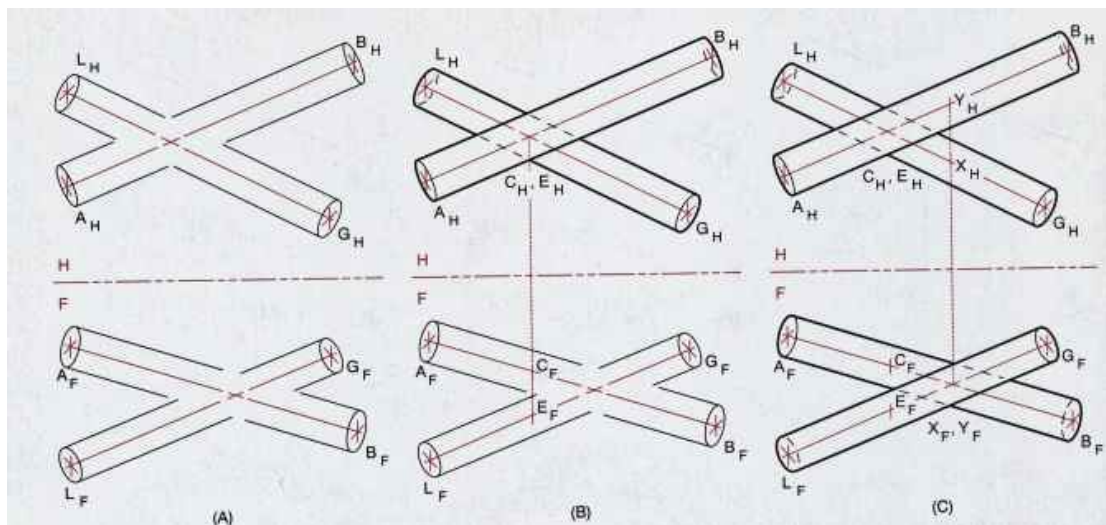


**TERMS TO BE DEFINED OR IDENTIFIED for COMPETENCY 10:**

- Intersection
- Development
- Visibility
- Piercing point
- Geometrical surfaces
  - Ruled
  - Double curved
- Warped surface
- Cylinder
- Torus
- Single curve

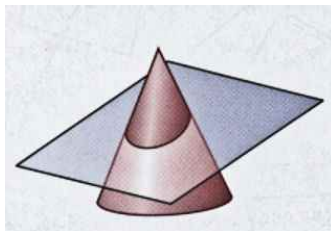
**ITEMS FOR REVIEW for COMPETENCY 10:**

- An intersection is a point or line where two geometric forms, such as lines or surfaces, meet or cross each other.
  - A pipe going through a wall is an intersection.
- The type of intersection created depend on the types of geometric forms, which can be two- or three-dimensional.
- Intersections must be represented on multiview drawings correctly and clearly.
- Visibility is the clear and correct representation of the relative positions of two geometric figures in multiview drawings. (see fig. 13.5)
  - Draw the figure in front with object lines entirely.
  - Draw second figure with both object lines and dashed lines.

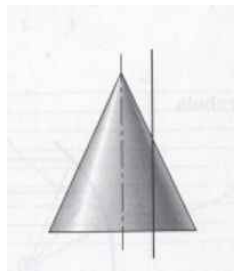


**Figure 13.5** Visibility Demonstrated by Two Cylinders

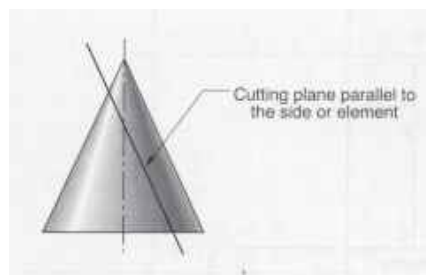
- Two lines that intersect share a common point. If the lines do not have a common point that projects from view to view, the lines are nonintersecting.
- The intersection of a line and a plane is referred to as the ***piercing point***.
- The intersection of two planes is a straight line all of whose points are common to both planes.
- The intersection between an oblique plane and a cylinder or cone is an ellipse as shown below.



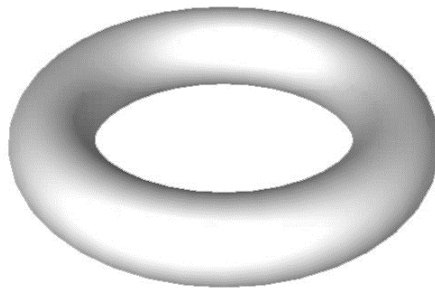
- The intersection between a cone and a prism, or a cylinder and a cone, is a curved line.
- The line of intersection of two intersecting perpendicular cylinders is a curve.
- A hyperbola is created by a plane intersecting a cone at a vertical angle.



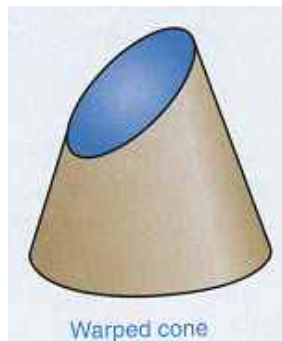
- A parabola is created by a plane intersecting an cone at an angle parallel to the side of the cone.



- A ruled surface is a surface generated by moving a straight line.
- A double-curve geometrical surface is a surface generated by a curved line revolving around a straight line in the plane of the curve.
  - Cannot be developed
  - "Gore" method will approximate the development
  - An example would be a Torus



- Warped ruled surfaces cannot be developed as shown in the example below.

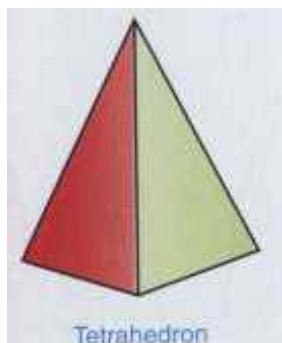


Warped cone

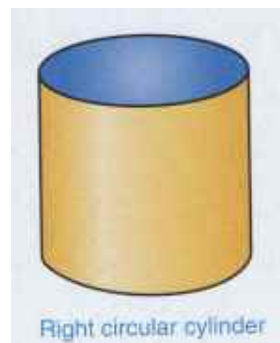


Hyperboloid of revolution

- A single curve ruled surfaces and plane surfaces can be developed.
  - Tetrahedron is a plane ruled surface
  - Right circular cylinder is a single-curve ruled surface



Tetrahedron



Right circular cylinder