

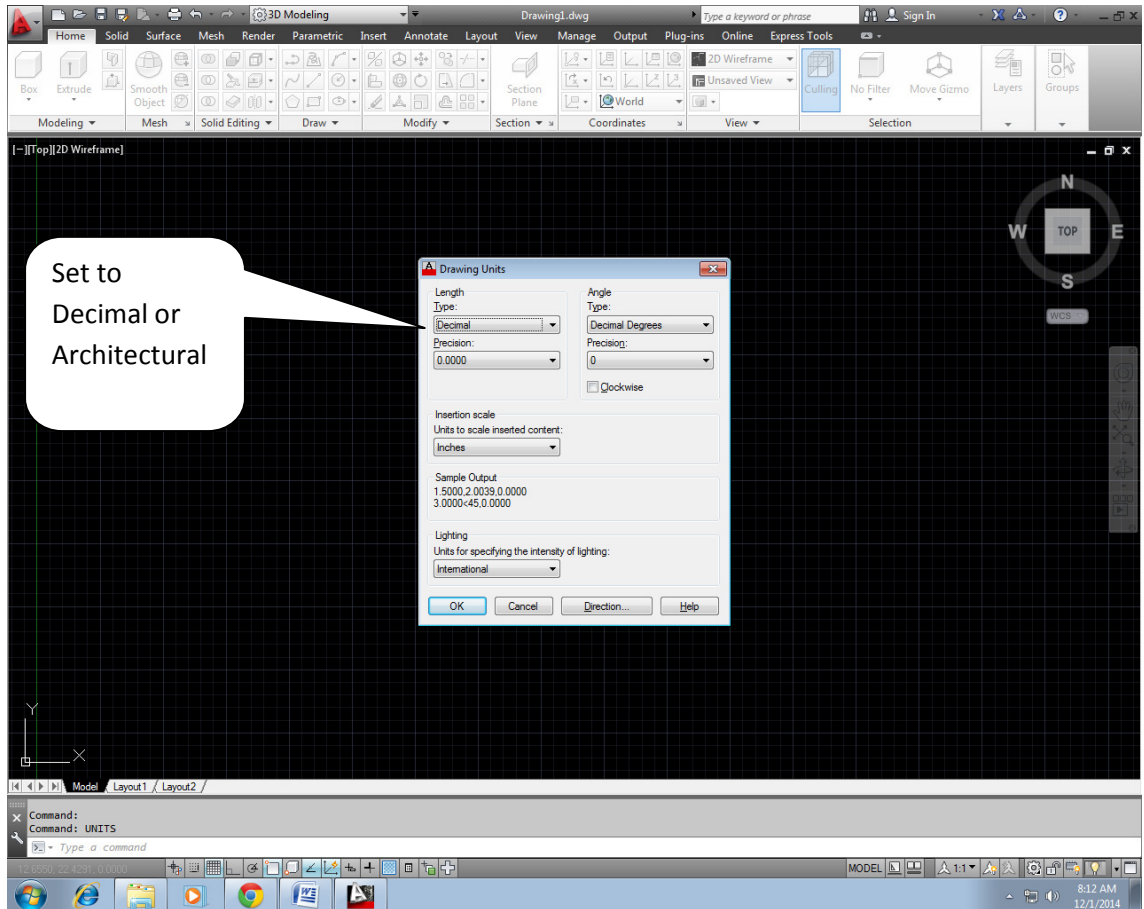
America National Standards Institute (ANSI) - Dimensioning Rules

1. The first dimension lines should be spaced 3/8" or 10 mm from the object, and 1/4" or 6 mm away from each adjacent dimension.
2. Extension lines should be started 1/16" from the object, and extend beyond the dimension line by 1/8".
3. For engineering and mechanical drawings all dimensions should be read from the bottom edge of the paper. (Unidirectional Dimensioning System)
4. When dimensioning mechanical drawings, Datum Measurements should be used.
 - a. All measurements are pulled from a single point on the left side of the object to the right, and from the bottom of the object to the top.
5. Datum measurements are part of the Unidirectional Dimensioning System.
6. For decimal values less than 1 inch, the zero in front of the decimal point should be omitted.
 - a. For example: 0.25 should be written .25 (drop the leading zero)
7. When the Metric system is used for a drawing, values are expressed in millimeters
 - a. For values less than 1 mm, a zero should be placed in front of the decimal point.
8. The same measurements should not be repeated on multiview drawings.
(i.e. object depth, width or height should only be shown in one location on the drawing)
9. Overall dimensions should be placed outside the smaller dimensions.
10. Effort should be made to avoid crisscrossing extension lines.
11. The size of a hole or circle should be given as a diameter
 - a. (A " \varnothing " symbol is used before the value and a leader leading to the center of the object being measured should be used).
12. Always give the diameter of a cylindrical shape as a normal dimension and include the \varnothing symbol with the value.
13. Always give the radius of an arc using a leader. An "R" should be placed before the value.
14. Dimensions for arcs of equal size such as "Filletts" can be given in a note.
(For example: ALL FILLETS = R.125)
15. Dimensions should not be placed directly on the drawing object.
16. Dimensions should never be pulled to hidden lines.
17. Dimensions should be placed between views whenever possible.
18. Place dimensions on the view that shows the most detailed contour of the object.
19. Leaders should be drawn at an angle between 30, 45 or 60 degrees from horizontal or vertical, and should point to the center of an arc or circle. (Never draw leaders horizontally or vertically)

AutoCAD Directions:

In AutoCAD, the command **UNITS** is used to set the program so that it draws in either Metric or English (SAE) units.

When Units is typed in the command window, the following window appears:



- When **Decimal** units is selected, the computer will draw using Metric units (millimeters)
- When **Architectural** units is selected, the computer will draw using English Units (Inches and feet)

For the drawings that we have used in class, all dimensions and units have been pre-set in templates.

To alter the appearance of the dimensions on a drawing in AutoCAD, the **DIMSTYLE** command should be used. *(Please do NOT attempt this without permission as it can be very difficult to adjust if you make a mistake)*