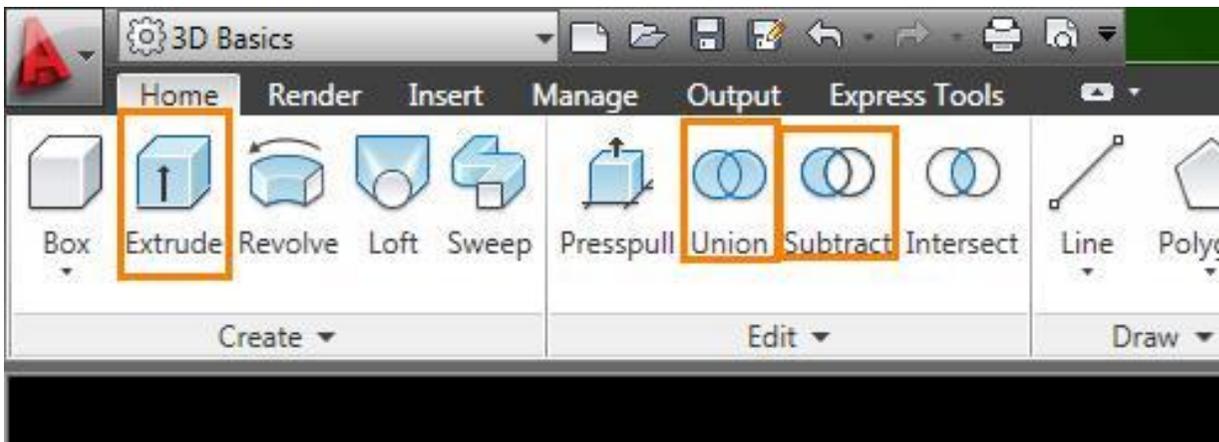- Offset (O)
- Mirror (MI)
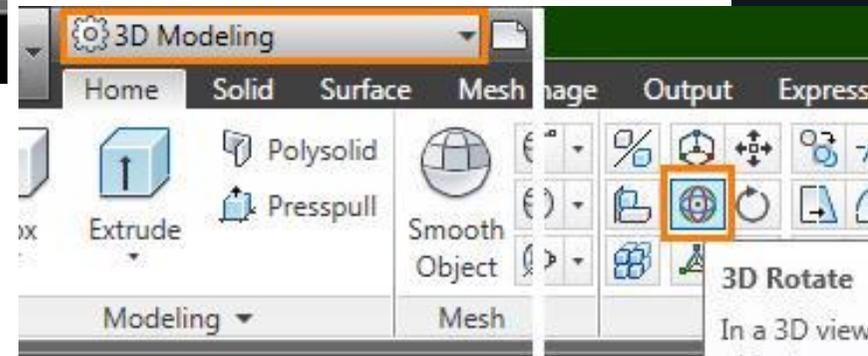- Trim (TR)

3D Commands

- You can change the user interface to 3D Basics or Modeling if you want to use buttons, or you can use keyboard entries
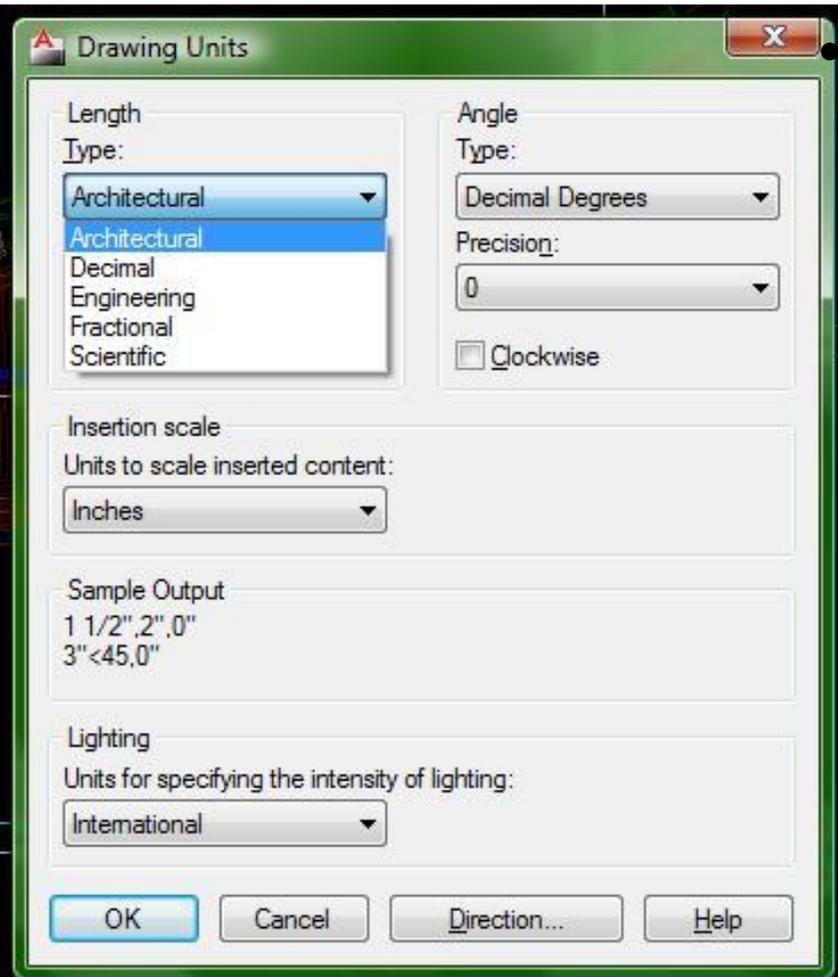 - EXT
  - UNI
  - SU

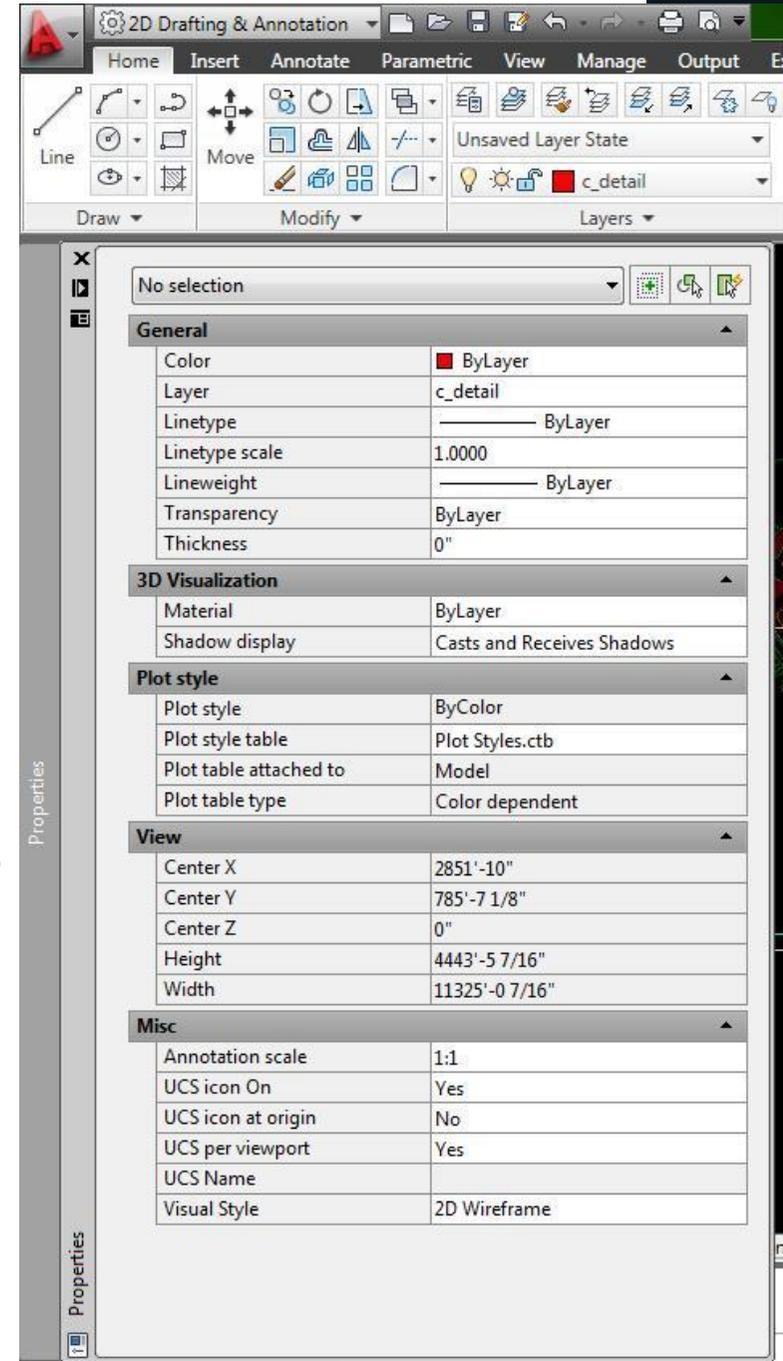- You can rotate an object about the X or Y axis with the 3D rotate command (*3R)*

Units and Properties

- The units command will let you change the primary units you will be drawing in
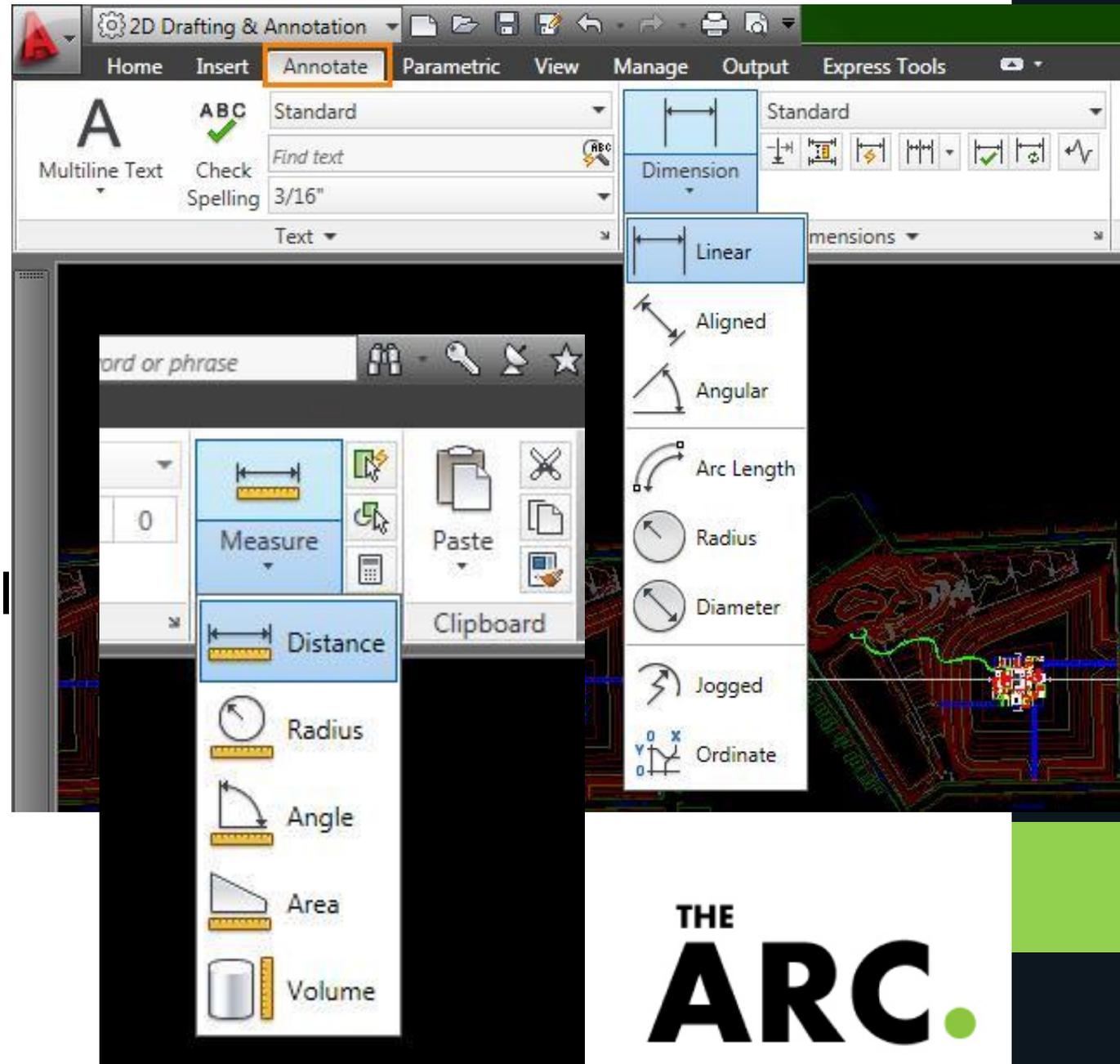

- *Properties* will let you change just about any-thing with respect to the selected item
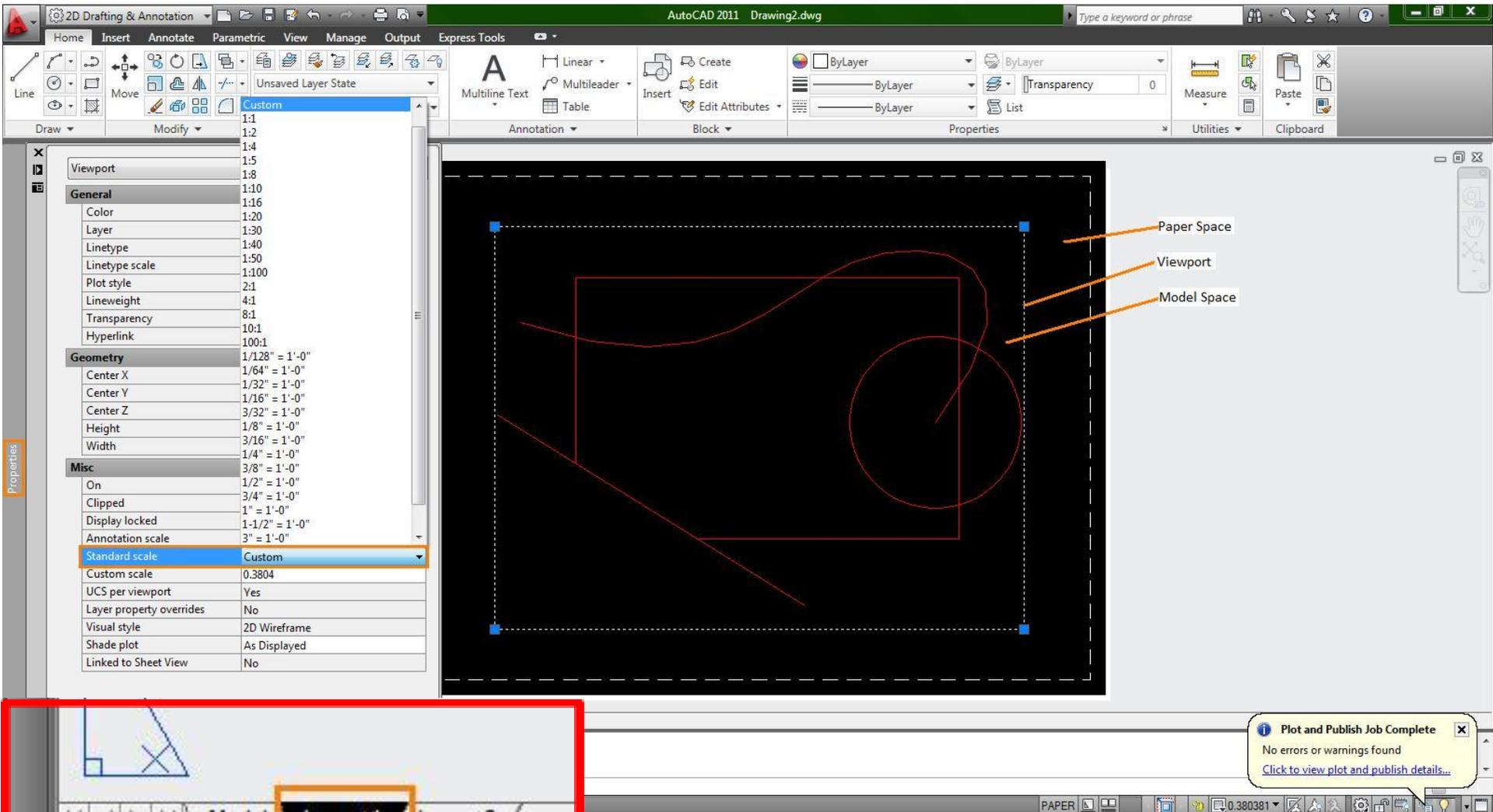
Measure and Dimension

- The measure option has two important sub-commands:
  - Distance (DI)
  - Area (AREA)

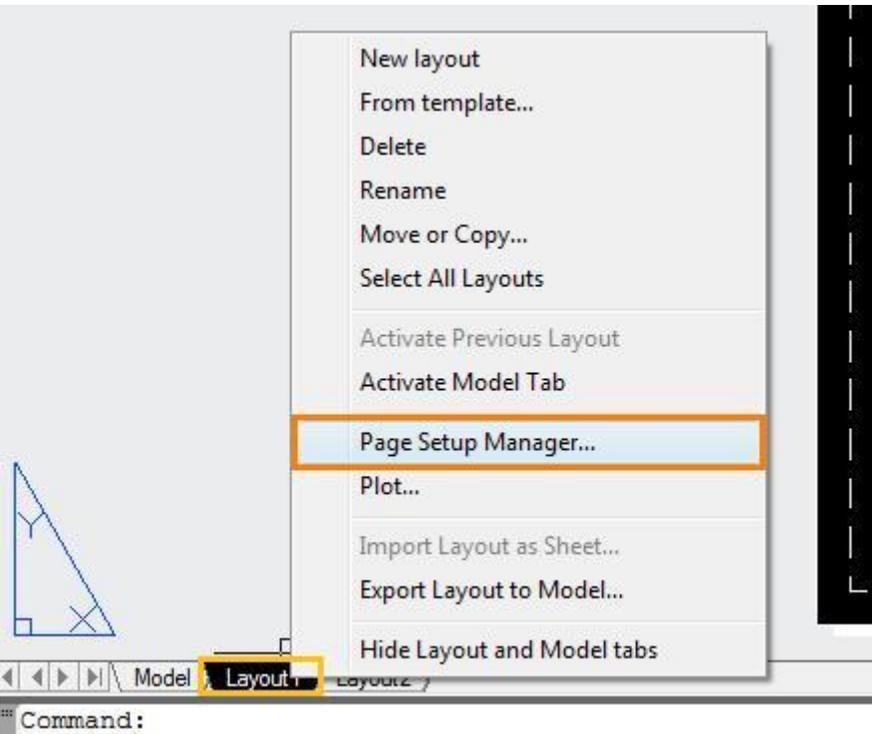- The dimension tool has many options, and displays the measurement in the drawing
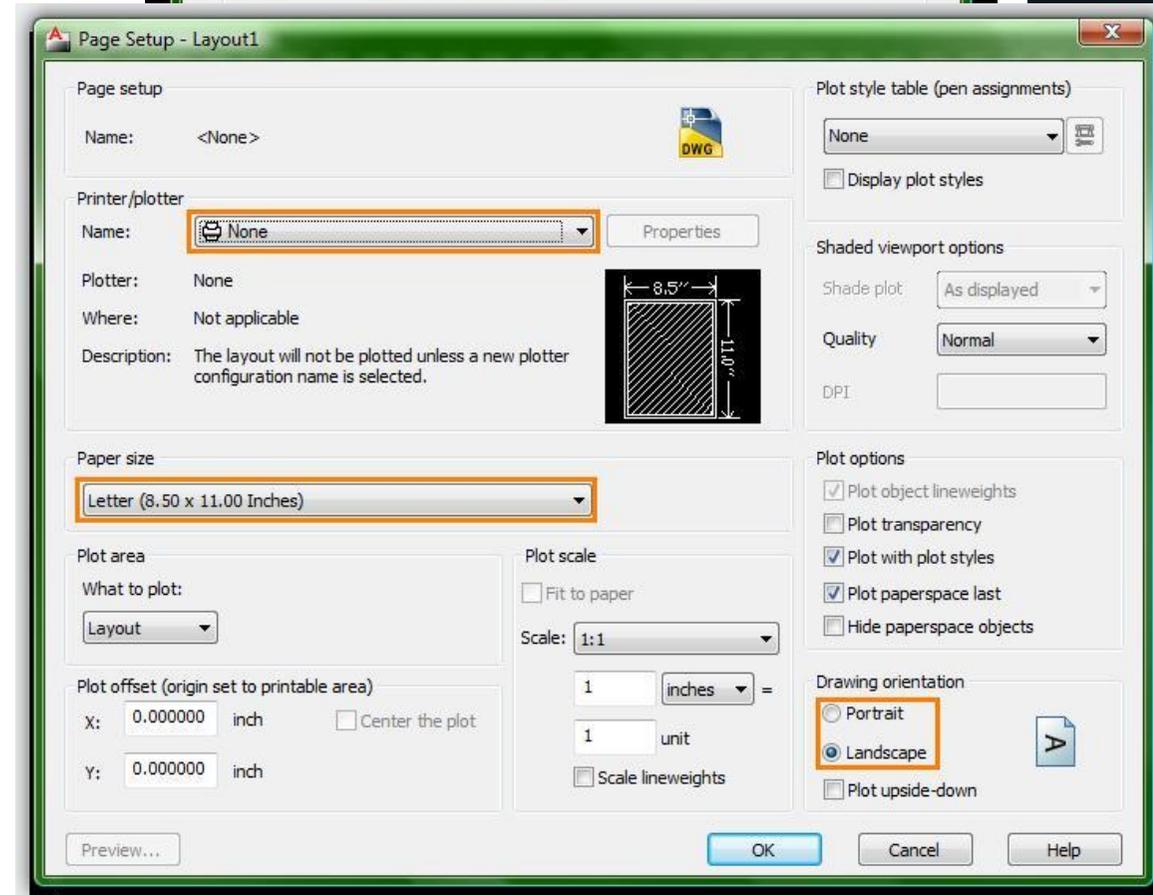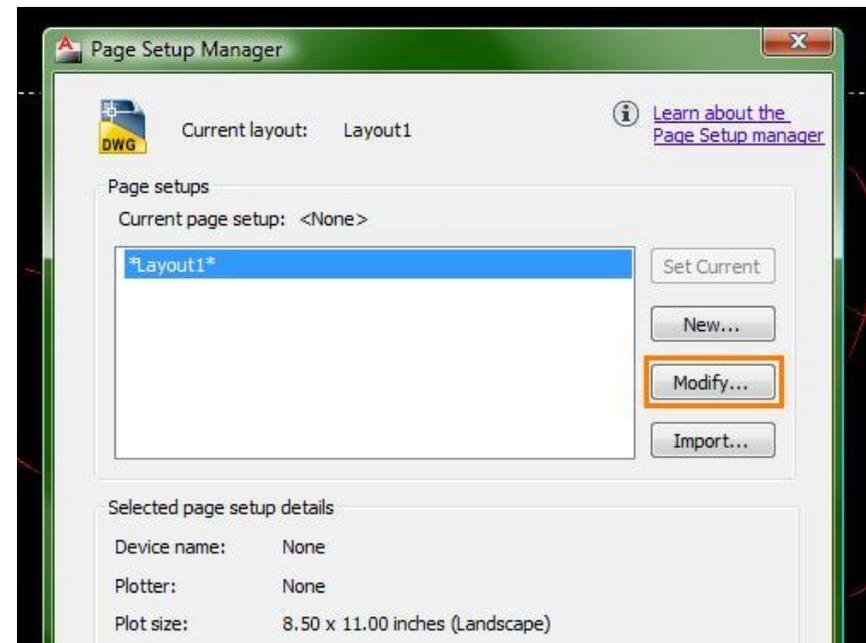
Viewports

- Viewports in layouts help you arrange your drawings into organized sheets at specific scales

Setting up to Print

- You can apply a page setup to your layout to make the printing process quicker every time

More Topics to Investigate

- CAD has lots of options and possibilities that you should explore on your own
  - Lineweights and types
  - Interface options
  - Complex shapes
  - 3D modeling
  - Rendering
  - External References
  - BI

- To download student versions or trials, go to http://students.autodesk.com
- You can also find tutorials and help on their website, on forums, or by pressing F1 in CAD

- Questions?

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