DIMENSIONING
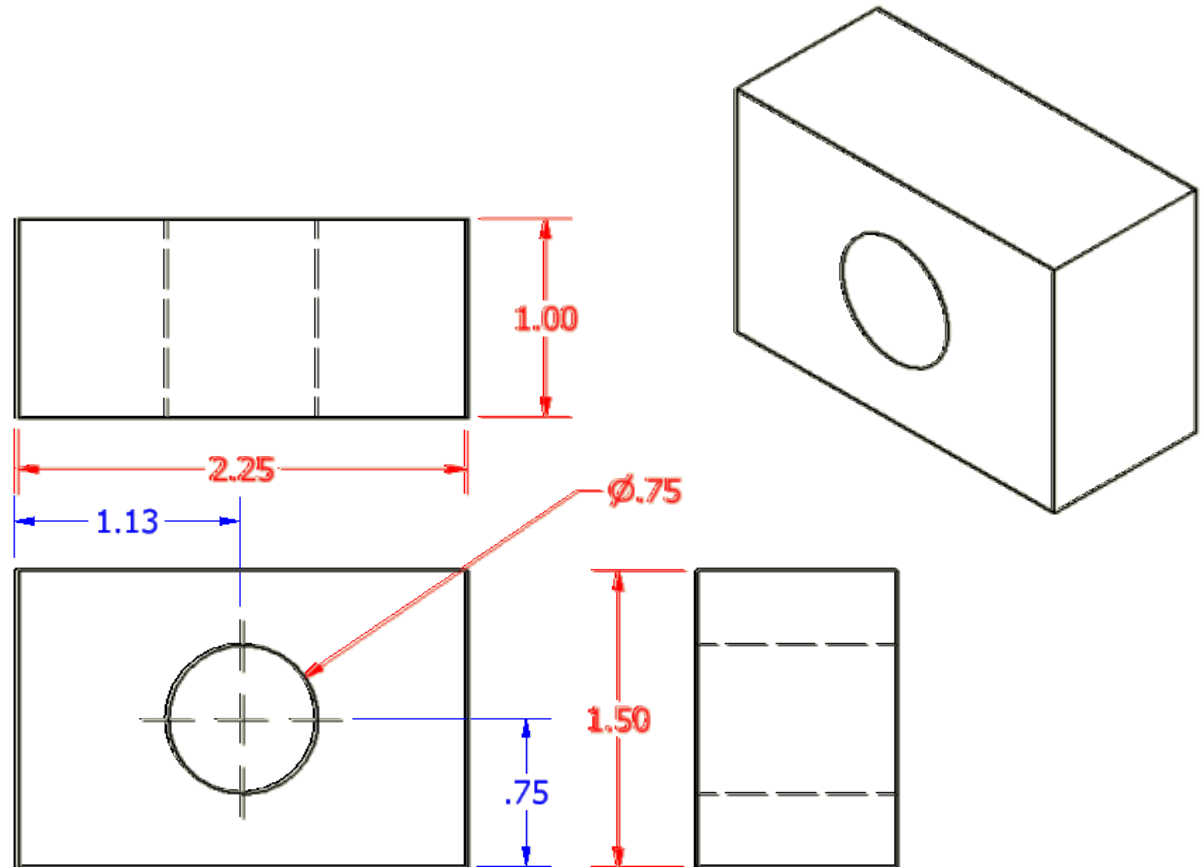
Proper Orthographic Dimensioning

Why Dimension?

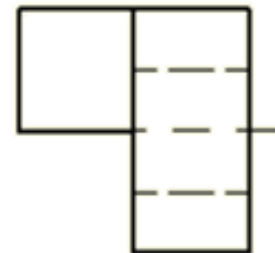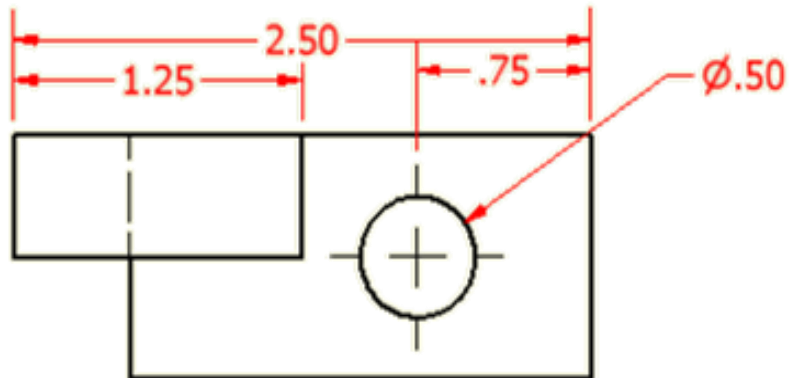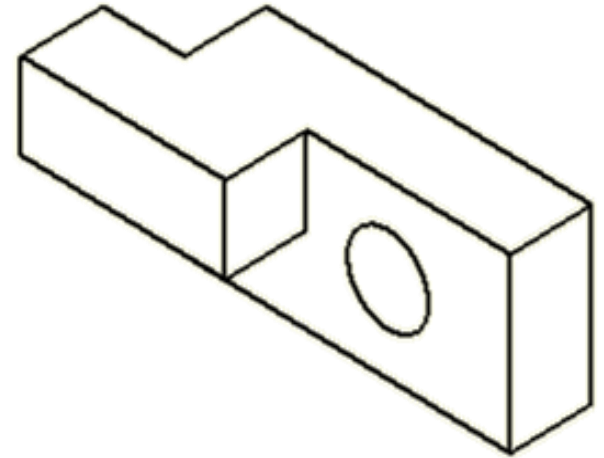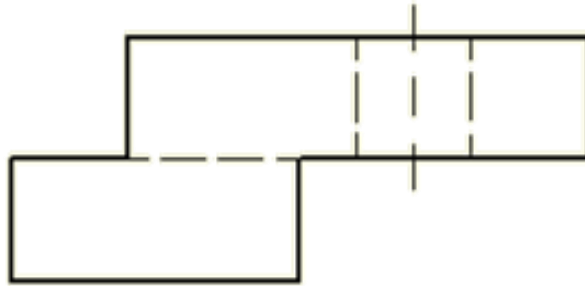Engineers and designers need to know
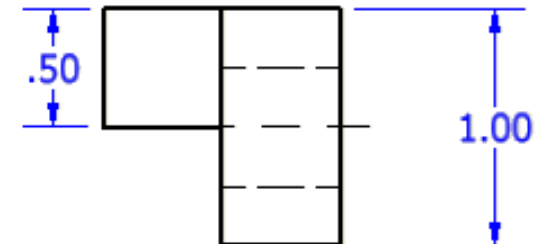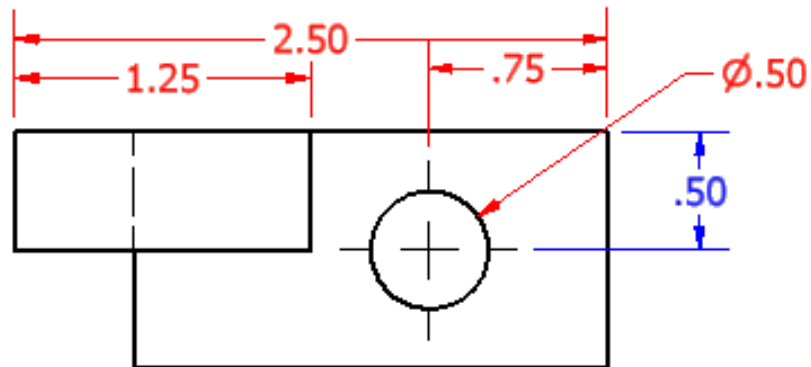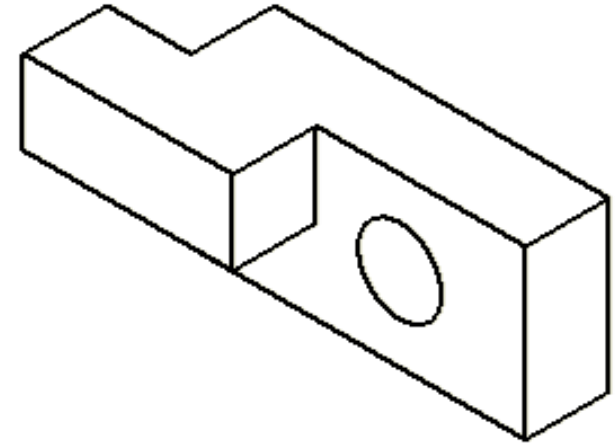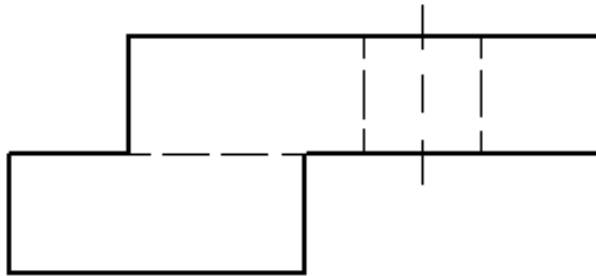
➤ Size

and

➤ Location of all features

Dimension Completely

Width

Dimension Completely

Width

Height

Dimension Completely

Width

Height

Depth
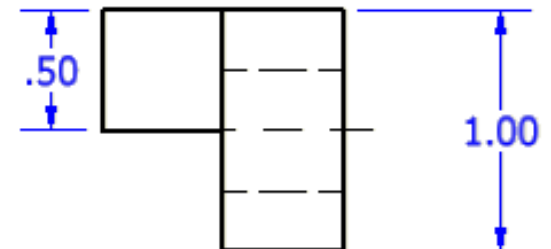
Dimension Line Types

1. Dimensions should NOT be duplicated, or the same information given in two different ways.

Incorrect

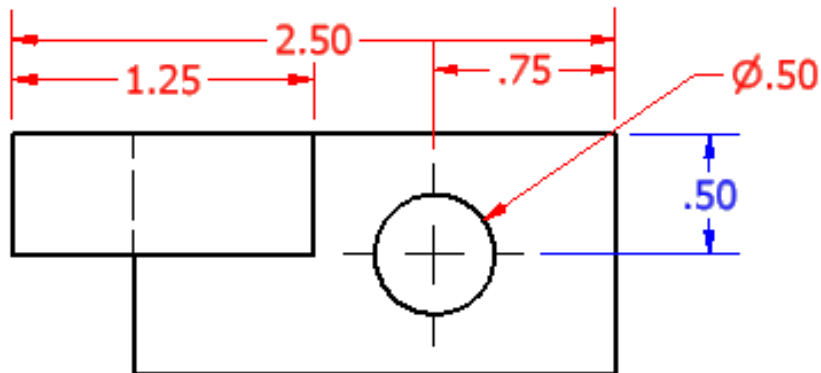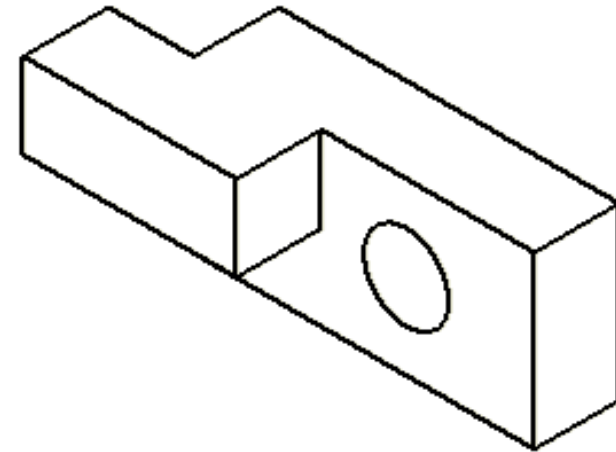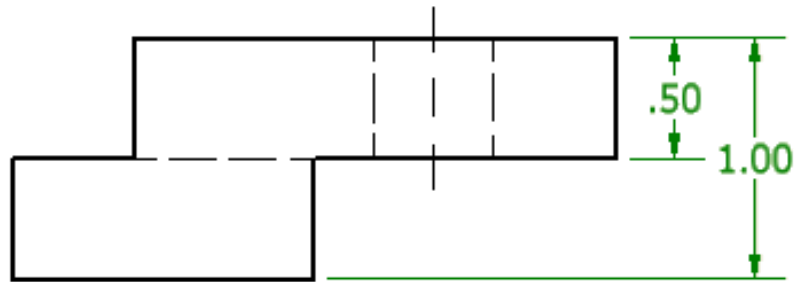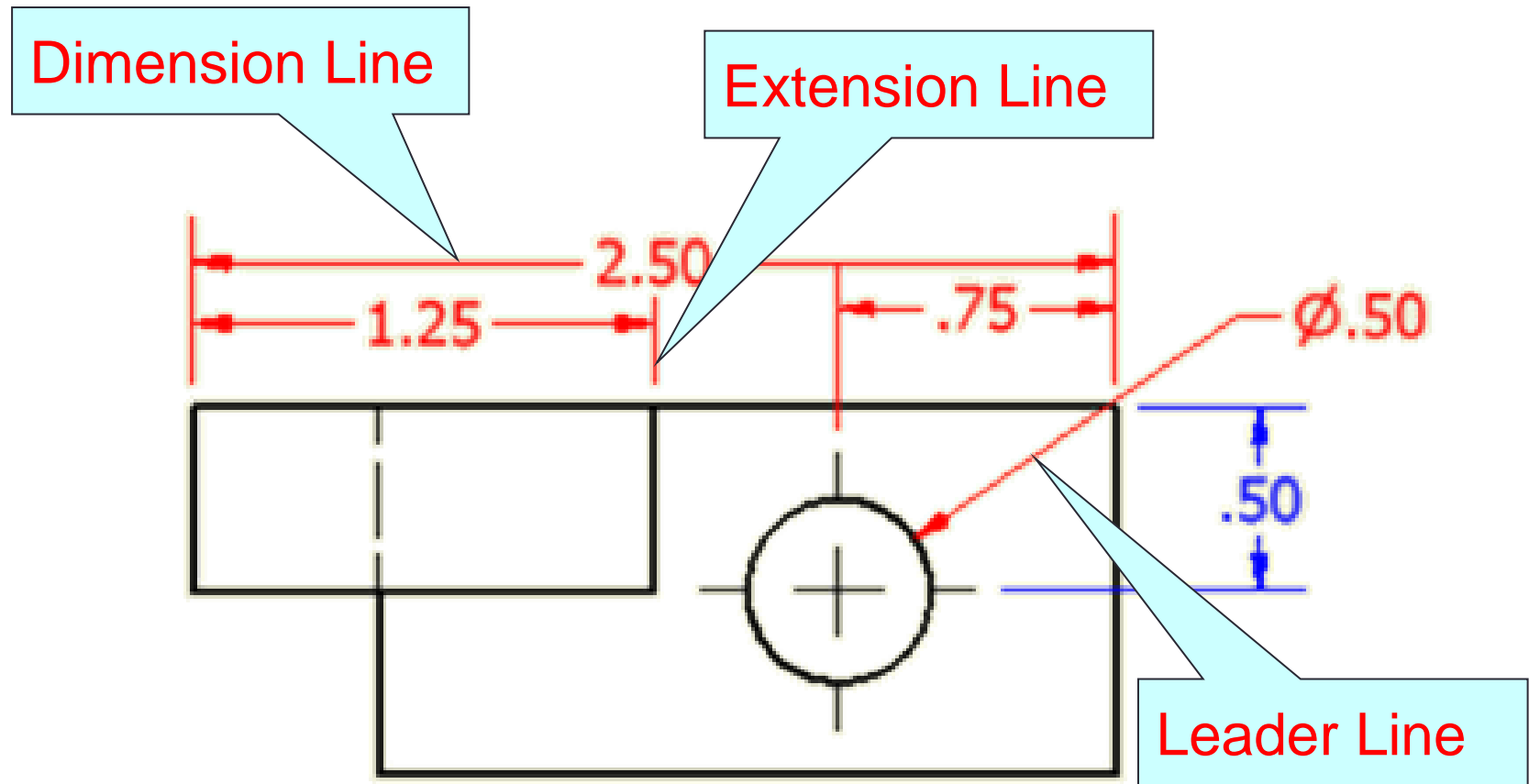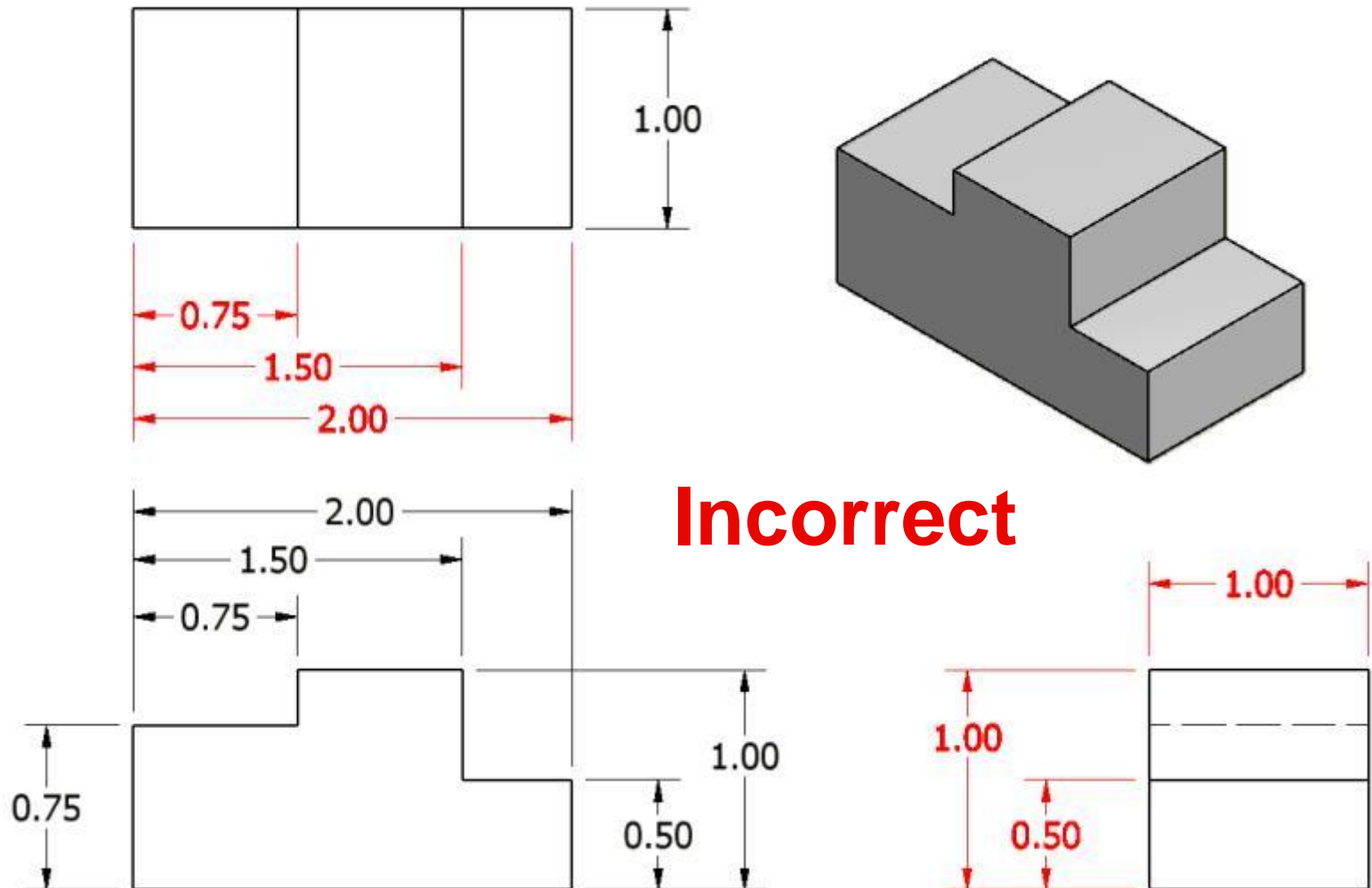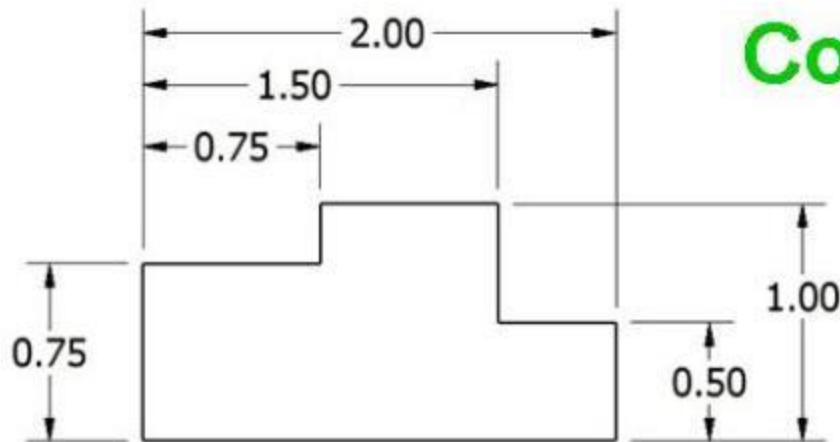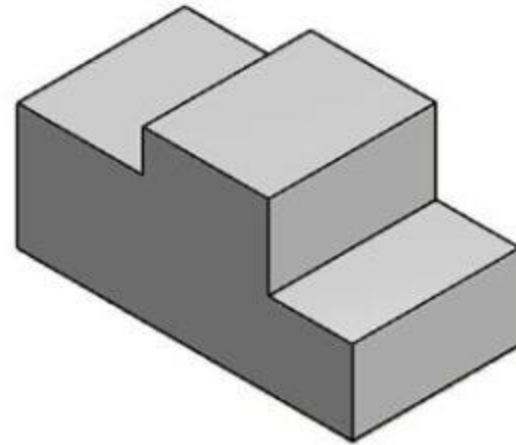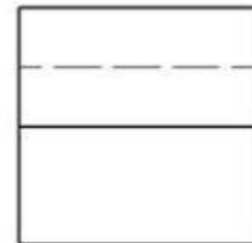# 1. Dimensions should NOT be duplicated, or the same information given in two different ways.

Correct

2. No unnecessary dimensions should be used – only those needed to produce or inspect the part.

1.00

2.00

0.75 — 0.75 — 0.50

0.50

1.00

0.75

0.50

Incorrect

2. No unnecessary dimensions should be used – only those needed to produce or inspect the part.

1.00

2.00
0.75 — 0.75

0.75

Correct

1.00

0.50

3. Dimensions should be attached to the view that best shows the *contour* of the feature to be dimensioned.
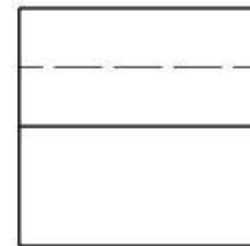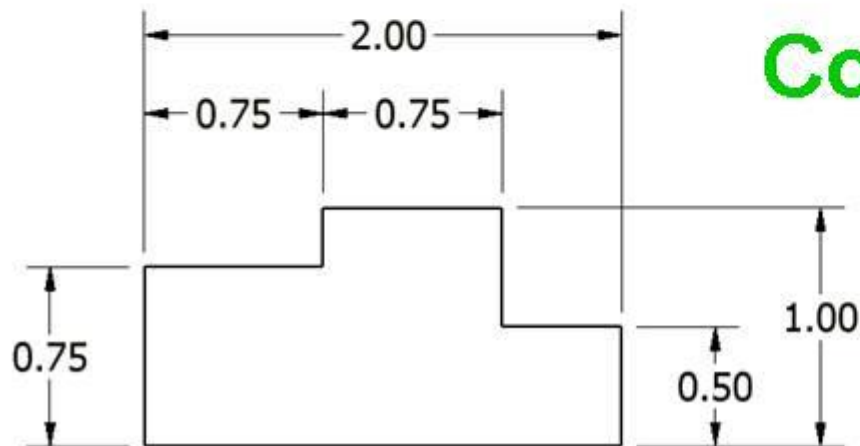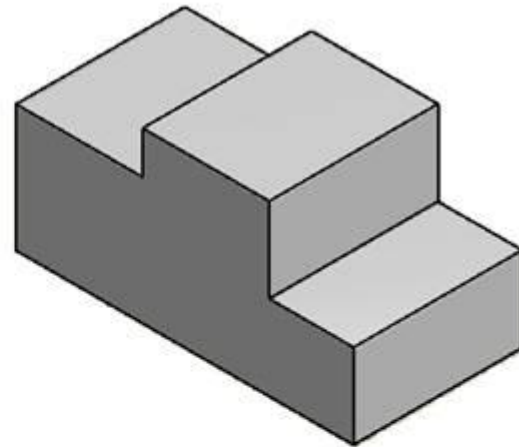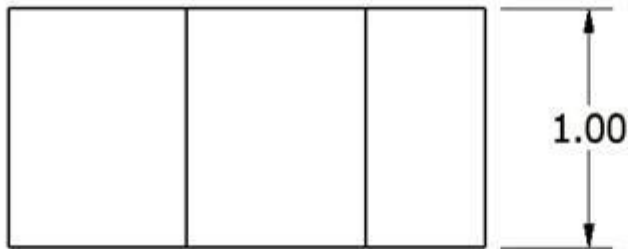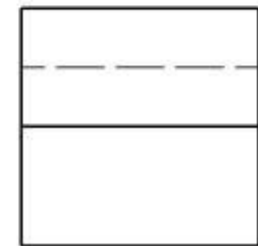

1.00

0.75

1.50

2.00

Incorrect

0.75

1.00   0.50

3. Dimensions should be attached to the view that best shows the *contour* of the feature to be dimensioned.

1.00

2.00

1.50

0.75

Correct

0.75

1.00

0.50

4. Whenever possible, avoid dimensioning to hidden lines and features.
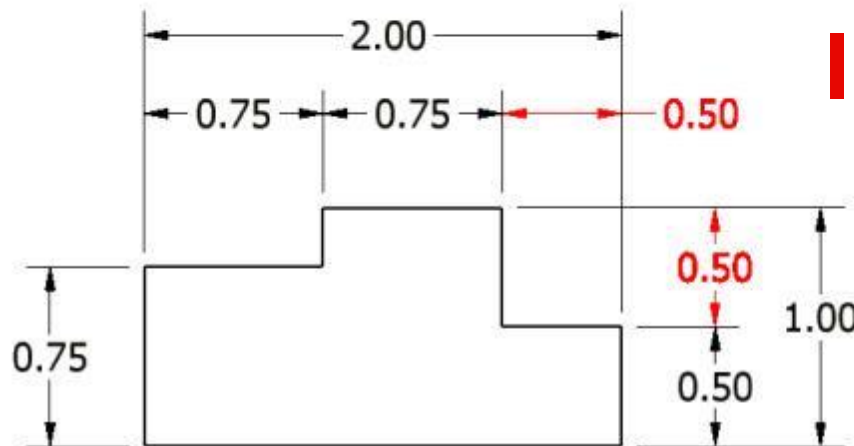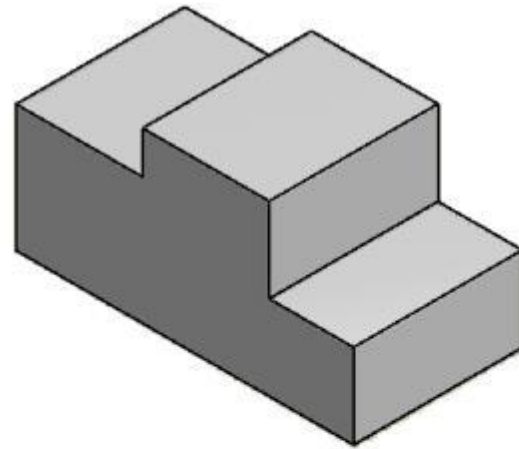
Incorrect

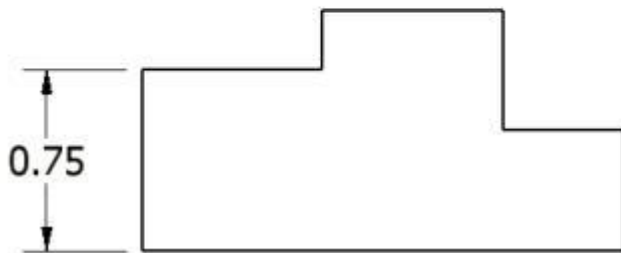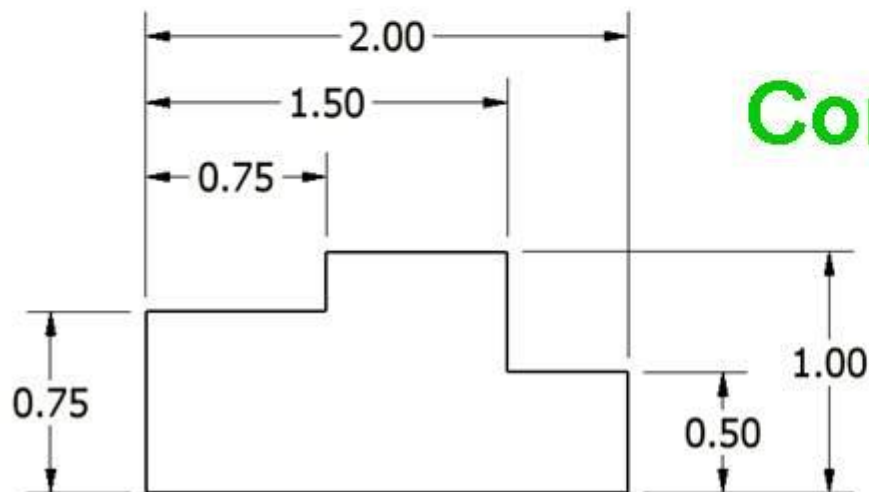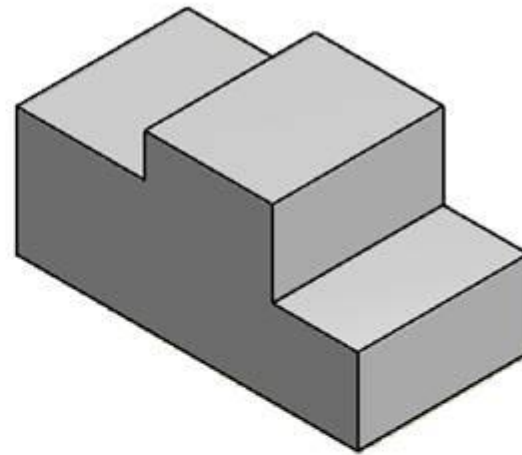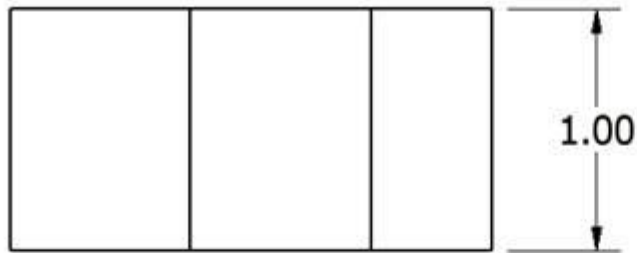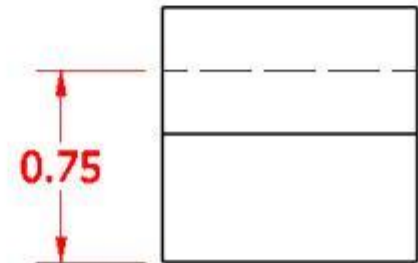# 4. Whenever possible, avoid dimensioning to hidden lines and features.
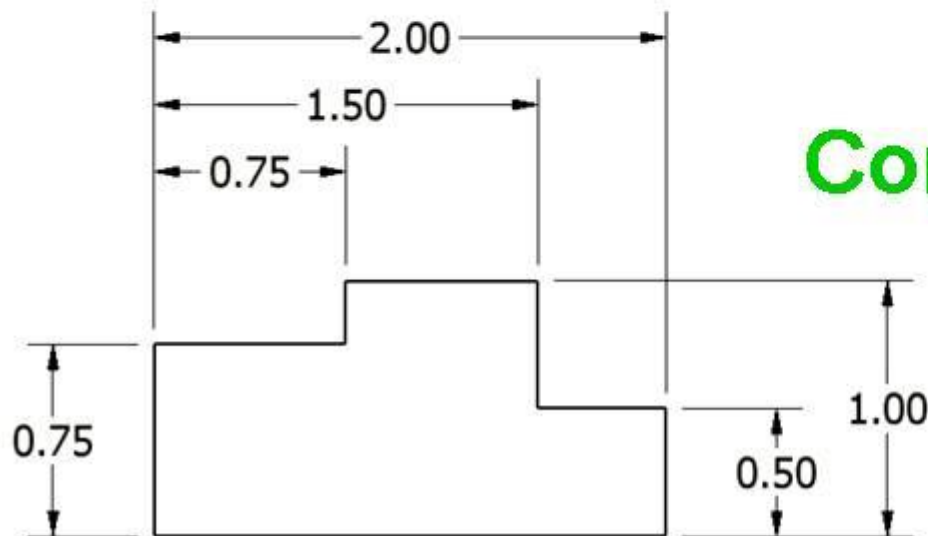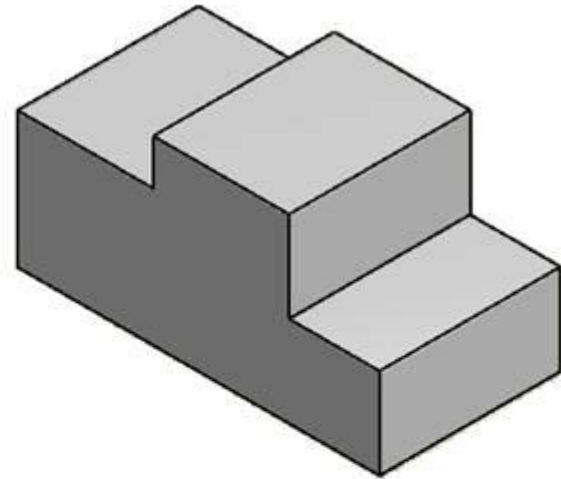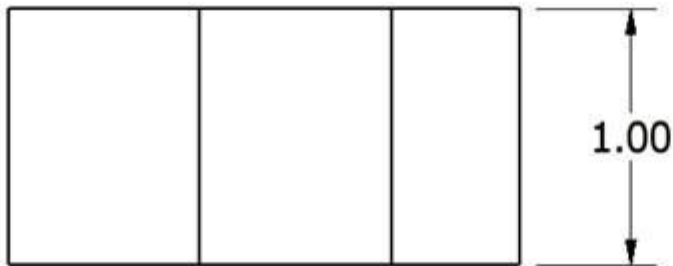
Correct
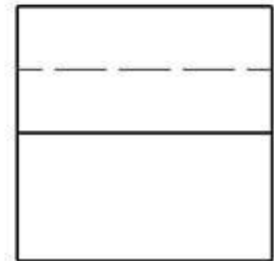
5. Avoid dimensioning over or through the object.

Incorrect

5. Avoid dimensioning over or through the object.

1.00

2.00

1.50

0.75

Correct

0.75

1.00

0.50

6. A dimension should be attached to only one view; for example, extension lines should not connect two views.

1.00

2.00

1.50

0.75

0.75

0.50

1.00
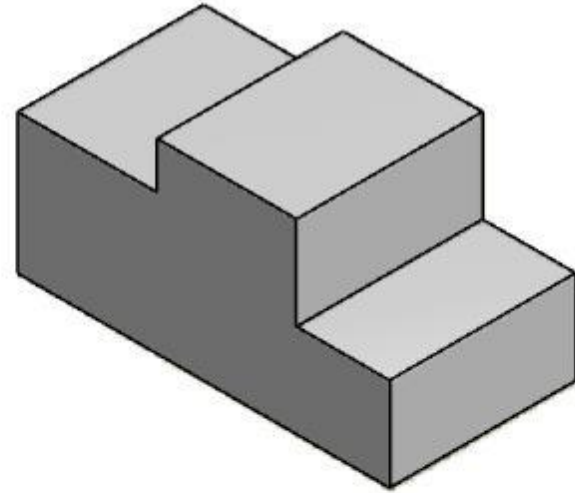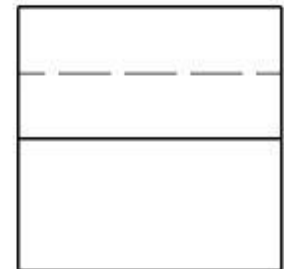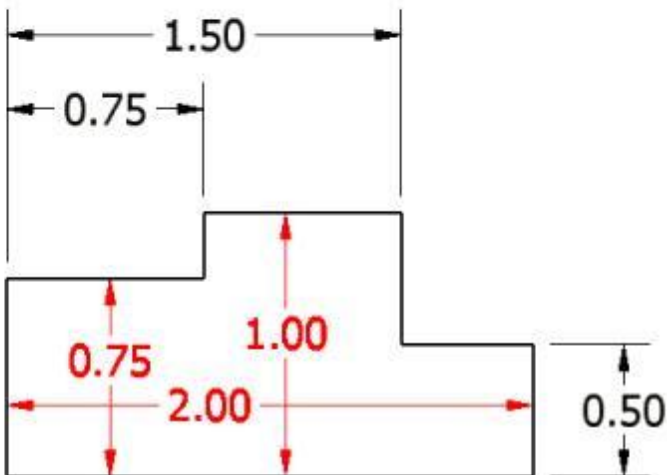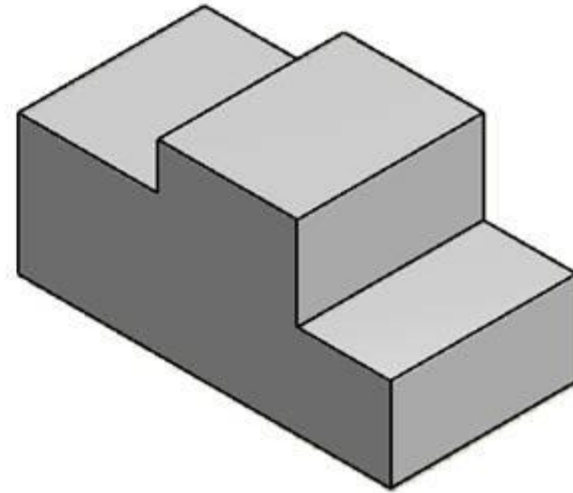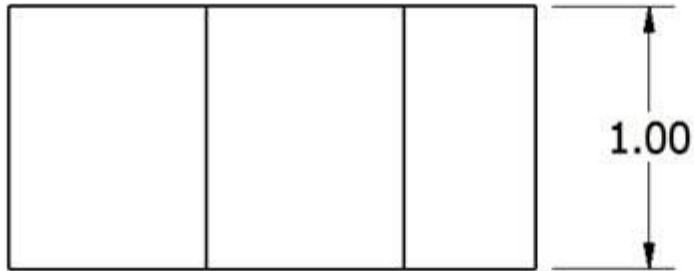
Incorrect

6. A dimension should be attached to only one view; for example, extension lines should not connect two views.

1.00

2.00

1.50

0.75

Correct

0.75

1.00

0.50
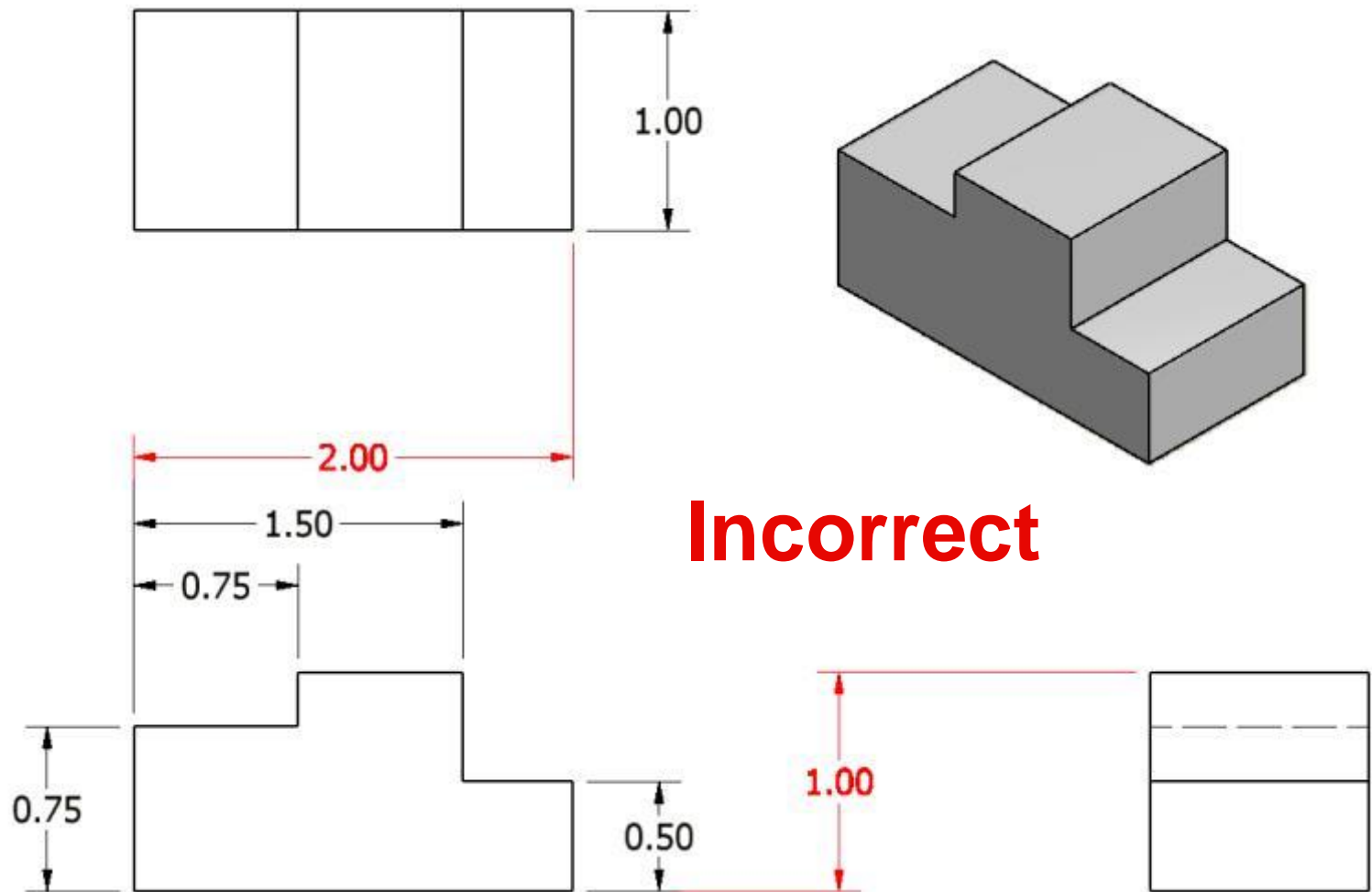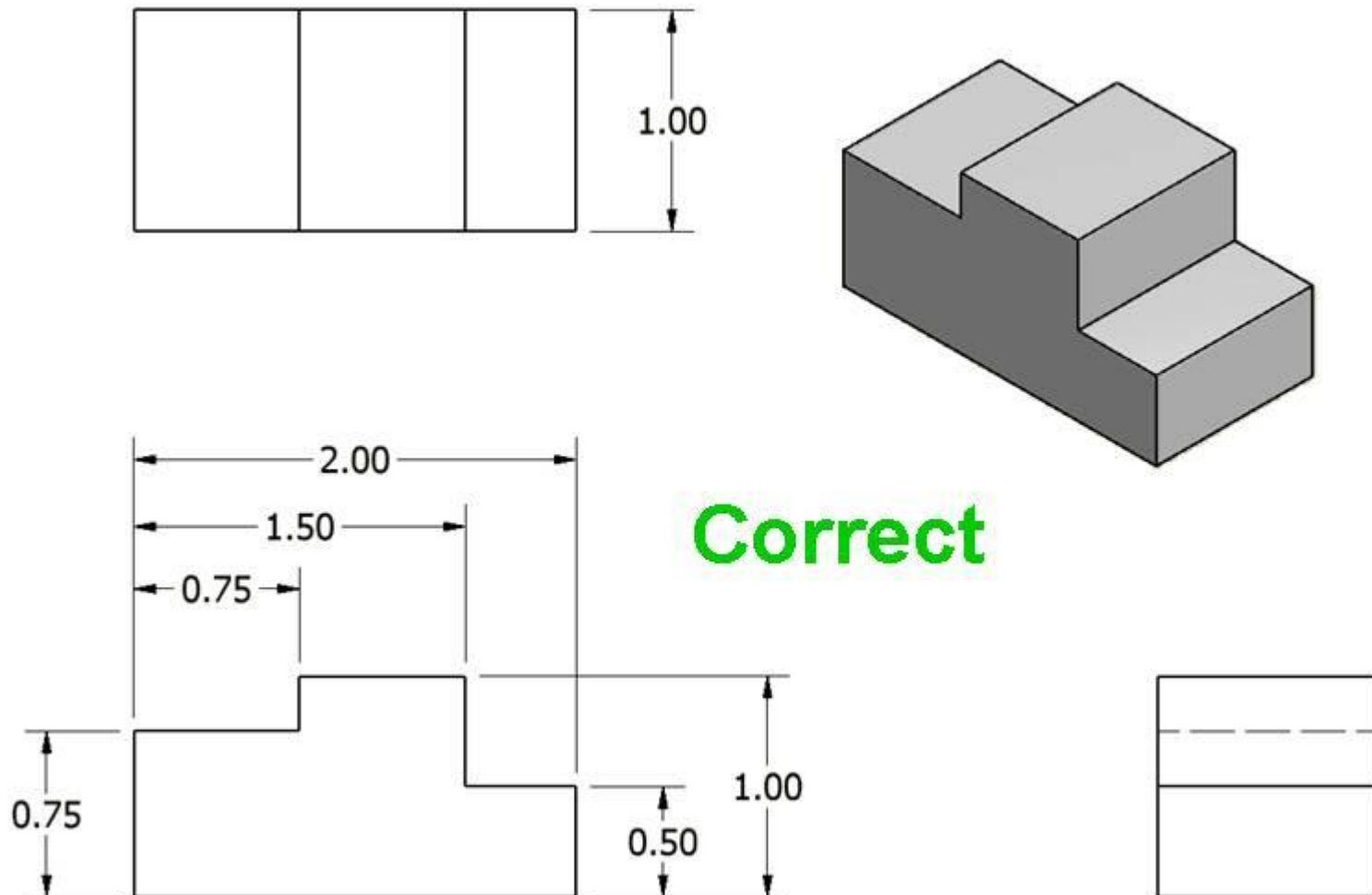
7. Whenever possible, locate dimensions between adjacent views.
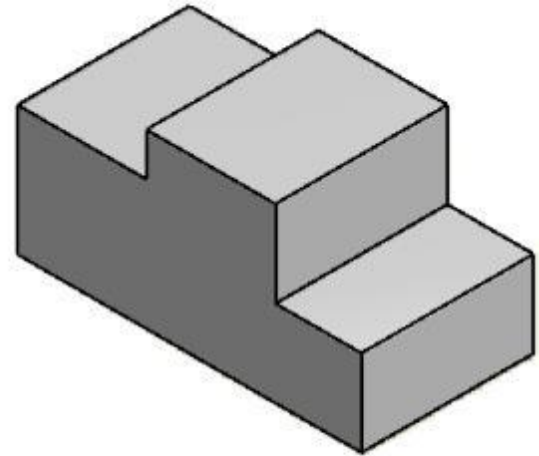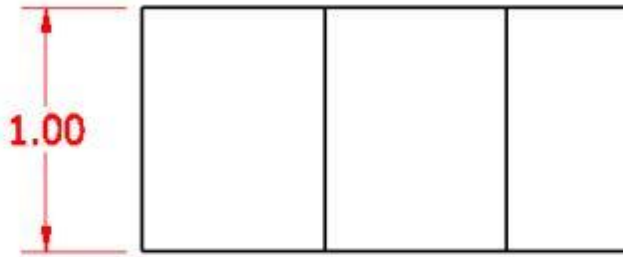
Incorrect
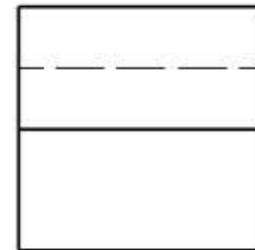
7. Whenever possible, locate dimensions between adjacent views.
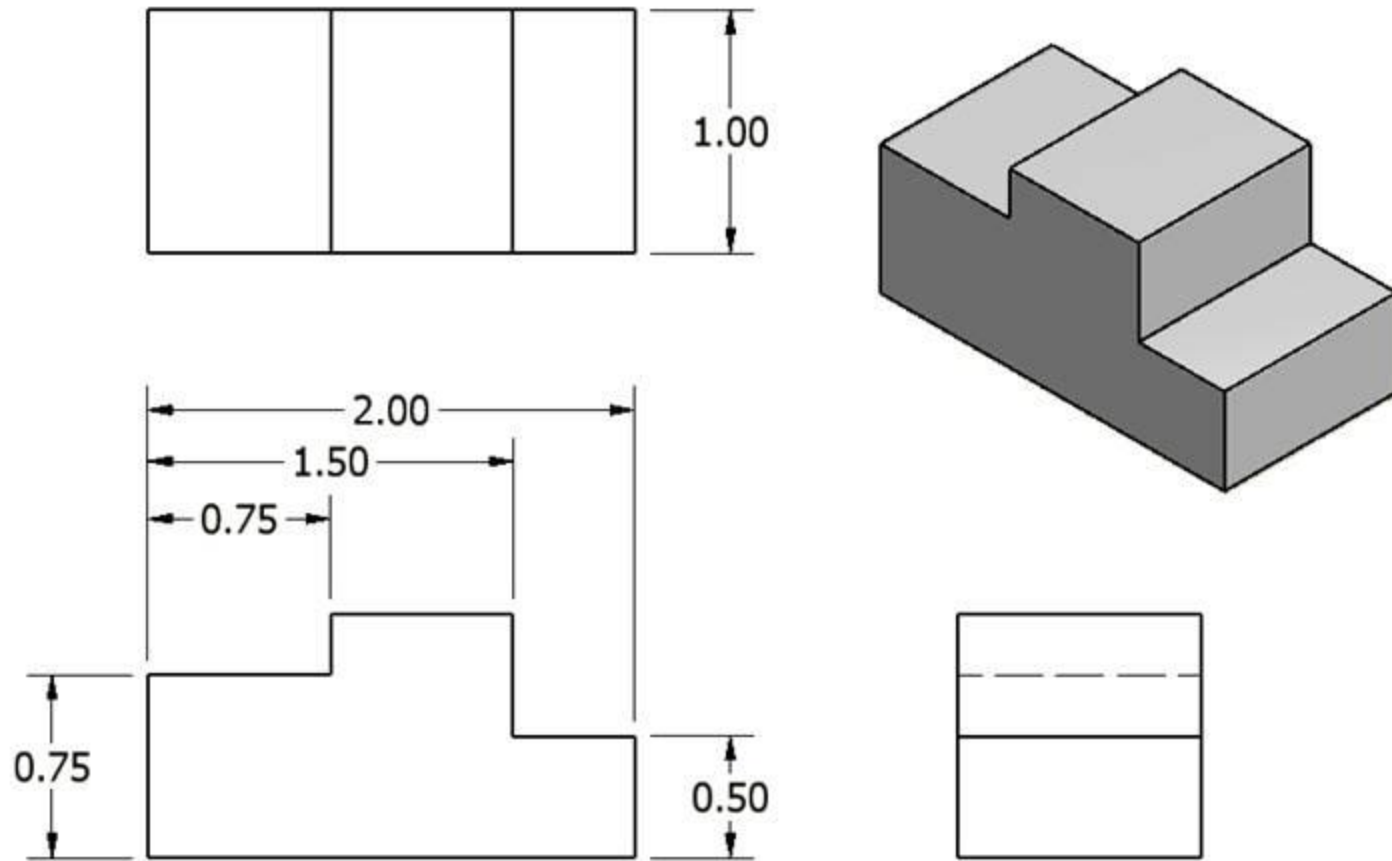
Correct

8. Avoid crossing extension lines, but do not break them when they do cross.
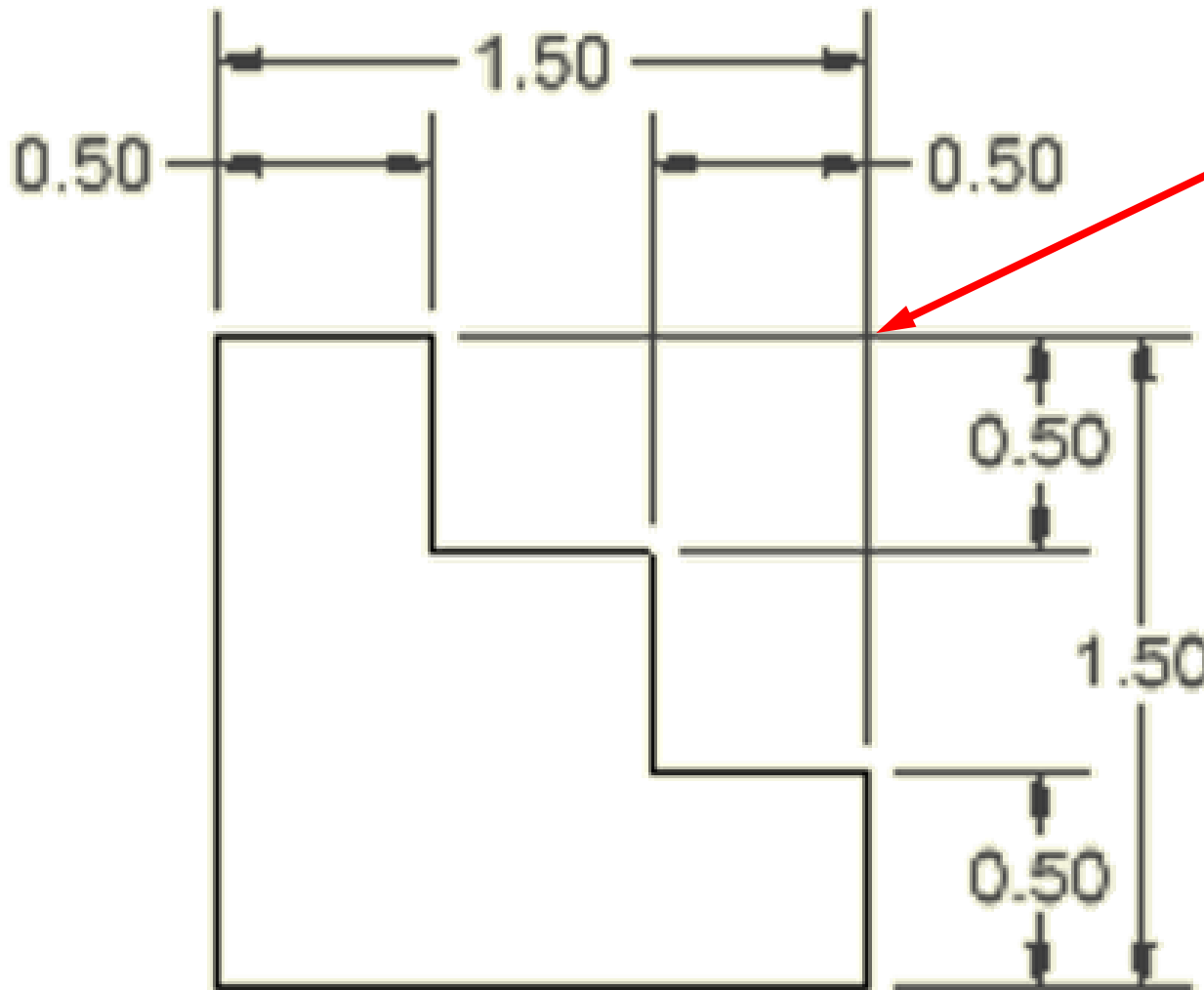
Multiple extension line crossings may be confused for the outside corner of the part.

9. Whenever possible, avoid sending extension lines through object views.
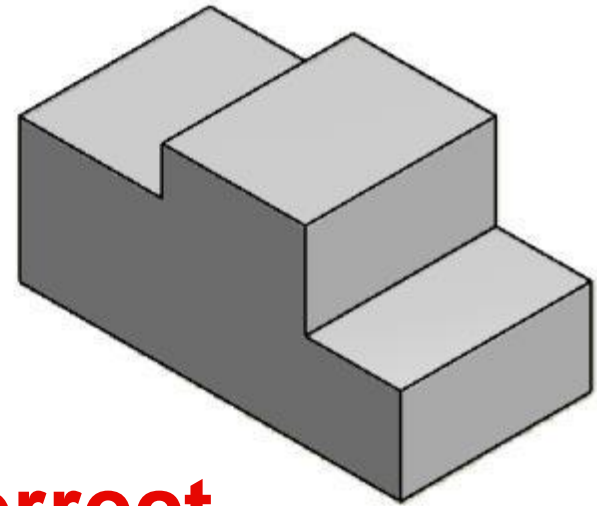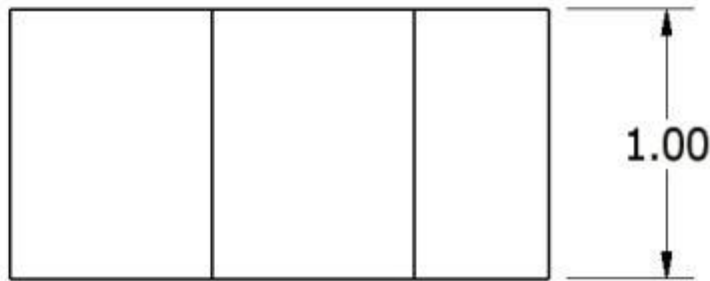
Incorrect
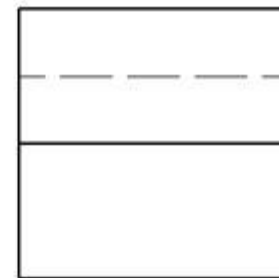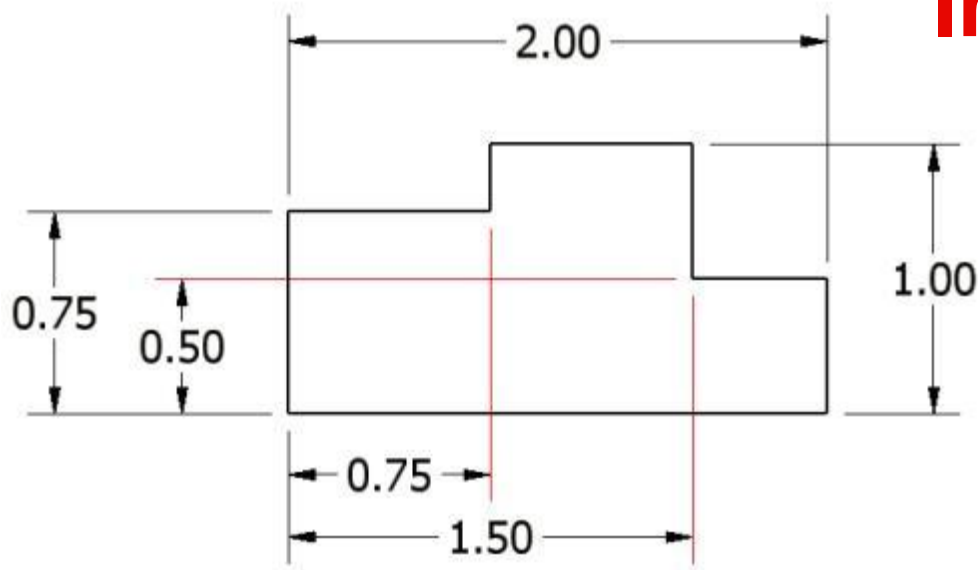
9. Whenever possible, avoid sending extension lines through object views.

1.00

2.00

1.50

0.75

Correct

0.75

1.00

0.50
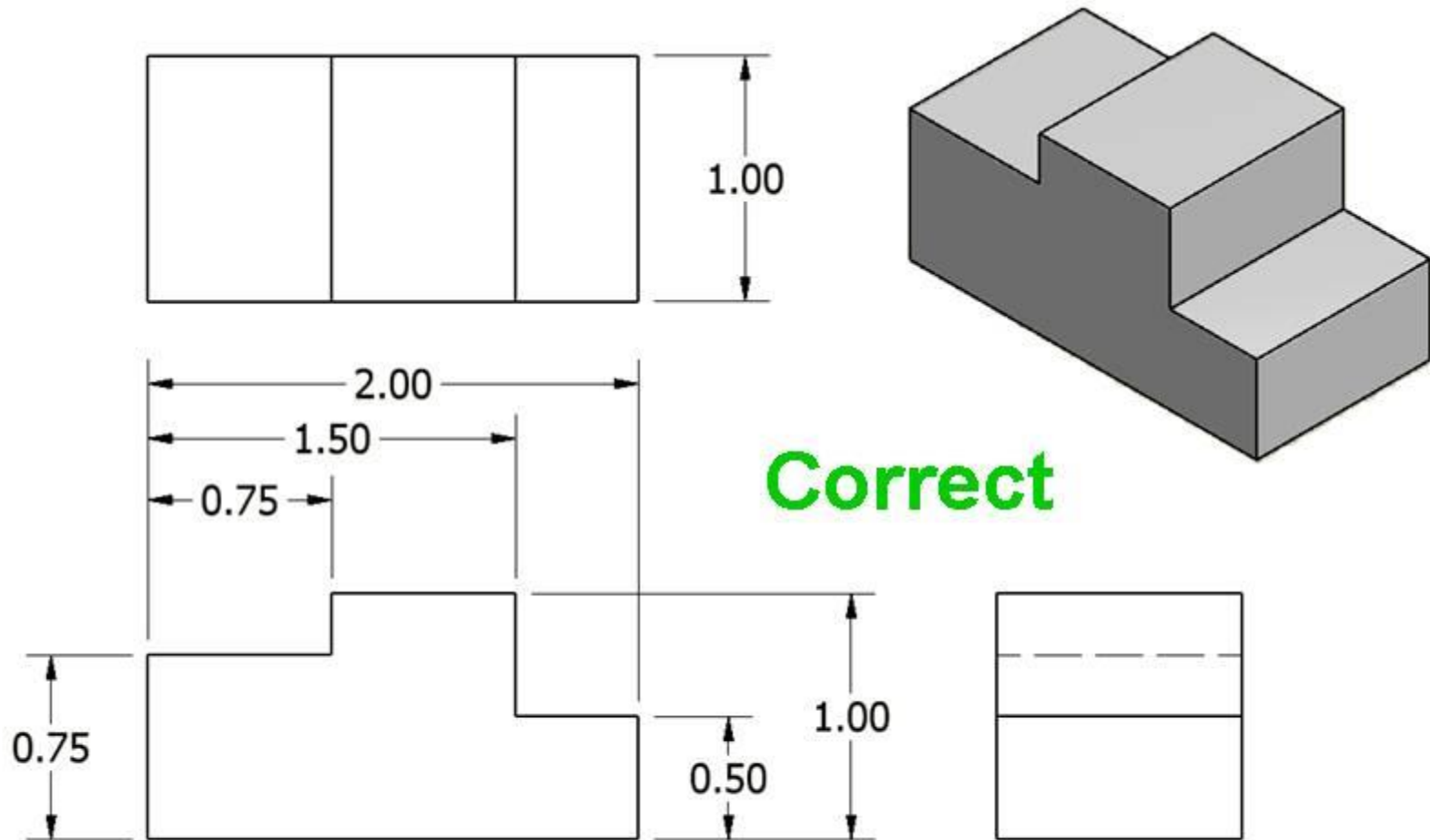
10. In general, a circle is dimensioned by its diameter and an arc by its radius.
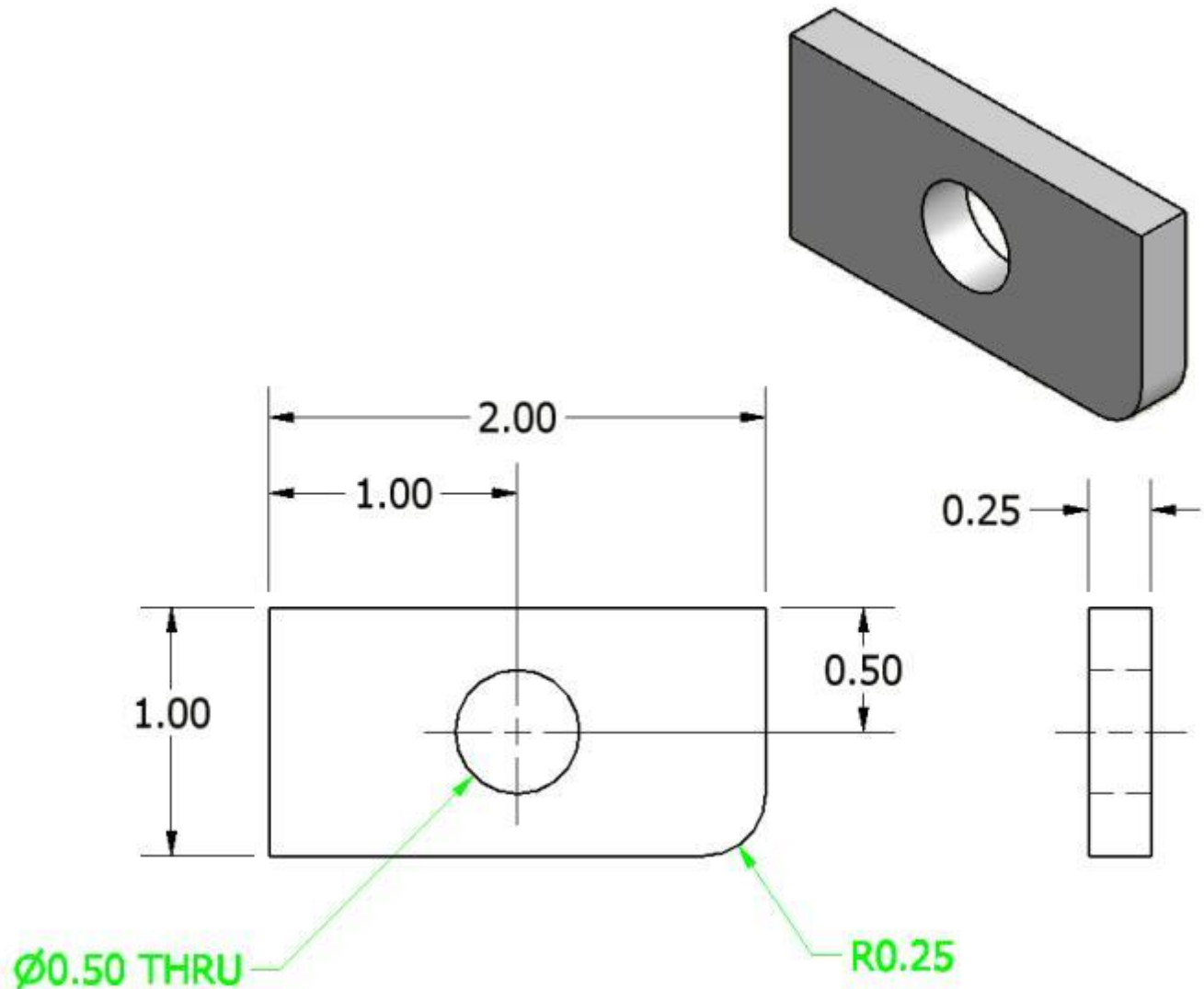
11. Holes are located by their centerlines, which may be extended and used as extension lines.
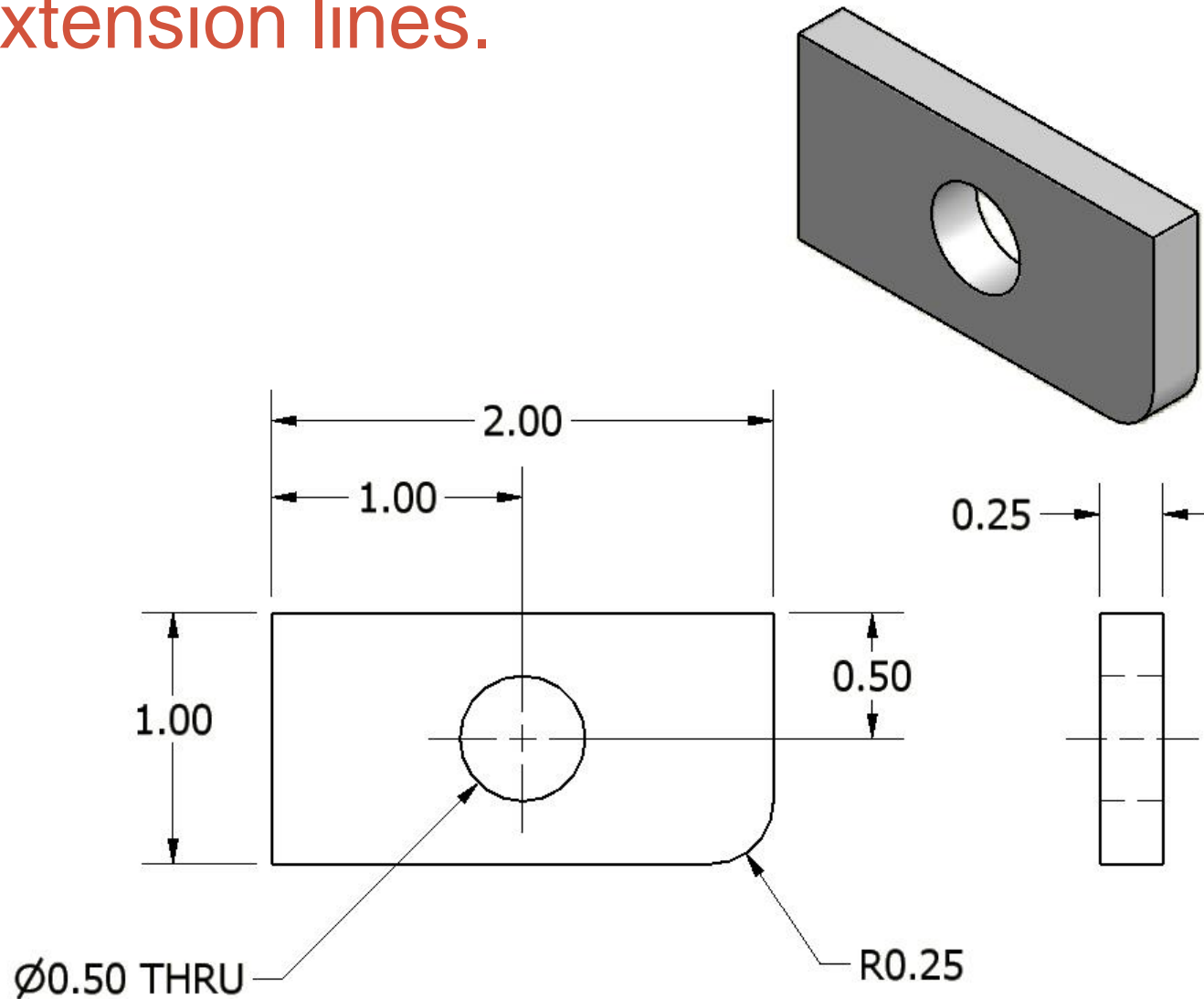
12. Holes should be located and sized in the view that shows the feature as a circle.

Incorrect
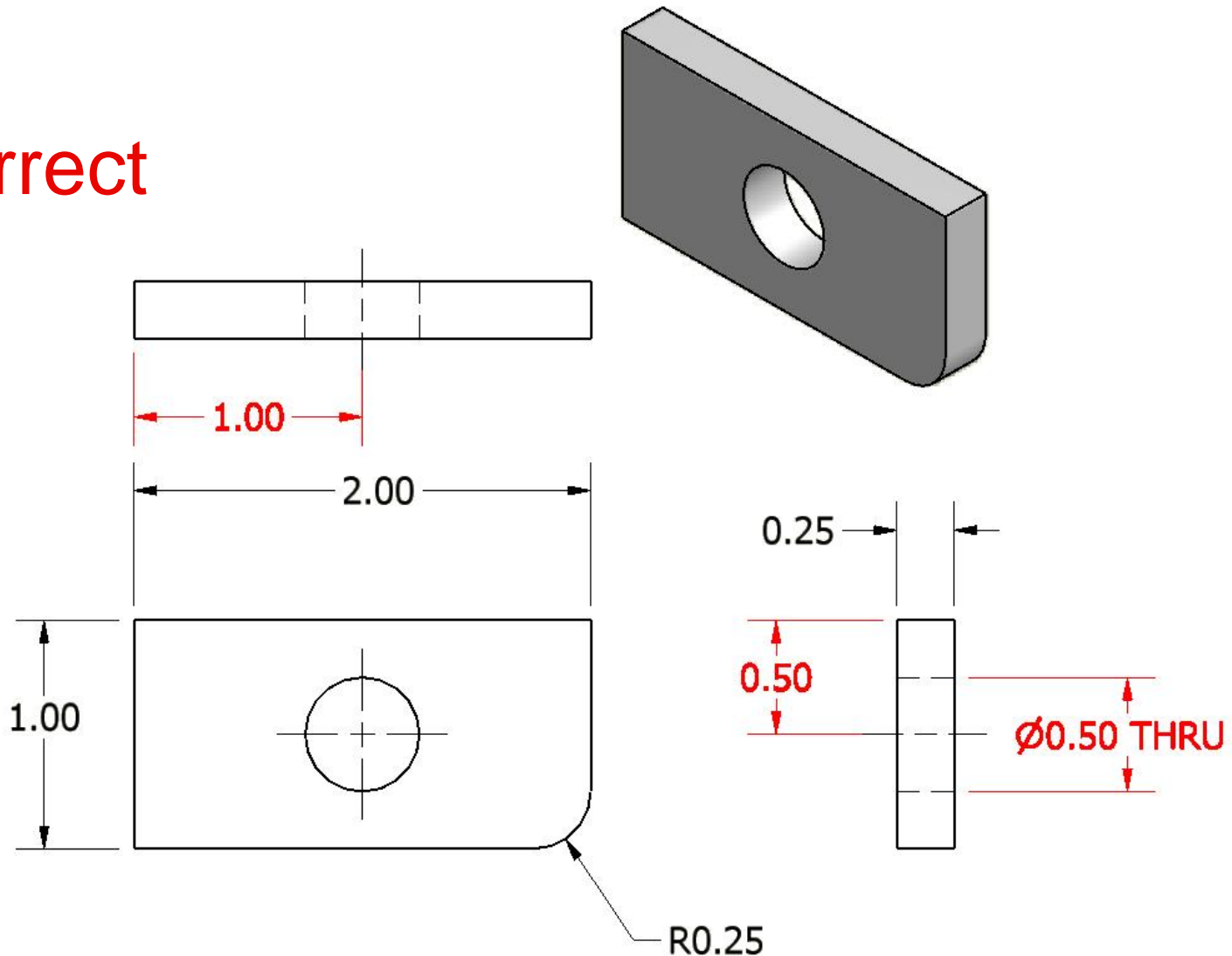
1.00

2.00

0.25

1.00

0.50

0.50

Ø0.50 THRU

R0.25

12. Holes should be located and sized in the view that shows the feature as a circle.
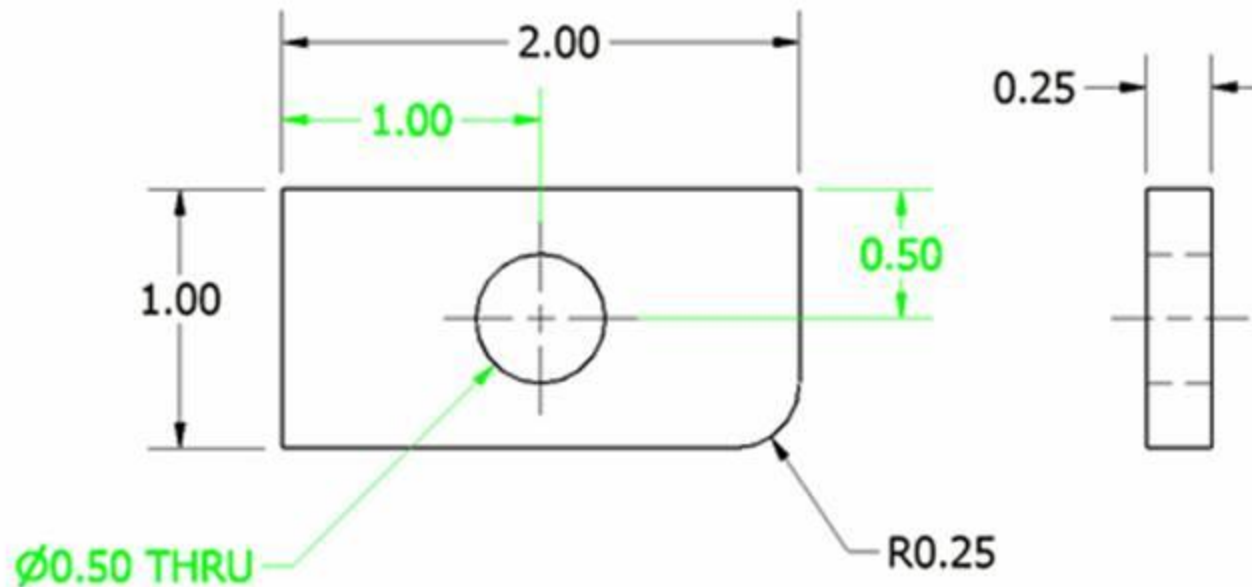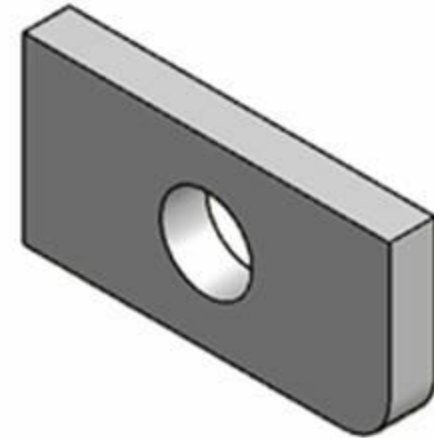
13. Do not cross a dimension line with an extension line, and avoid crossing dimensions with leader lines.

Incorrect
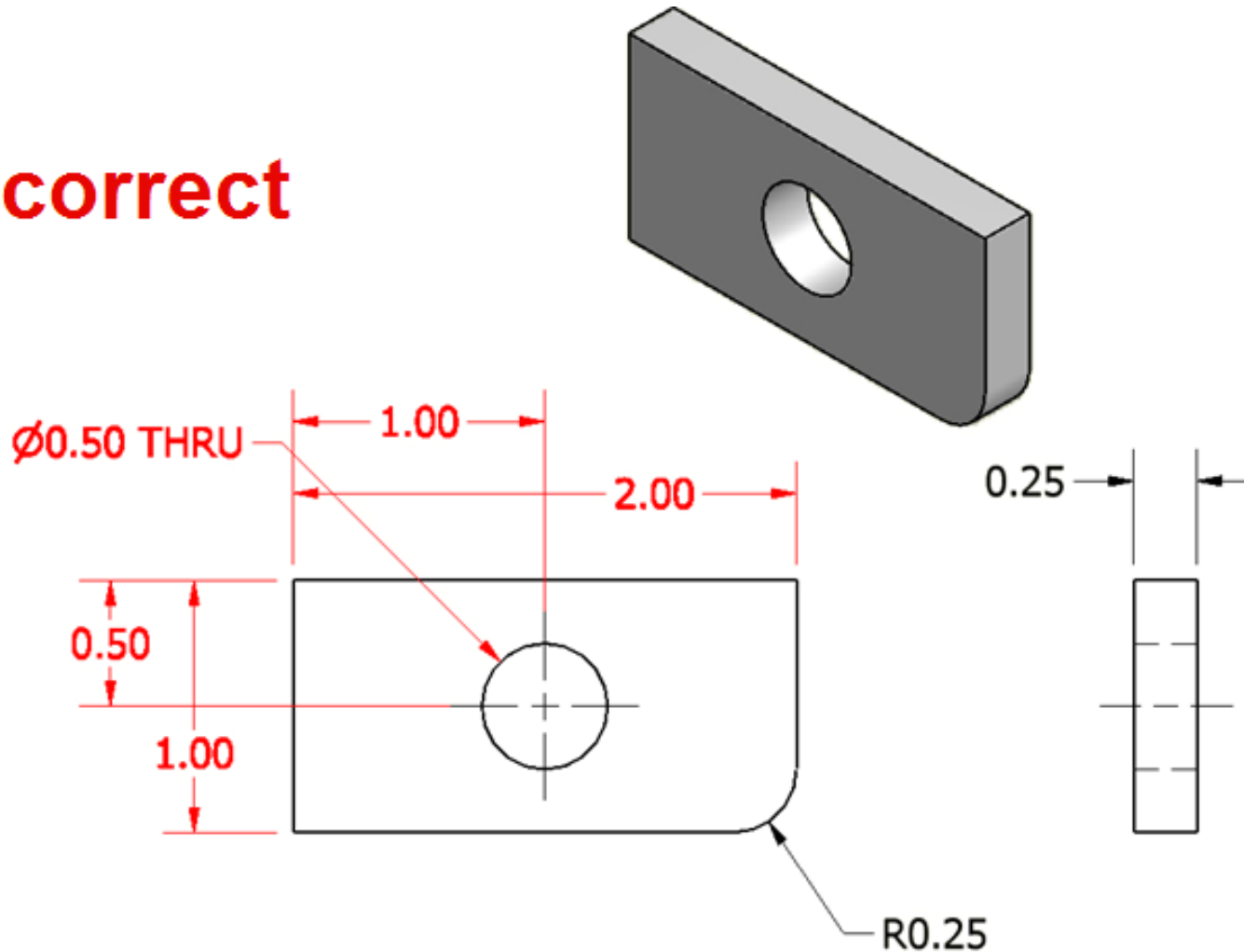
Ø0.50 THRU

1.00

2.00

0.50

1.00

0.25

R0.25

13. Do not cross a dimension line with an extension line, and avoid crossing dimensions with leader lines.

Correct

2.00

1.00

0.25

0.50

1.00

Ø0.50 THRU

R0.25

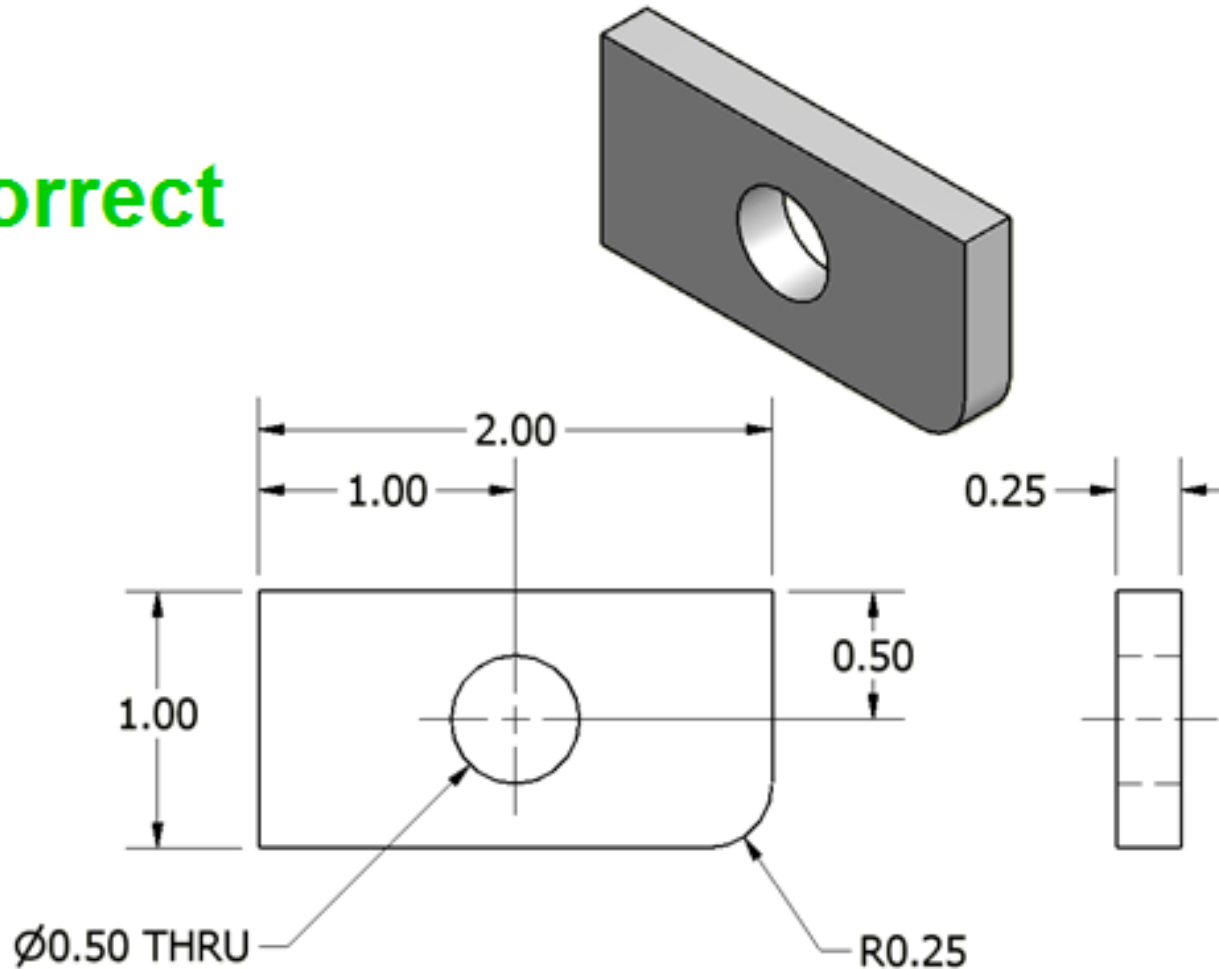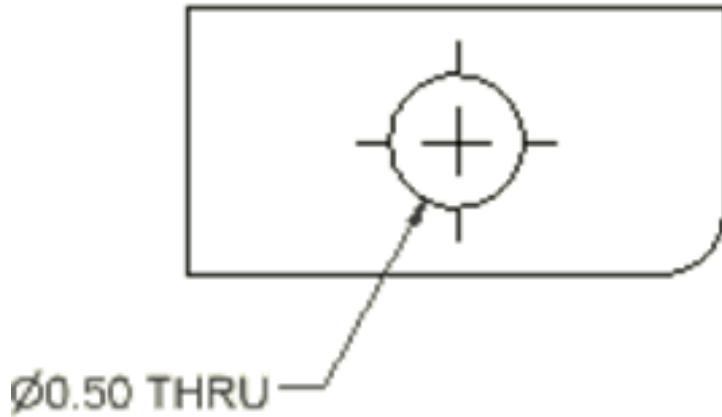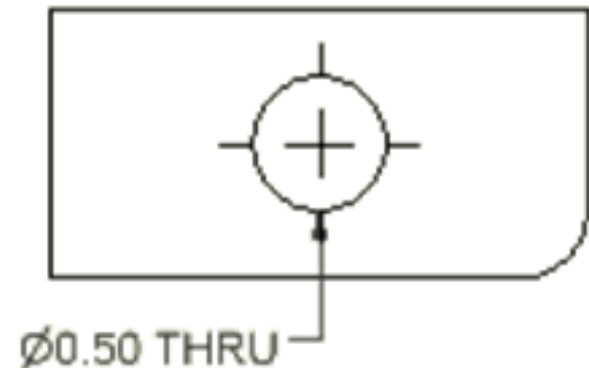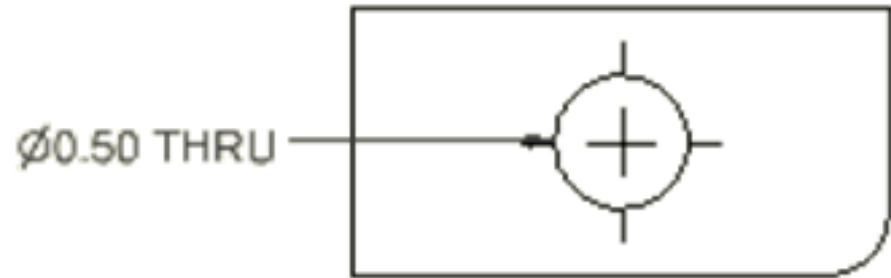## 14. Leader lines point toward the center of the feature, and should not occur horizontally or vertically.

This

Not This

Ø0.50 THRU

Ø0.50 THRU

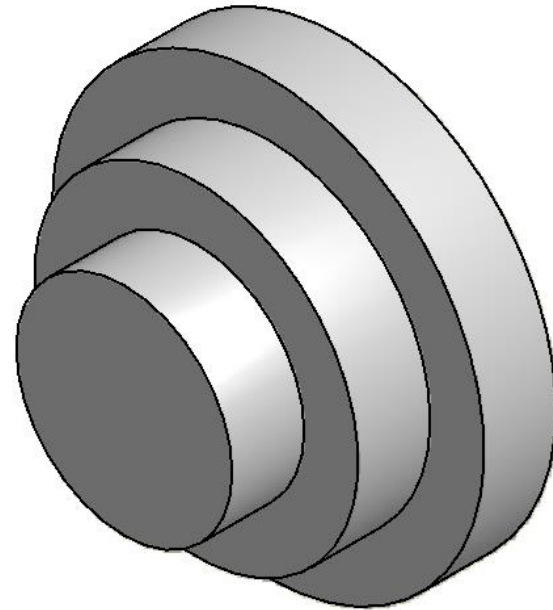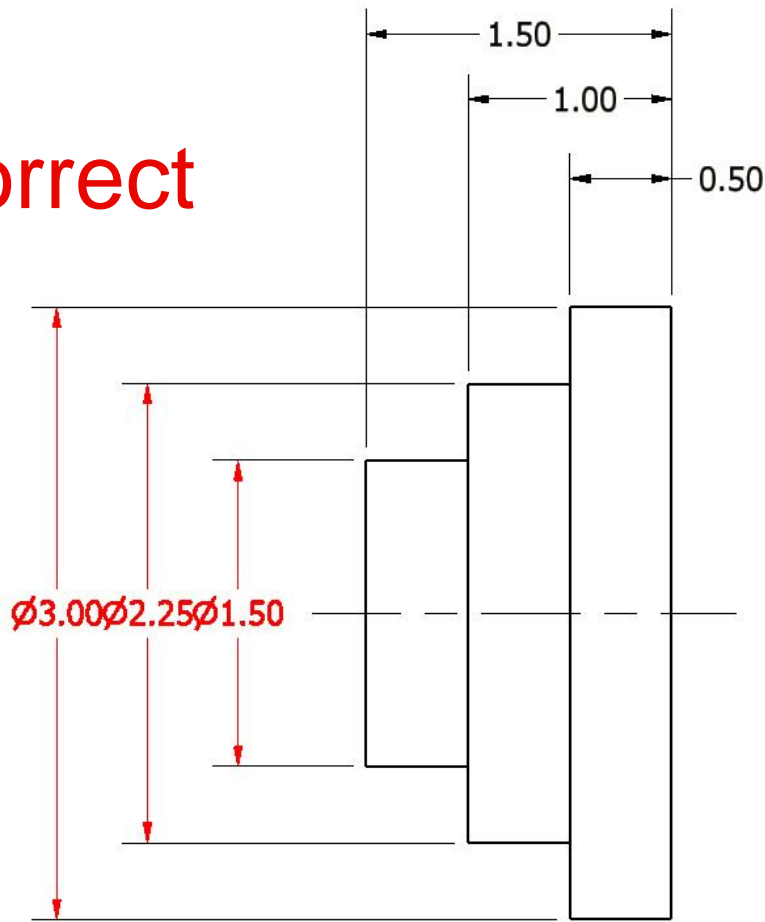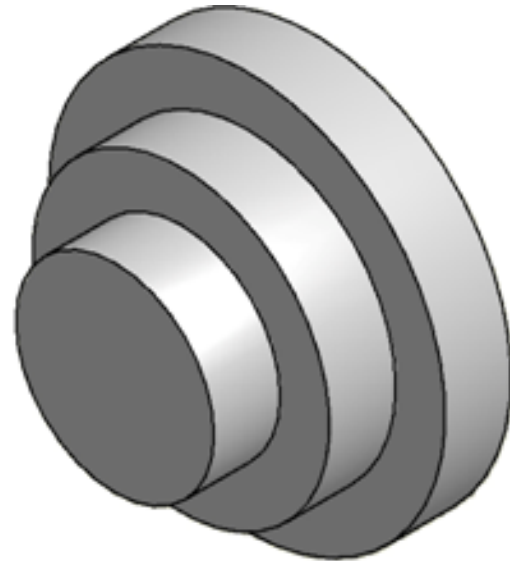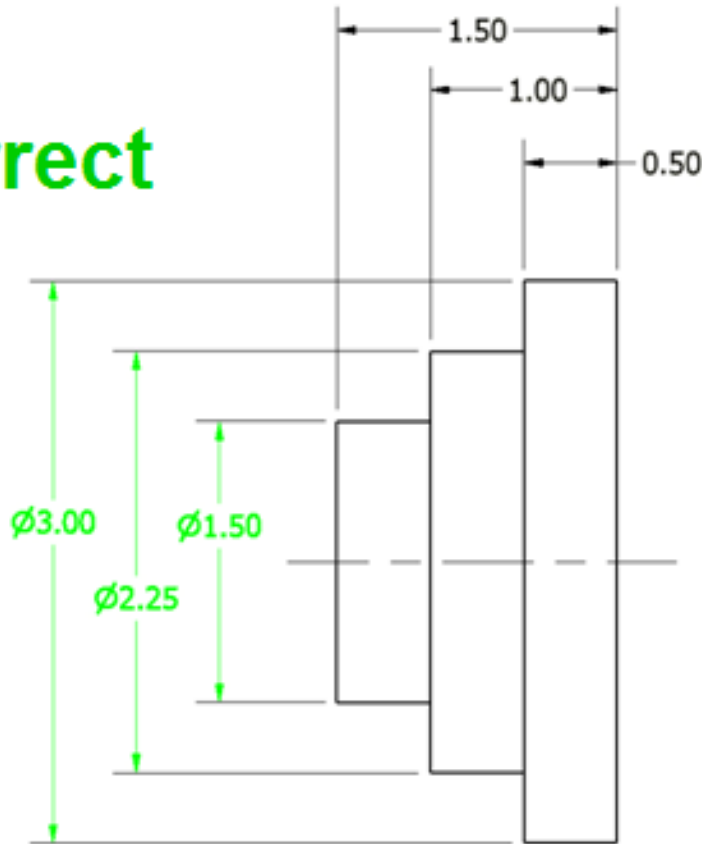Ø0.50 THRU

15. Dimension numbers should be centered between arrowheads, except when using stacked dimensions, and then the numbers should be staggered.

Incorrect

1.50

1.00

0.50

Ø3.00Ø2.25Ø1.50

15. Dimension numbers should be centered between arrowheads, except when using stacked dimensions, and then the numbers should be staggered.
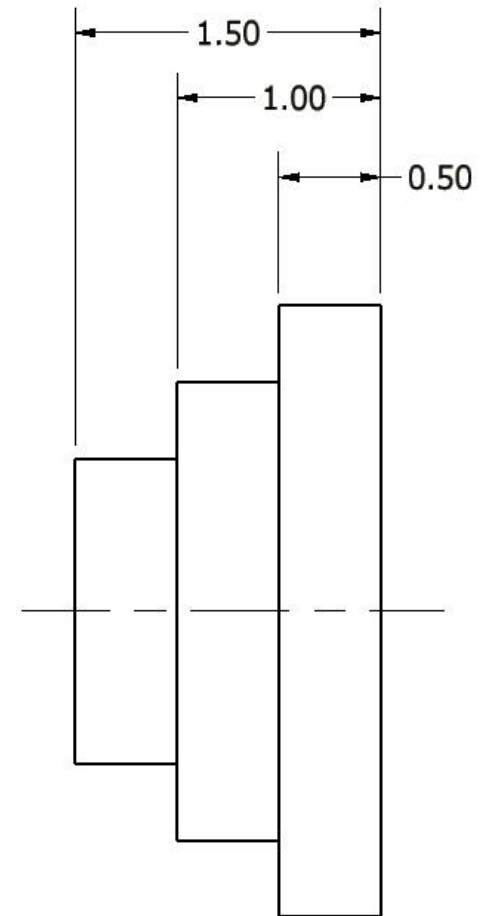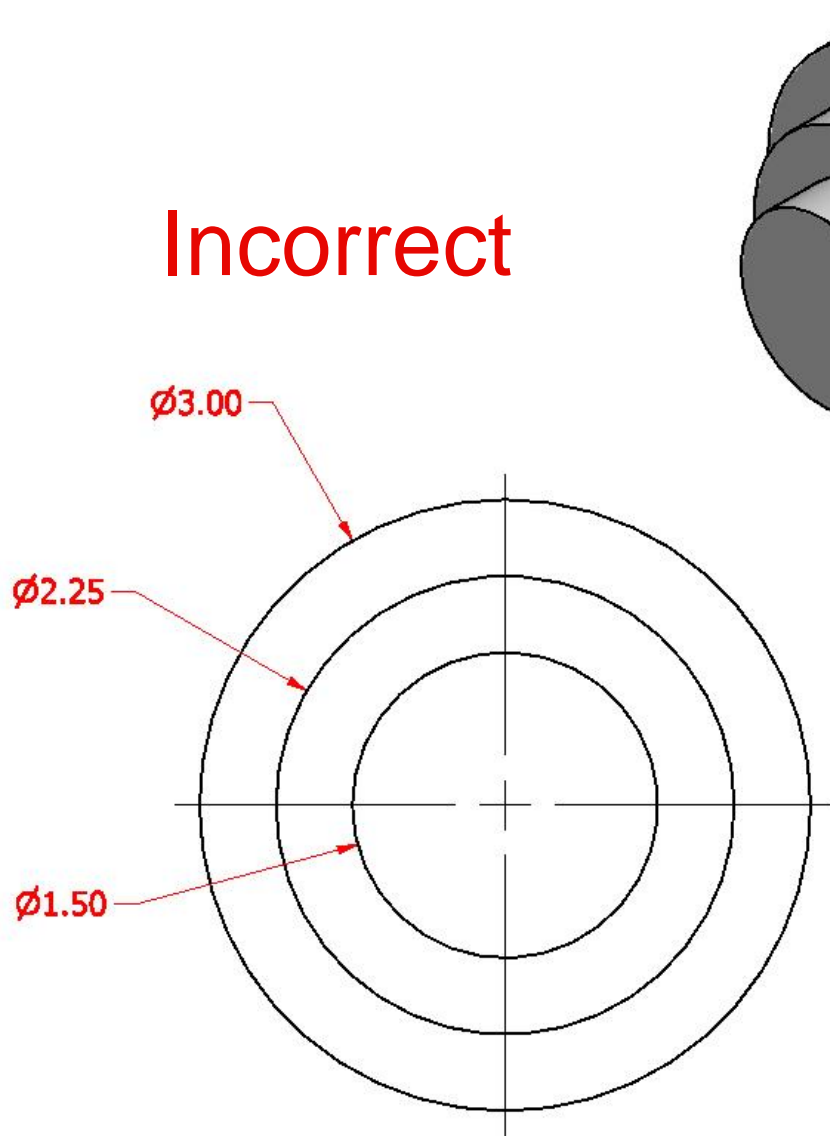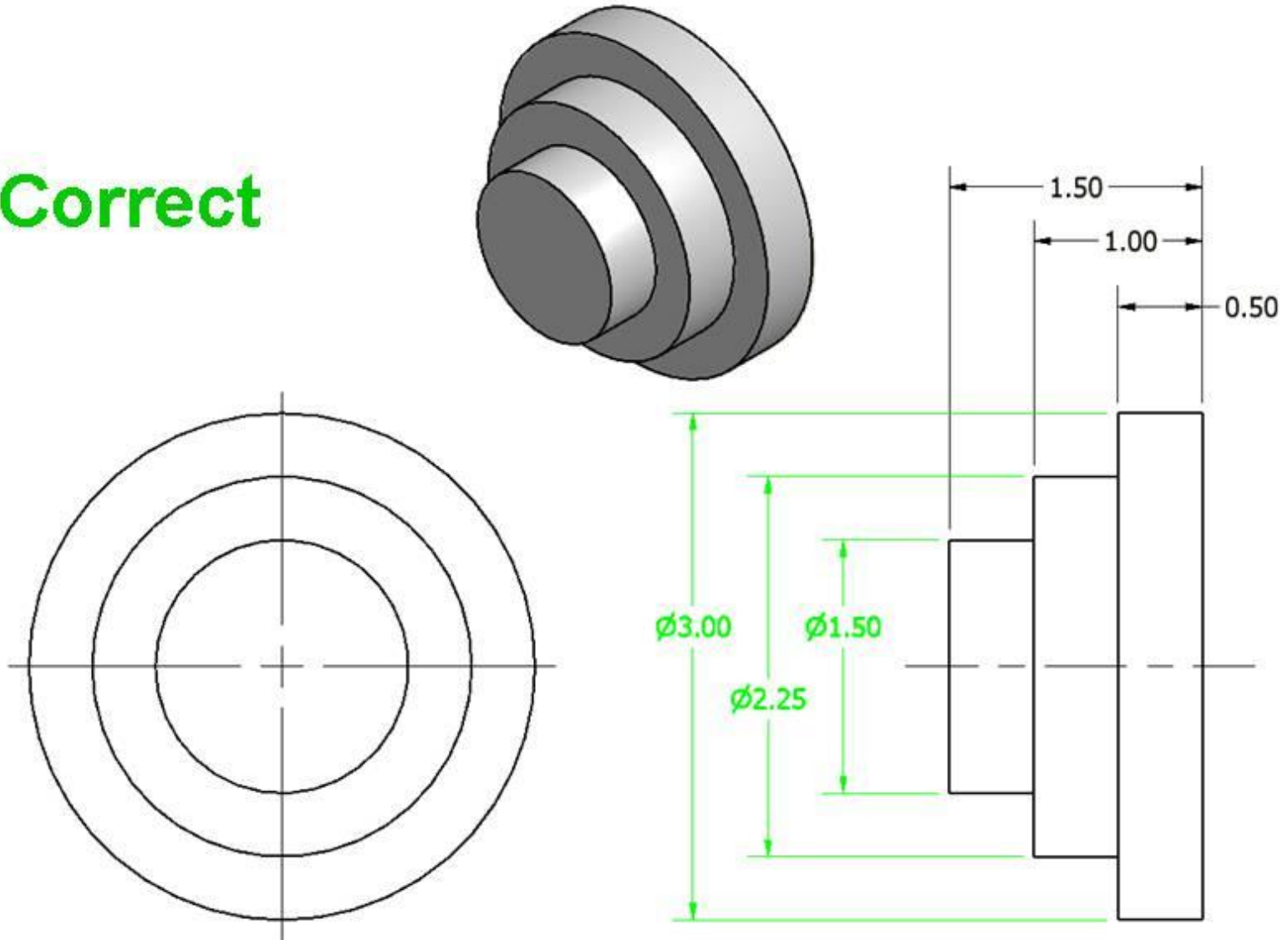
16. Concentric circles are dimensioned in the longitudinal view, whenever practical.

Incorrect

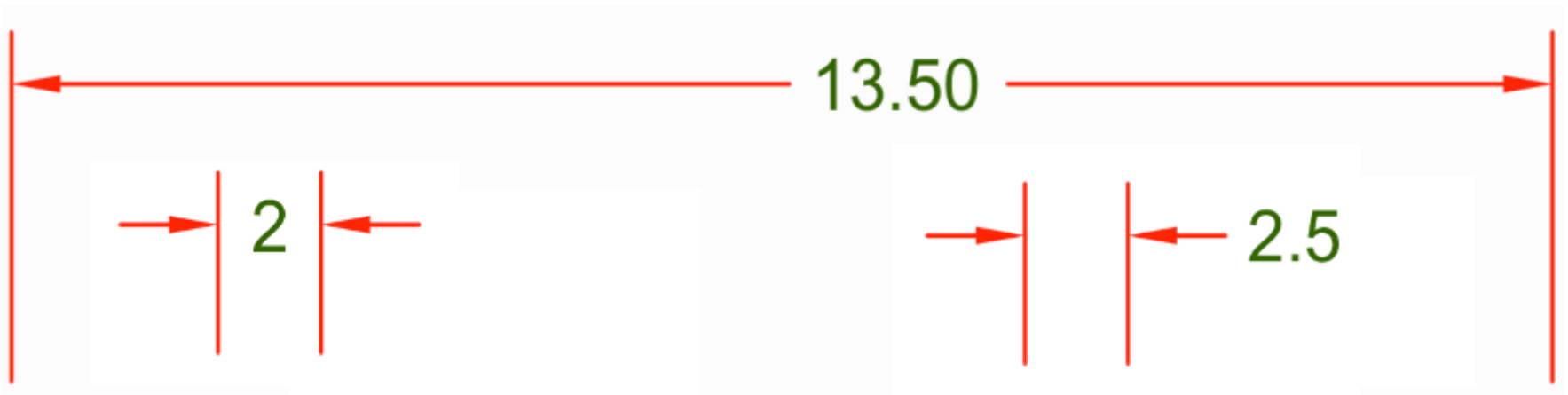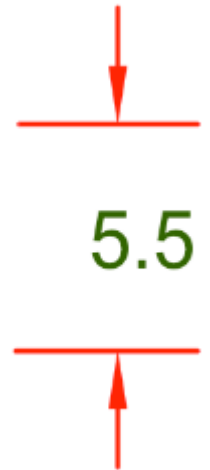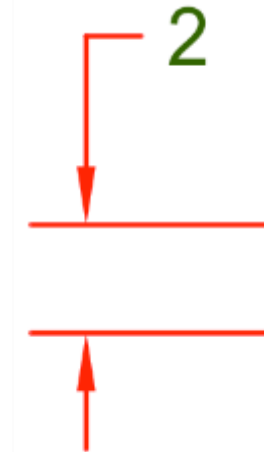# 16. Concentric circles are dimensioned in the longitudinal view, whenever practical.

Correct

1.50

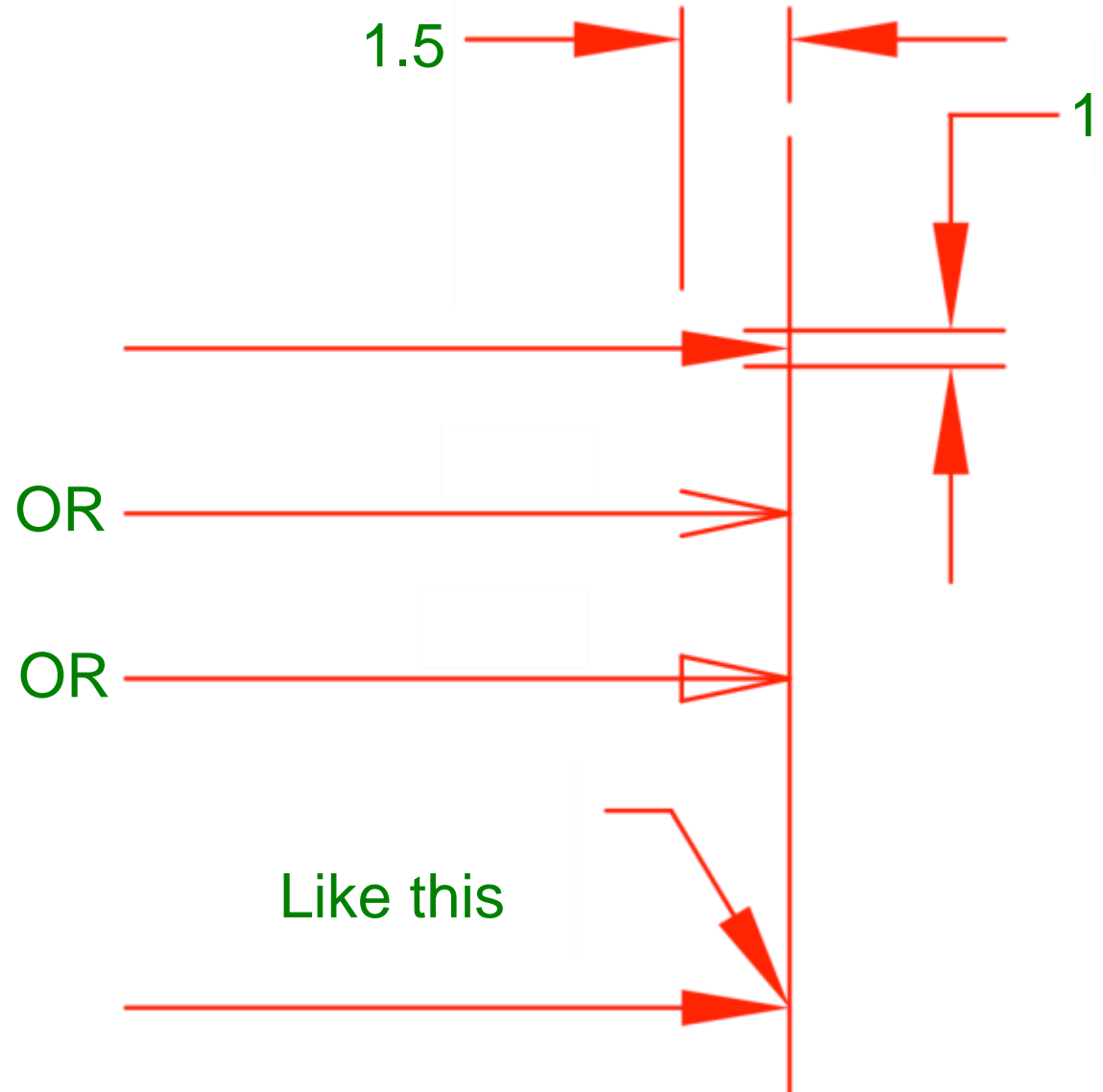1.00

0.50

Ø3.00 Ø1.50

Ø2.25

PLACEMENT OF DIMENSIONS

Placement of Dimensions
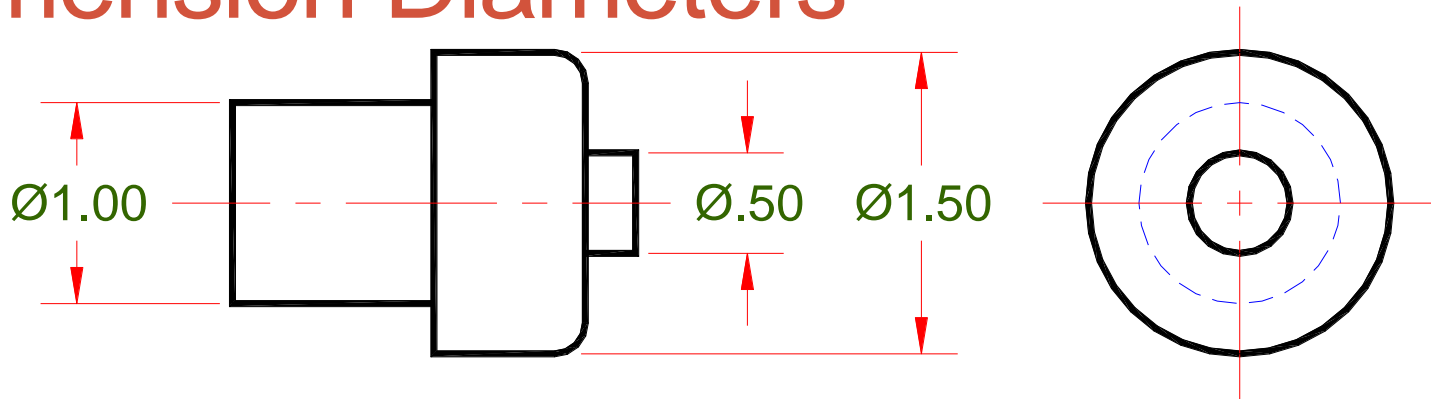
Arrowhead Sizes and Styles
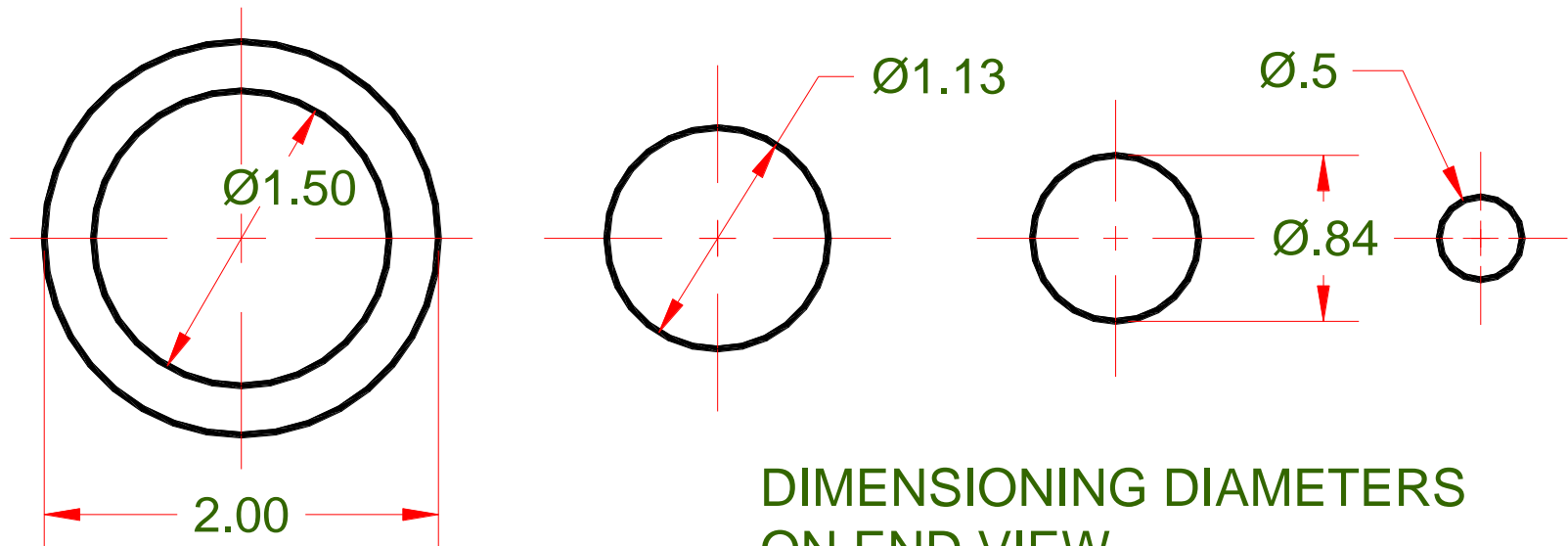
- Arrows normally equal to height of measurements

- Arrow styles vary

- Arrow must touch extension line

1.5

1

OR

OR

Like this

Dimension Diameters

Ø1.00   Ø.50   Ø1.50

TWO VIEW DRAWING

Ø1.50   2.00   Ø1.13   Ø.5   Ø.84

DIMENSIONING DIAMETERS ON END VIEW

Dimension Radius

R.50

R.20

R5.00

R.20

R.20