

Dimensioning Orthographics

-If a drawing is to be complete so that the object represented can be made from it exactly as intended by the drafter or designer, it must tell two stories.

It tells these by means of (1) _____, which describe the shape of the object, and (2) _____, giving the sizes and other shop information.

-The drawing shows the object in its completed state, and, whether the views are drawn full size or to scale; the dimensions must be the actual dimensions of the completed object.

-If the drawing is _____ wrong, the object will be made wrong.

Line Types used in Dimensioning

-Dimension lines should be dark thin lines; the views should stand out clearly from the dimensions.

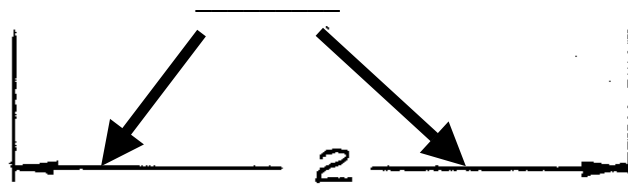
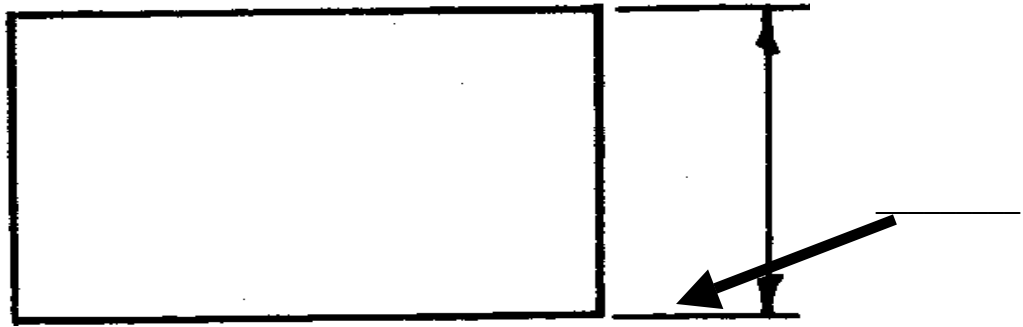
Extension Line: The extension line _____ from the object with a gap of about _____” next to the object and continues to about _____” beyond the outermost arrowhead.

Dimension Line: A dimension line has an _____ at each end indicating the extent of the dimension. A gap is left at the middle for the dimension figure. On small drawings, dimension lines are spaced at least _____” from the object and at least _____” apart. The spacing must be _____ throughout the drawing.

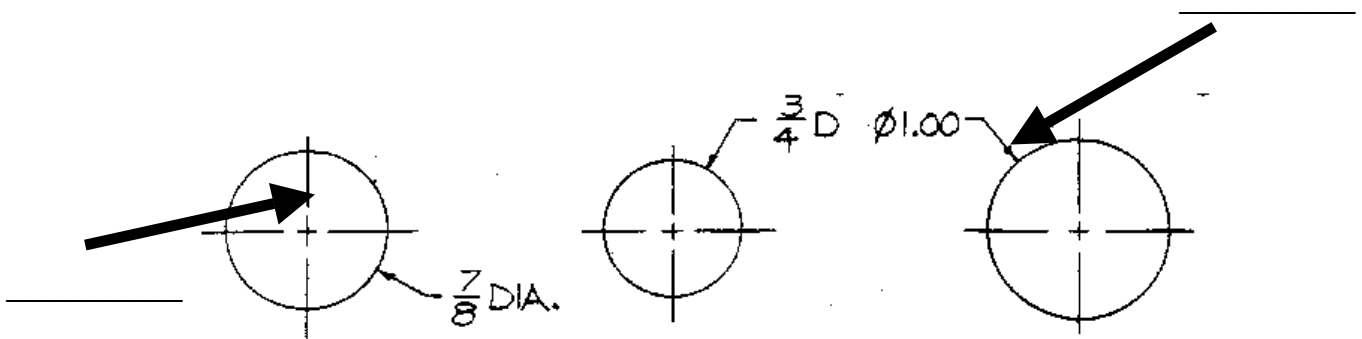
Center Line: Center lines are used to indicate axes of symmetry and in place of extension lines for locating holes and other features. Make center lines end about $\frac{1}{4}$ ” outside the hole or feature.

Leader: A leader is a thin line that _____ from a note or dimension and is terminated by an arrowhead touching the part to which attention is directed. Leaders are _____ lines usually drawn at _____°, _____°, or _____°. A short horizontal line extends from the inclined line.

Arrowheads Arrowheads are drawn with two sharp strokes away from the point. The length should be _____” and the width should be about _____ the length. For better appearance, they may be filled in.



- The number label is placed in the center of the dimension line.



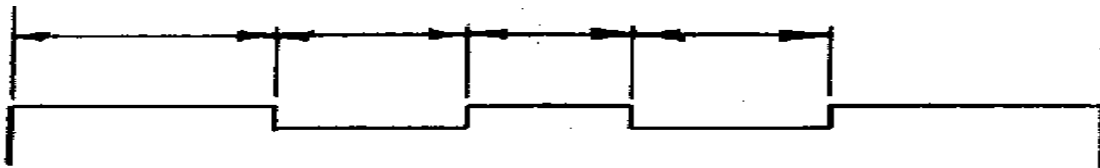
- All dimensions are completed using _____” letters and numbers.

General Dimensioning

- Incorrect or unclear dimensions can lead to costly mistakes in the shop during the building the object.
- The standard height for all whole numbers is _____” and for fractions double this to _____”
- Do not dimension _____ or contours.
- Never letter a dimension figure over any line of the drawing.
- Do not _____ dimensions. Repetition of dimensions clutters the drawing.
- Draw extension lines **off** the _____ whenever possible.
- It is common practice to omit all _____ on a drawing when all dimensions are expressed in inches.

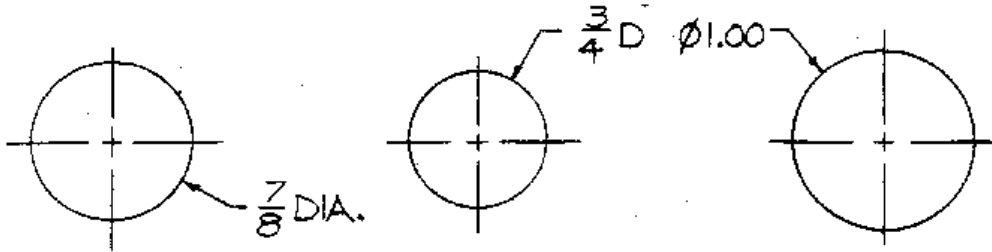


- Place multiple contour dimensions at the same point off the object.



Dimensioning Circles

- Circles or holes are labeled by listing the _____.
- There are 3 acceptable versions for dimensioning the _____.



- Dimensioning circles uses a _____.

Dimensioning Arcs

- An arc is a portion of a circle or a curved line with a defined _____.
- Arcs are dimensioned in the views in which their true shapes appear by giving the _____. The letter R, for _____, is always lettered after the figures.
- The dimension figure and arrowhead should be inside the arc. If space is too crowded to letter the dimension inside the arc, move the figure to the outside if necessary.

Dimensioning Angles

- Angles are drawn with the triangles or with the aid of the protractor. They are indicated by degrees. Circular dimension lines are drawn using a compass with the center at the vertex of the angle.

Steps in Applying Dimensioning

- Draw extension lines dark and sharp. Extend the center lines of the hole, to be used in the same matter as extension lines.
- Use the scale to space dimensions at least $\frac{3}{8}$ " from the object and $\frac{1}{4}$ " apart. Draw the dimension lines dark and sharp.
- Draw all arrowheads about $\frac{1}{8}$ " long and very narrow.
- Add all dimension figures and lettering.
- The views should stand out clearly from the dimensions.