

ME 1403 Engineering Practice & Graphics

Fall - 2017

Lecture 20-A

Fundamentals of Drawing

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Basics of Drawing

Drawings:

1. **Isometric Drawing**
2. **Perspective Drawing**
3. **Orthographic or Multiview Drawing**

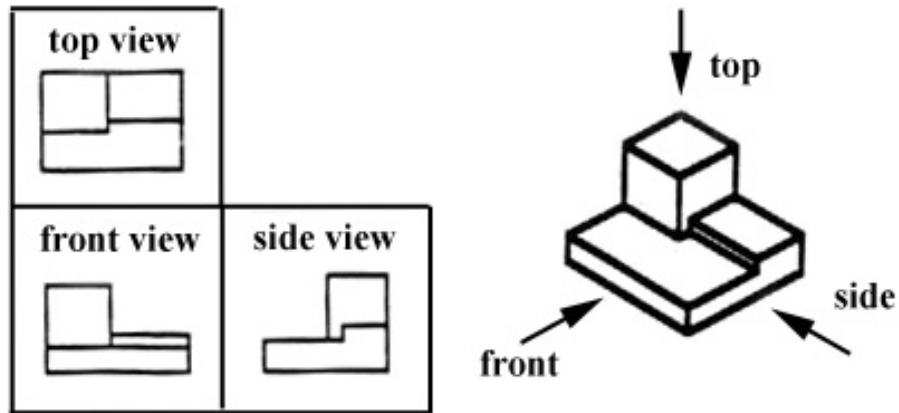


Figure: Orthographic or Multiview Drawing

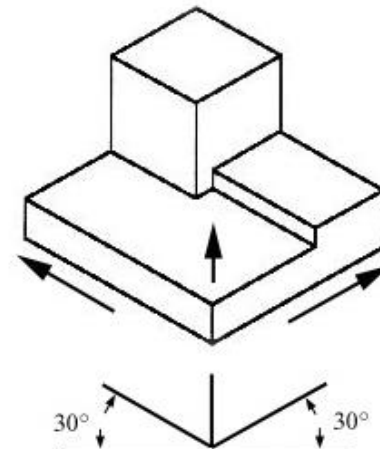


Figure: Isometric Drawing

Dimensioning

1. Dimensions should NOT be duplicated, or the same information be given in two different ways.
2. No unnecessary dimensions should be used - only those needed to produce or inspect the part.
3. Dimensions should be placed at finished surfaces or important center lines.
4. Dimensions should be placed so that it is not necessary for the observer to calculate, scale, or assume any measurement.
5. Dimensions should be attached to the view that best shows the shape of the feature to be dimensioned.
6. Avoid dimensioning to hidden lines wherever possible.
7. Dimensions should not be placed on the object unless that is the only clear option.

Dimensioning (Cont'd)

8. Overall dimensions should be placed the greatest distance away from the object so that intermediate dimension can nest closer to the object to avoid crossing extension lines.
9. A dimension should be attached to only one view (i.e., extension lines should not connect two views).
10. Never cross dimension lines.
11. Never cross extension lines.
12. A center line may be extended and used as an extension line.
13. Leaders should slope at a 30, 45 or 60 degree angle.
14. Dimension numbers should be centered between arrowheads, except when using stacked dimensions then the numbers should be staggered.
15. In general, a circle is dimensioned by its diameter, an arc by its radius.
16. Holes should be located by their center lines.

Dimensioning (Cont'd)

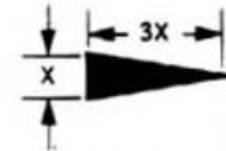
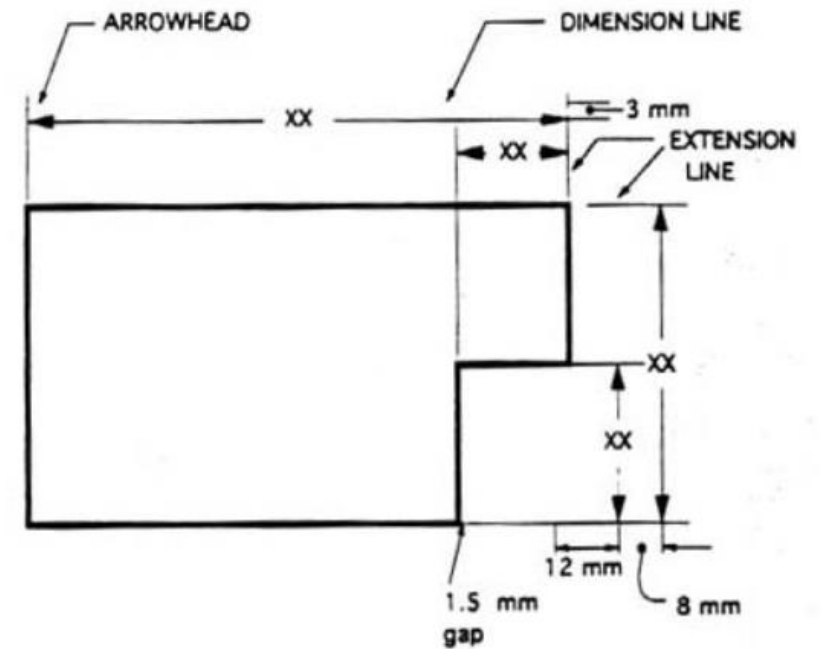
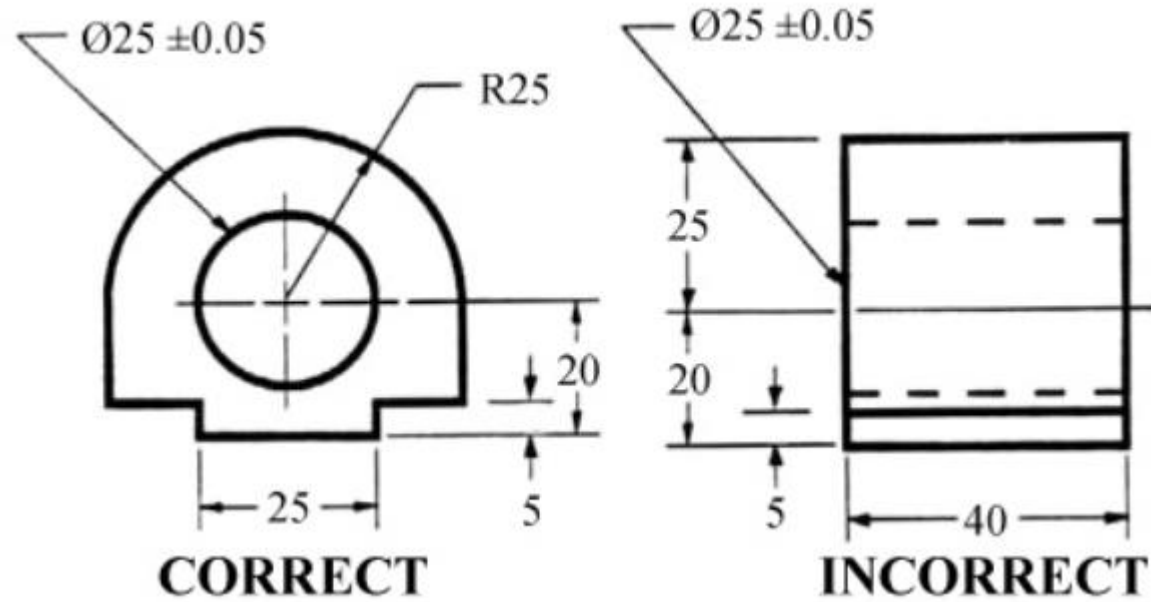
17. Holes should be located in the view that shows the feature as a circle.

18. Extension lines start approximately $1/16$ " from the object and extend $1/8$ " past the last dimension.

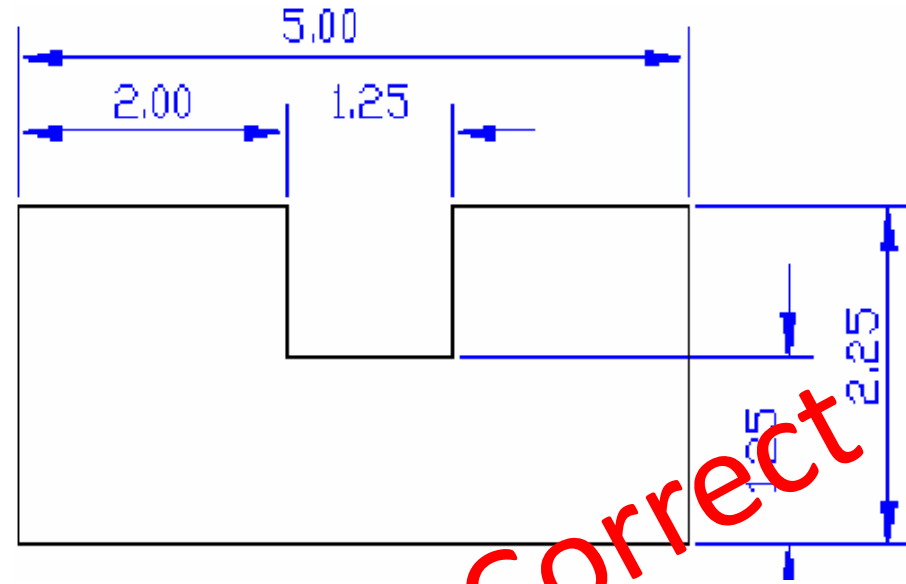
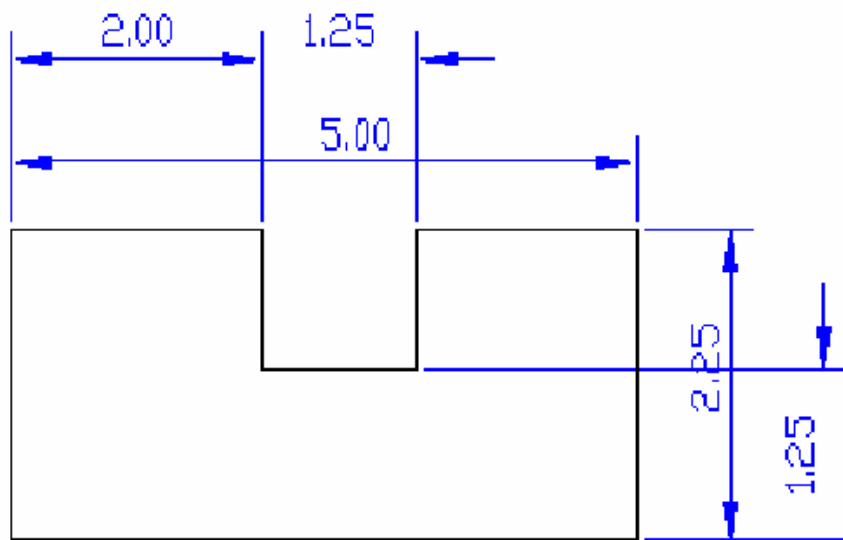
19. The first dimension is approximately $1/2$ " from the object and spaced uniformly approximately $3/8$ " apart.

20. Always dimension the actual size of the object - not the scaled size.

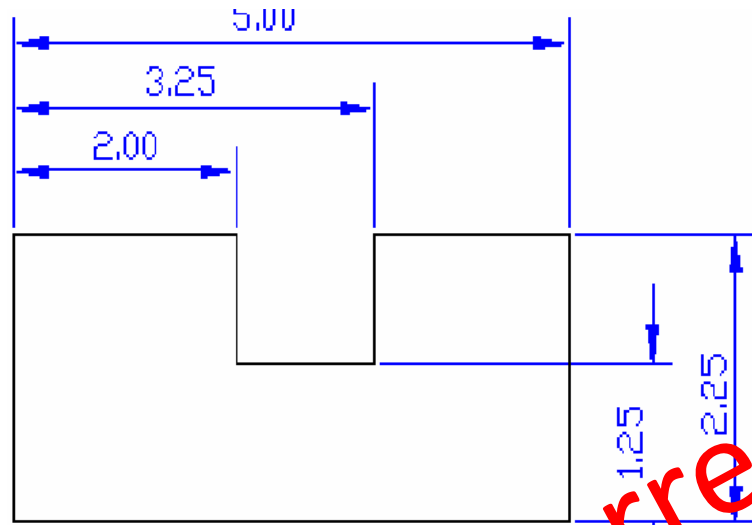
Dimensioning (Cont'd)



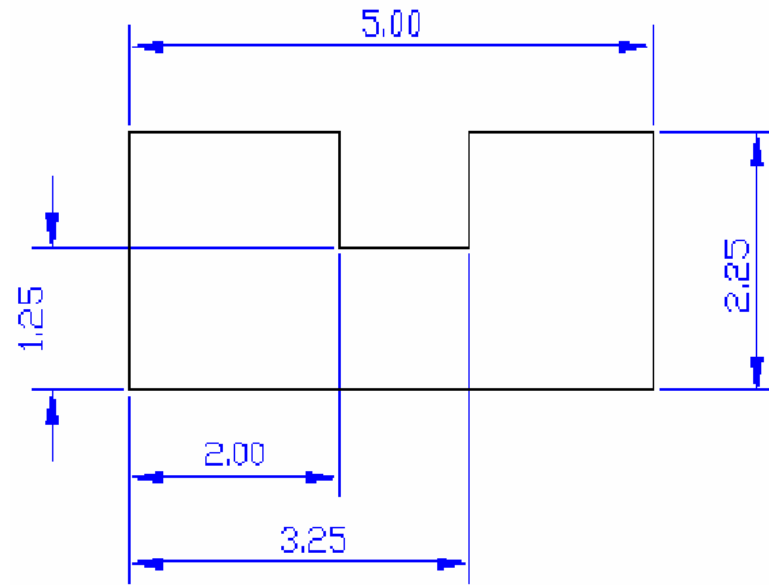
Quiz



Quiz

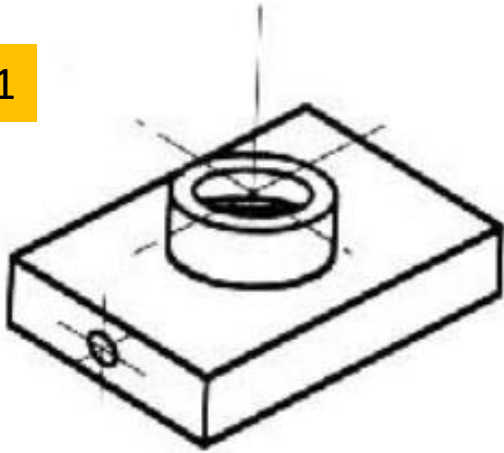


Correct

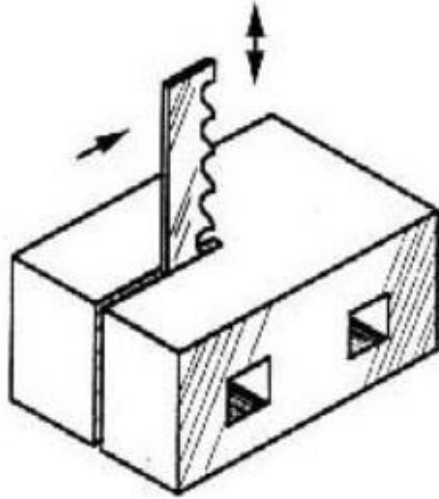


Section

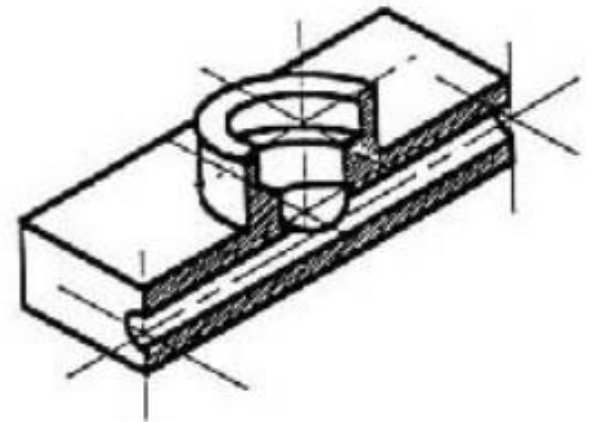
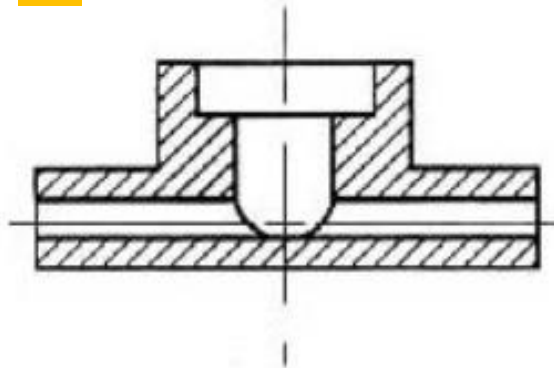
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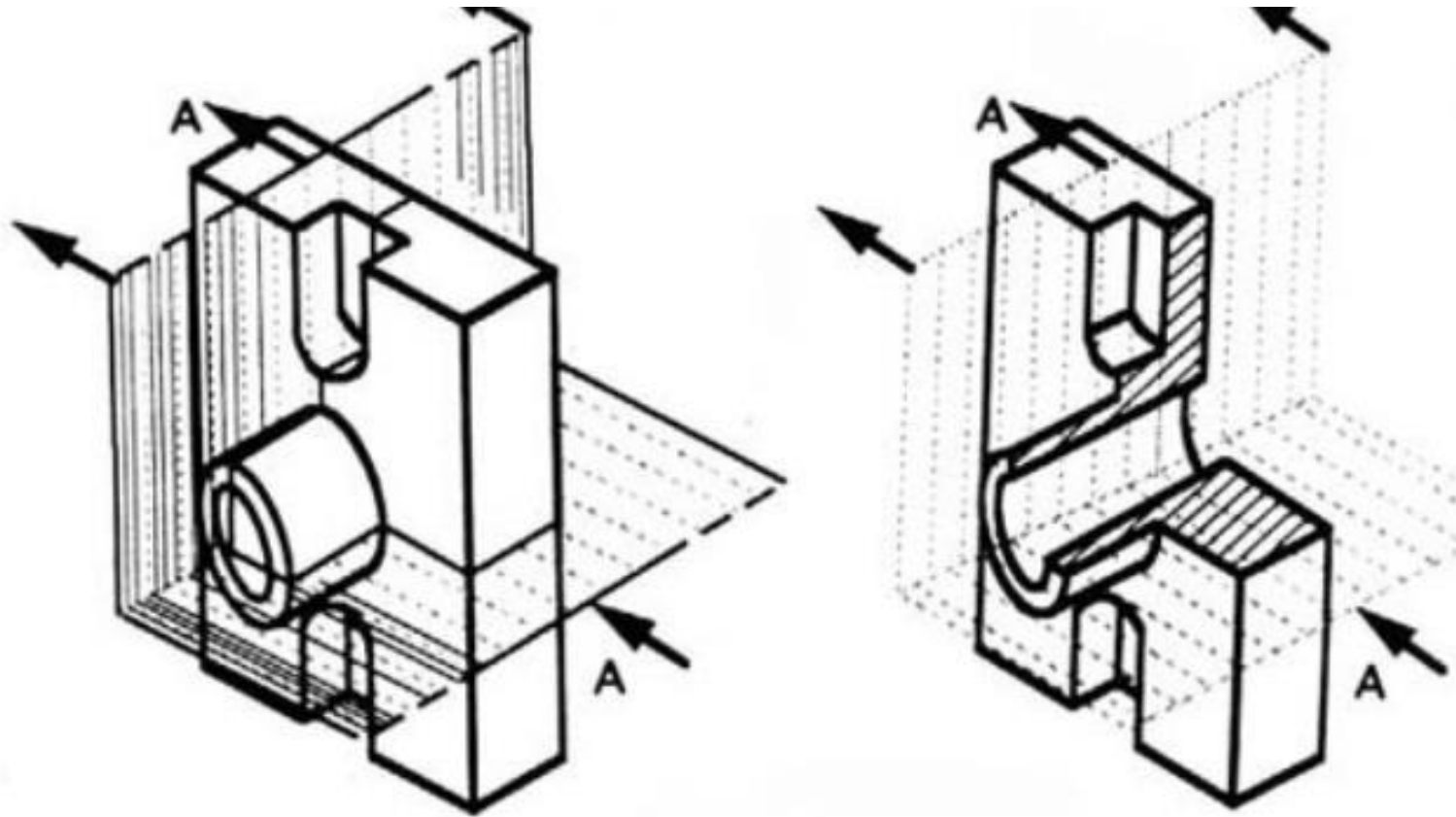
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3



Half Section



Sectioning Objects with Holes, Ribs, Etc.

