

TA 101A:2019-20:II

Lecture 26 – Development of Surfaces

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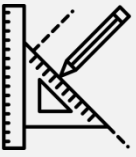
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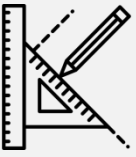
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Recapitulation

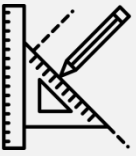
- Space geometry
 - Interrelations of lines and planes
- Intersection of surfaces
 - Line and plane
 - Two plane
 - Line and solid
 - Plane and solid



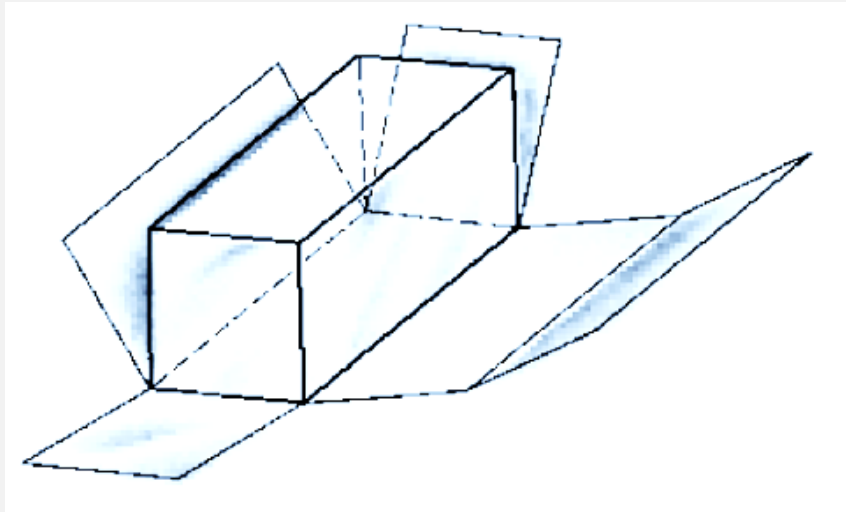
Definitions

- Development means
 - Creating foldable sheet design with the help of F and H views of an object
- Developable surfaces
 - Those surfaces about which a sheet can be wrapped without any warping
 - Or a surface which can be formed by folding a thin flexible sheet
 - A cylinder
- Non-Developable surfaces
 - Surfaces with warped or double curvature
 - A Sphere

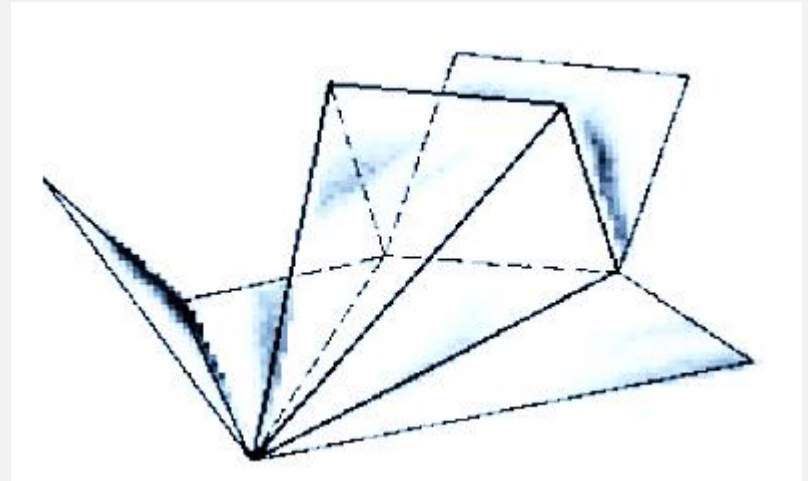
Some Developable Surfaces



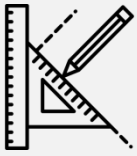
Cuboid



Pyramid

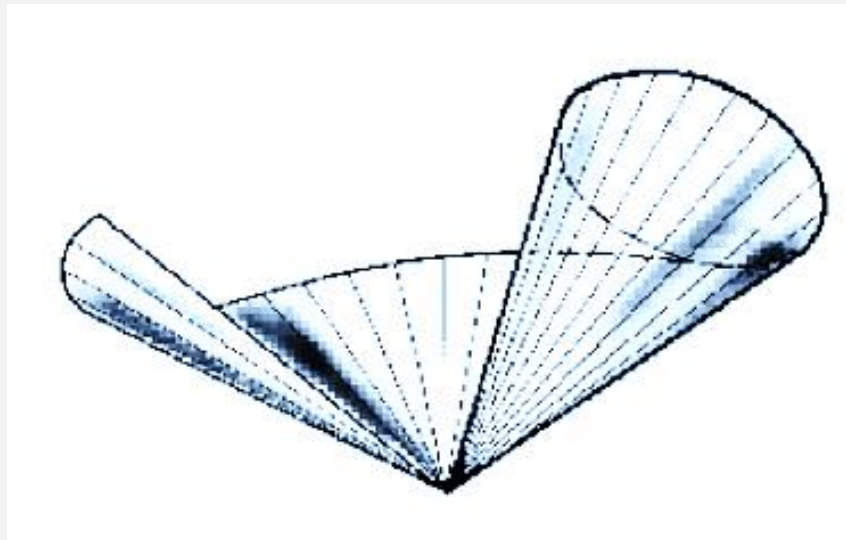


Some Developable Surfaces



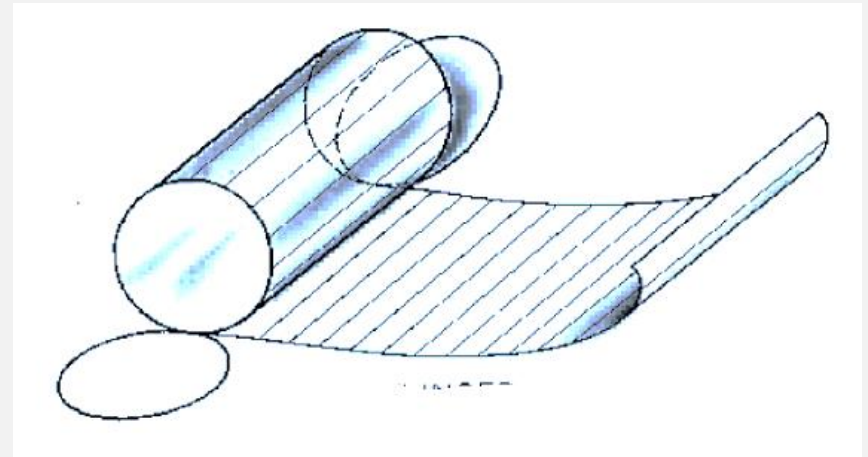
Cone

Sector of a circle with radius equal to slant height and arc equal to circumference of base curve of cone

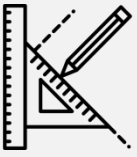


Cylinder

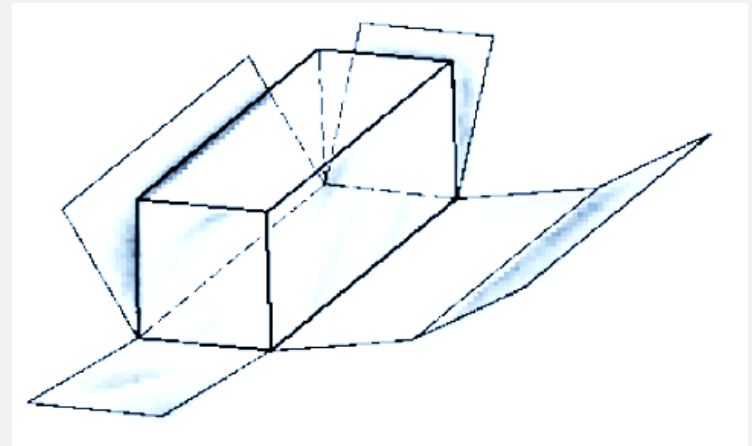
Rectangle with length and breadth equal to circumference of base and height of cylinder



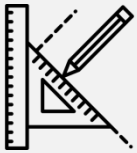
Basic concept of development



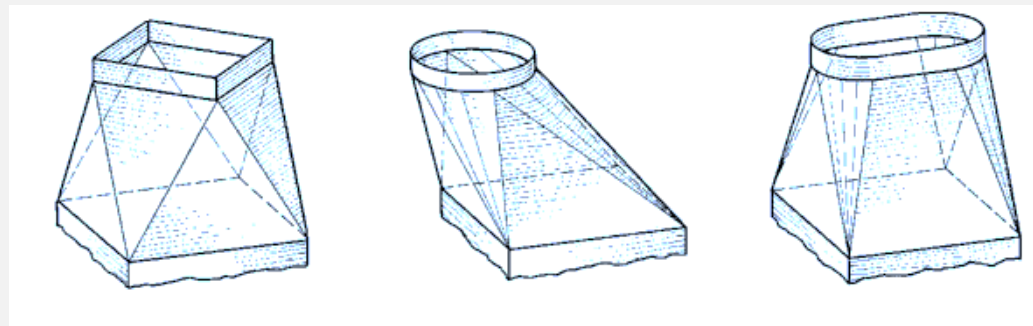
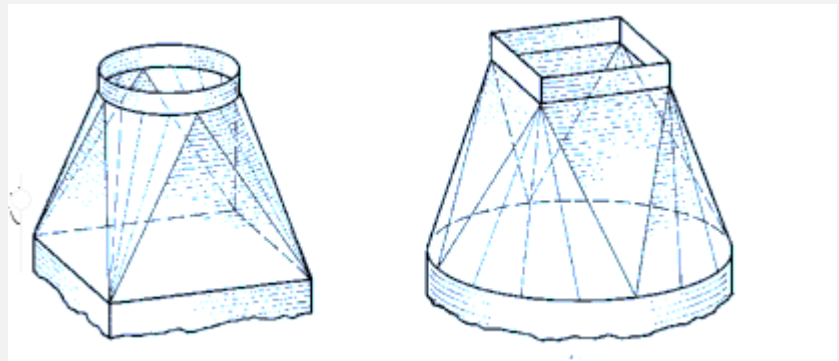
- Give is H and F view of object
- Find true sizes of all the plane faces of an object
- Join them together through common edges
- Put all faces on a common plane
- The result is the developed surface
- Developments are drawn with inside face up



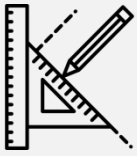
Transition Pieces



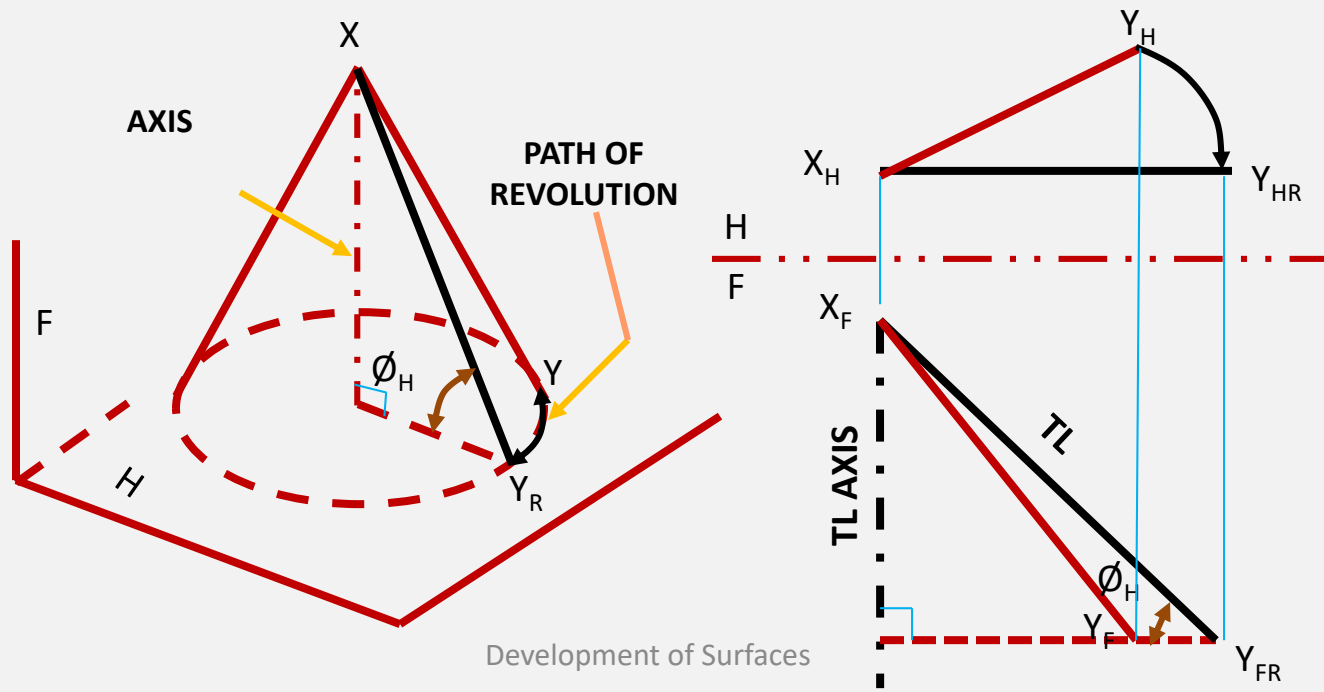
- A transition piece is one that connects two openings which are:
 - differently shaped
 - differently sized
 - may be skewed-position
- Transition pieces are usually made up of plane and conical surfaces.
- Can be developed



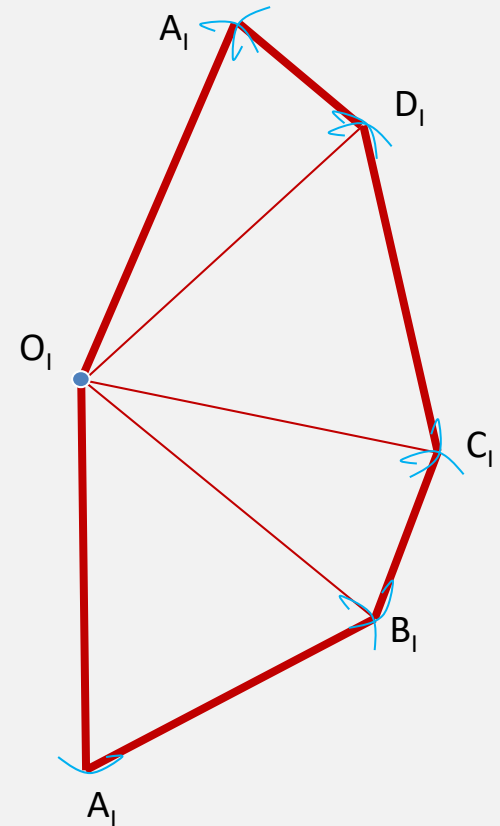
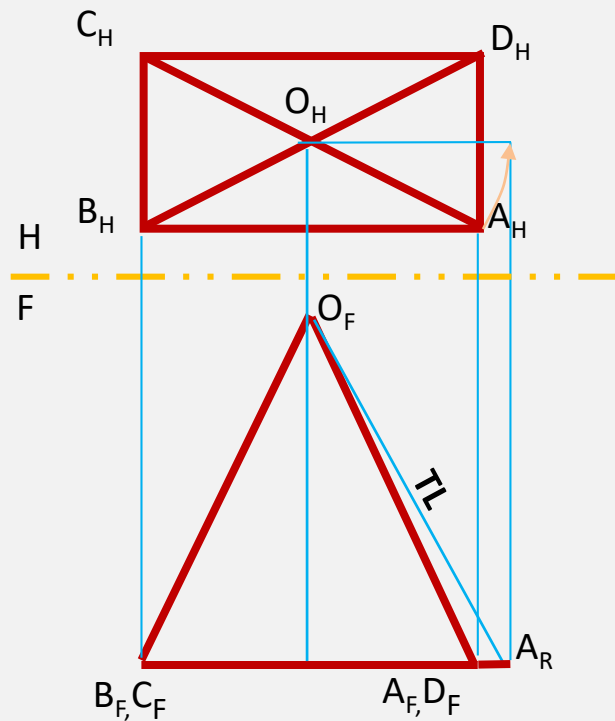
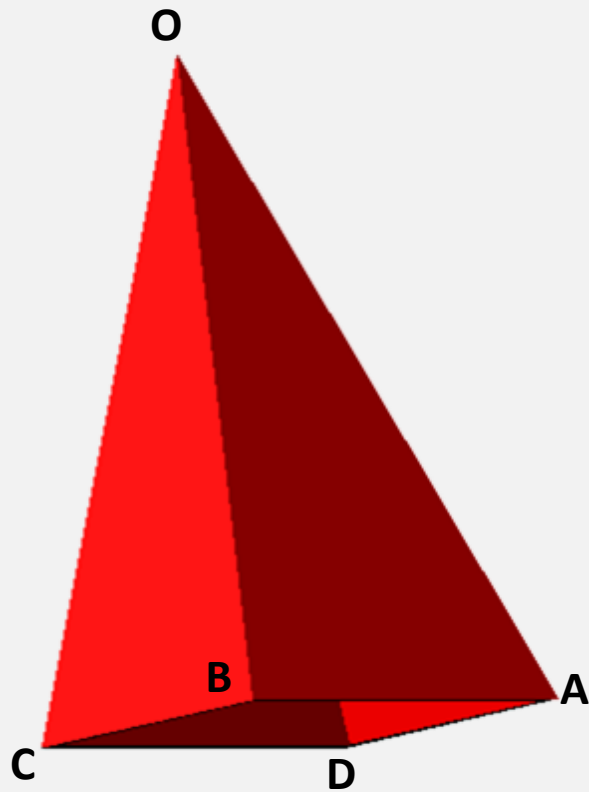
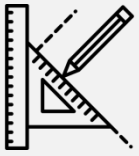
Use of True Length for Developed Surface



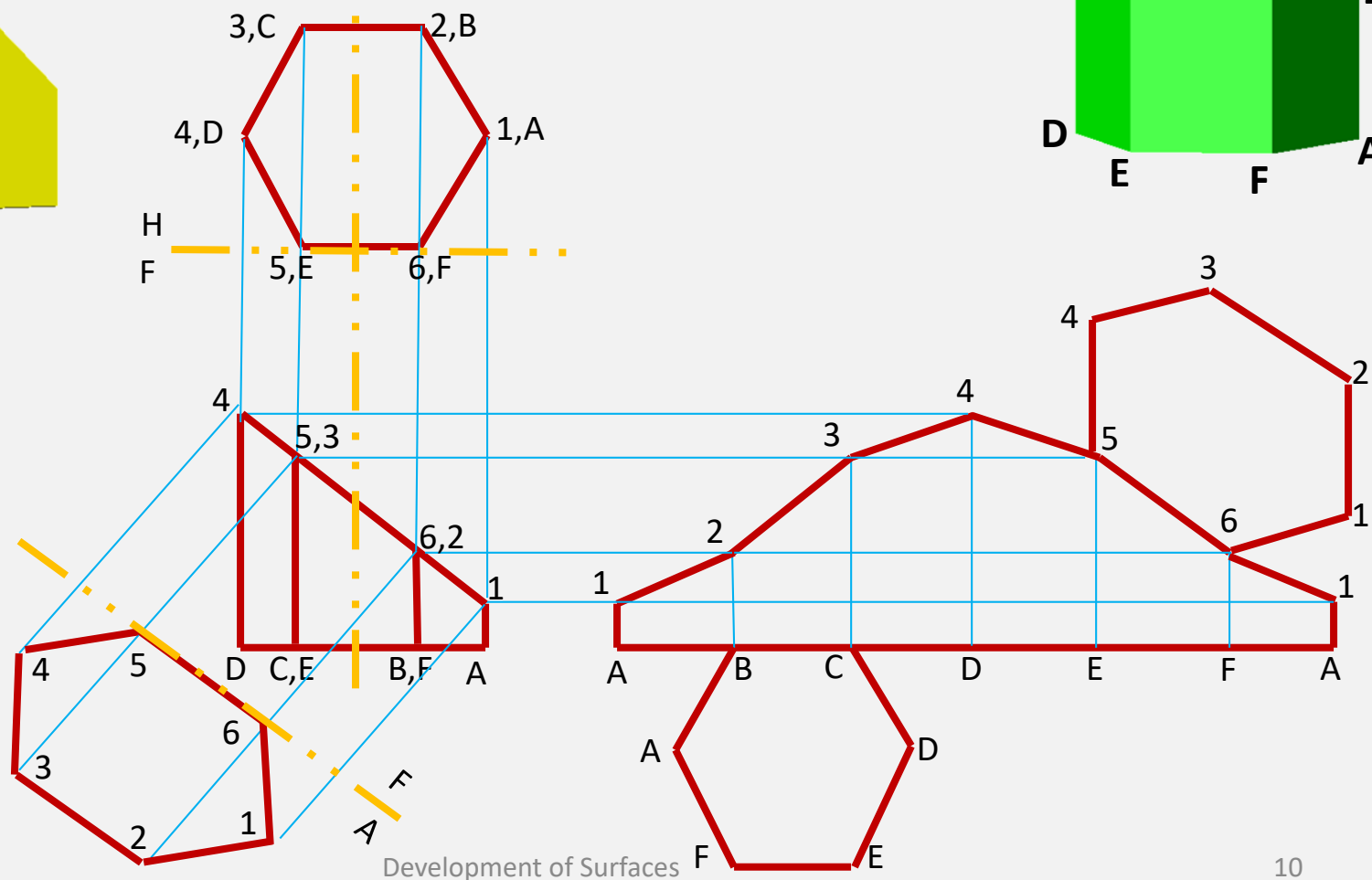
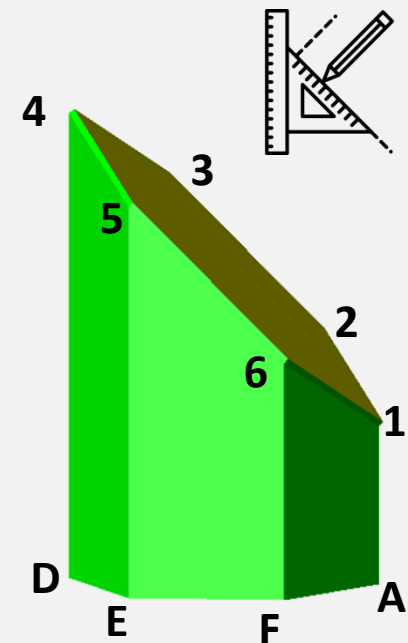
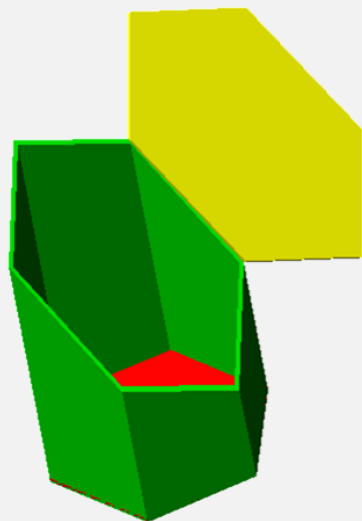
- Developed surfaces are true shape and sizes
- To develop these true lengths are needed
 - Method of revolution
 - Takes one less view than auxiliary view method
 - Projection of a line is revolved to generate Normal View of line
 - Edge view of a plane is revolved to generate Normal View of plane
 - Method of auxiliary view



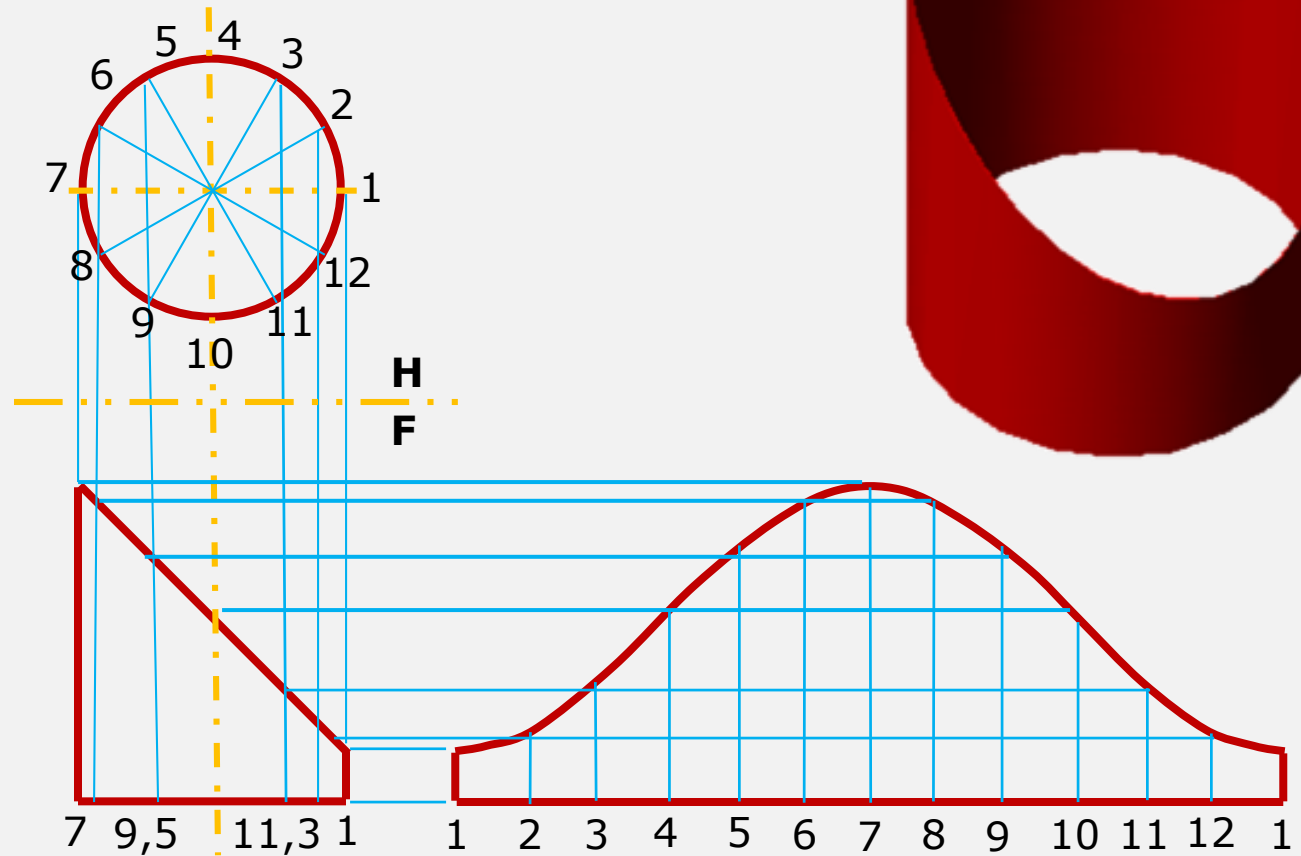
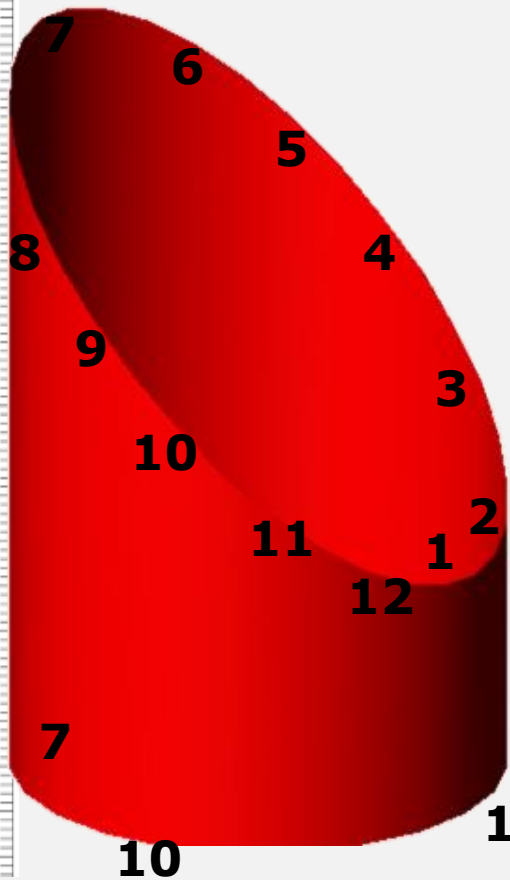
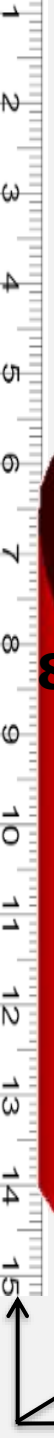
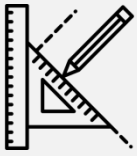
Development of Pyramid



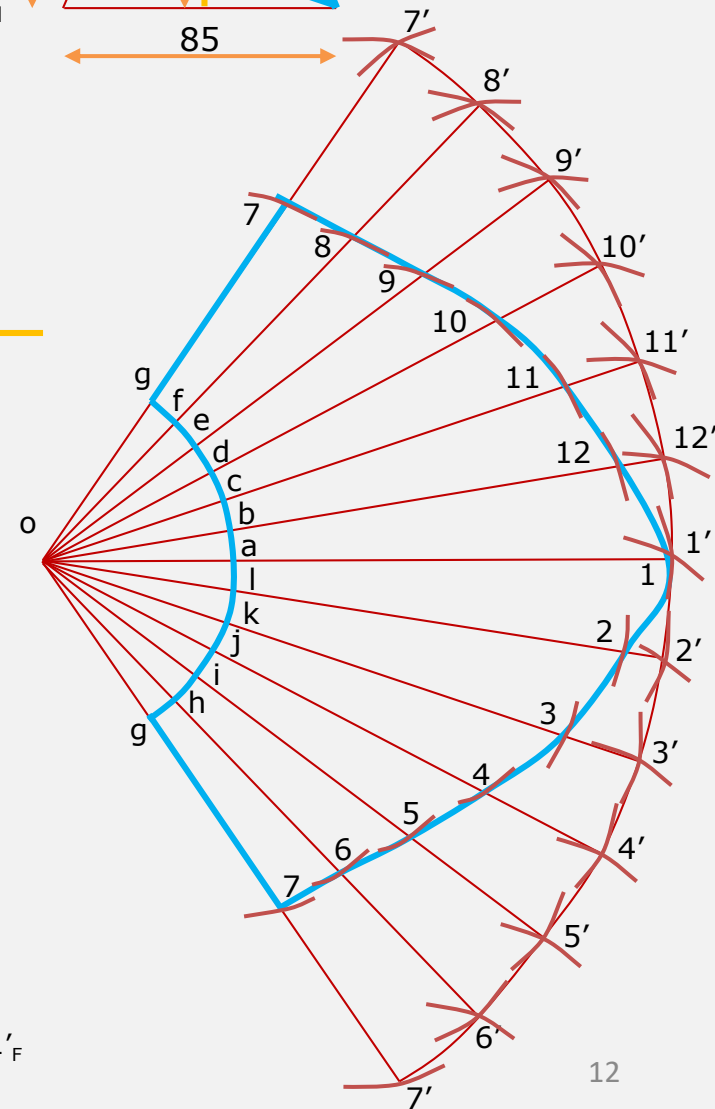
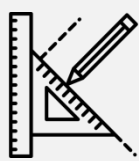
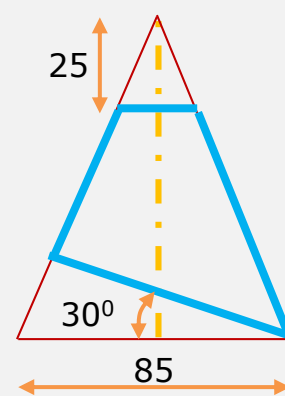
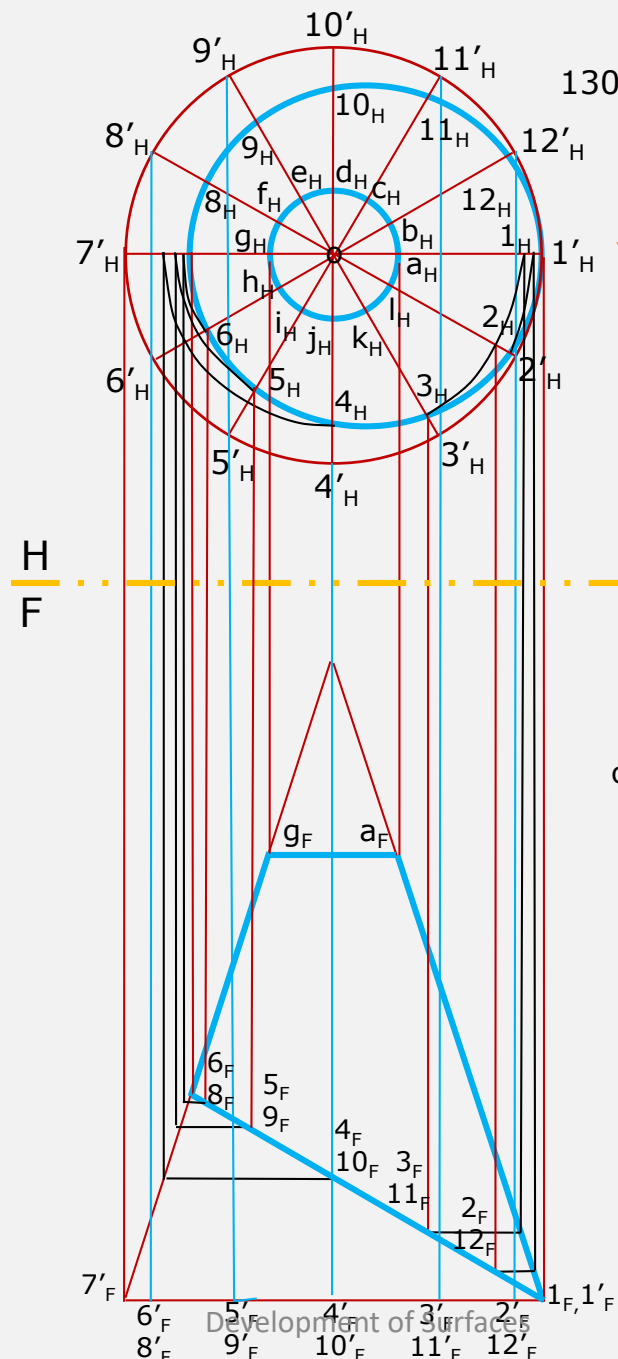
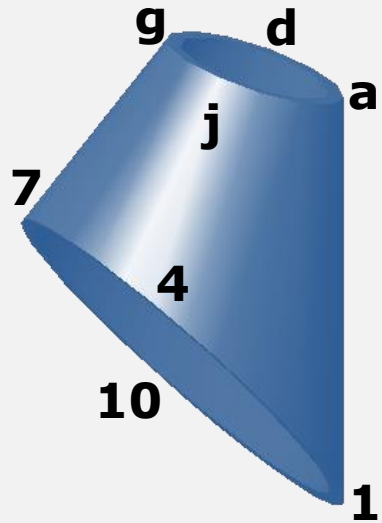
Development of Truncated Prism



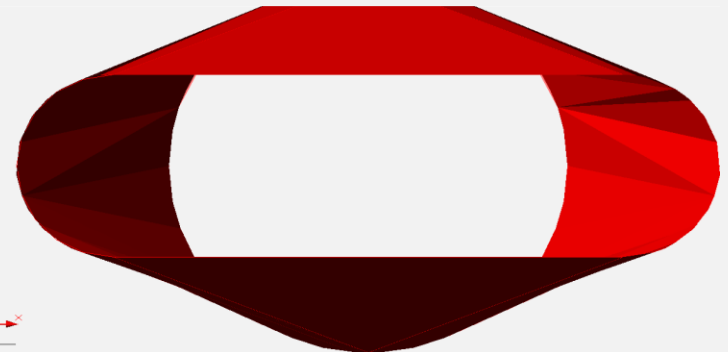
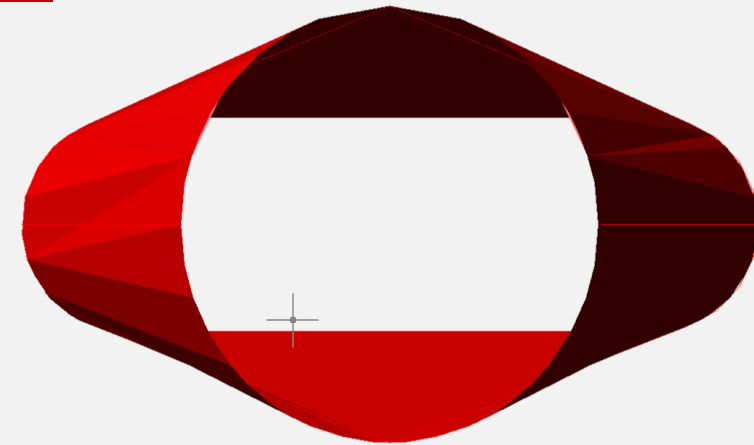
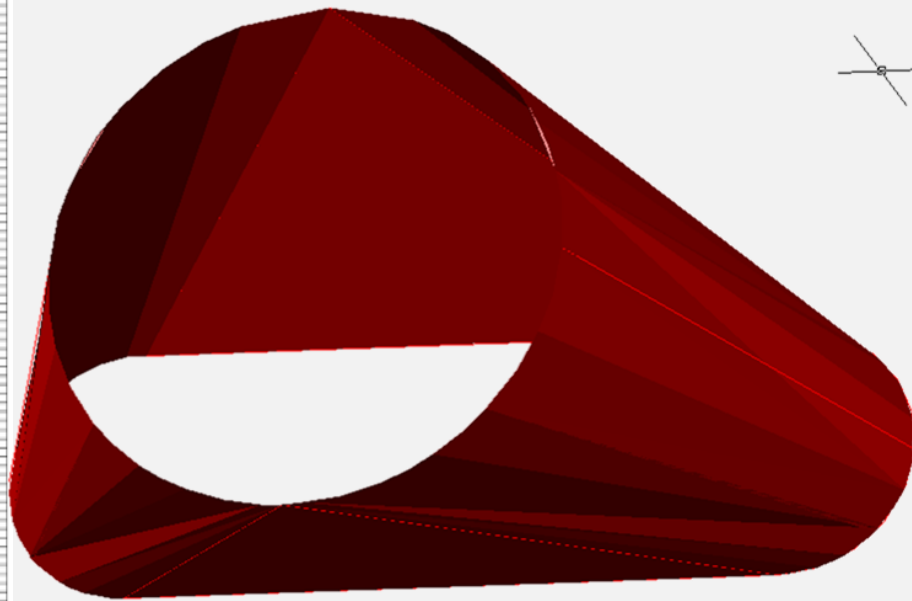
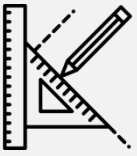
Development of Truncated Cylinder



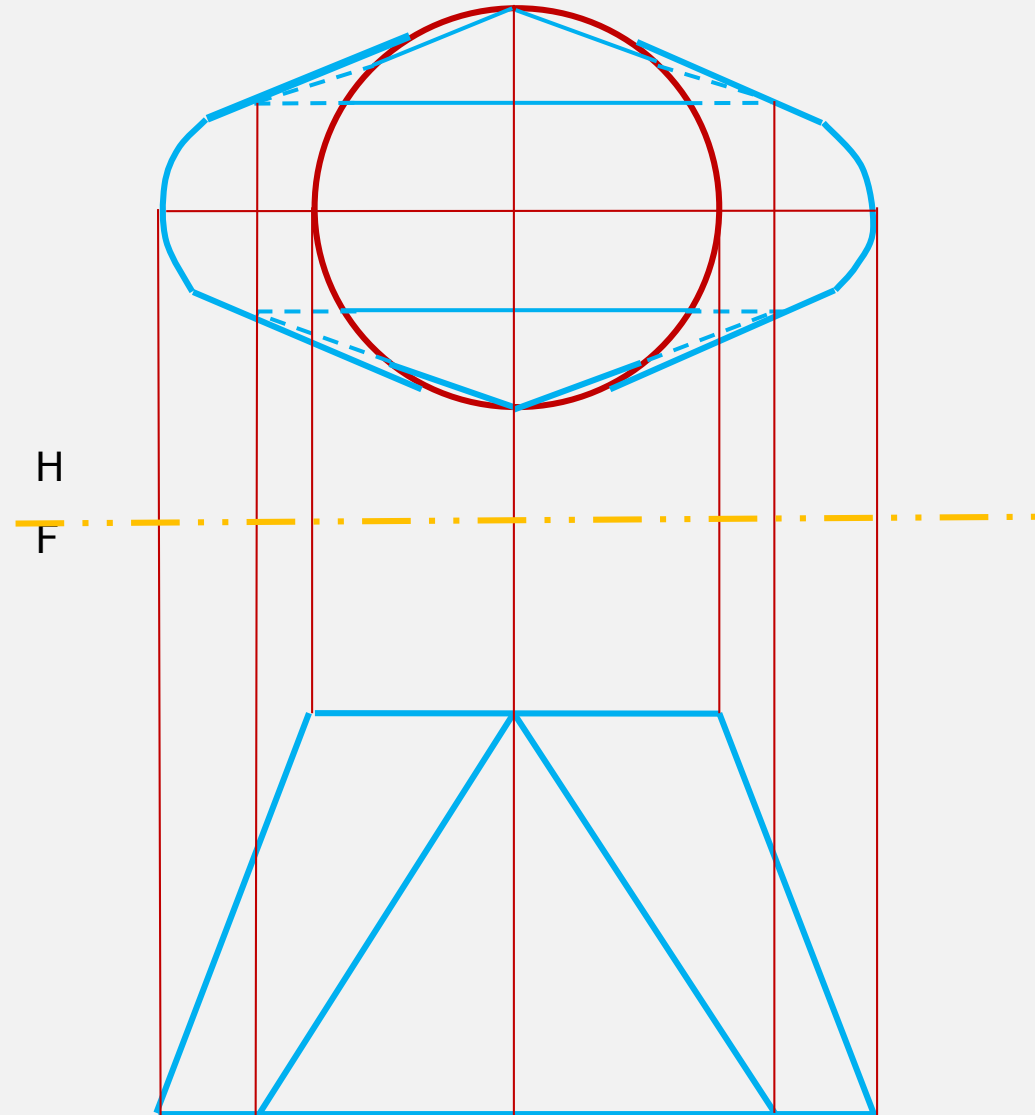
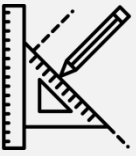
Development of Truncated Cone

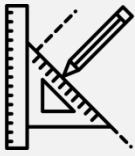


Development of a Transition Piece-Oval to Round

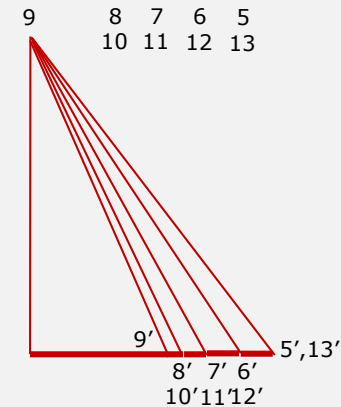
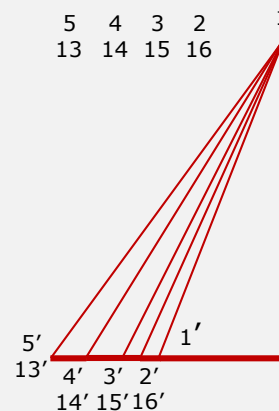
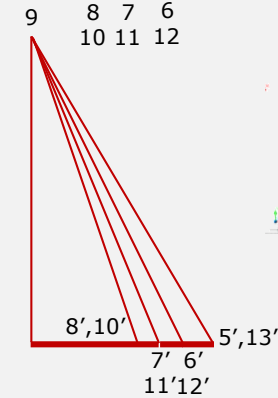
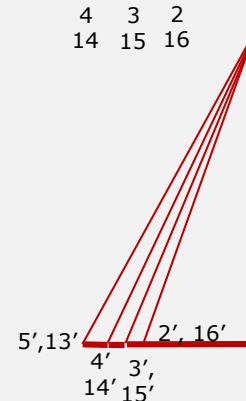
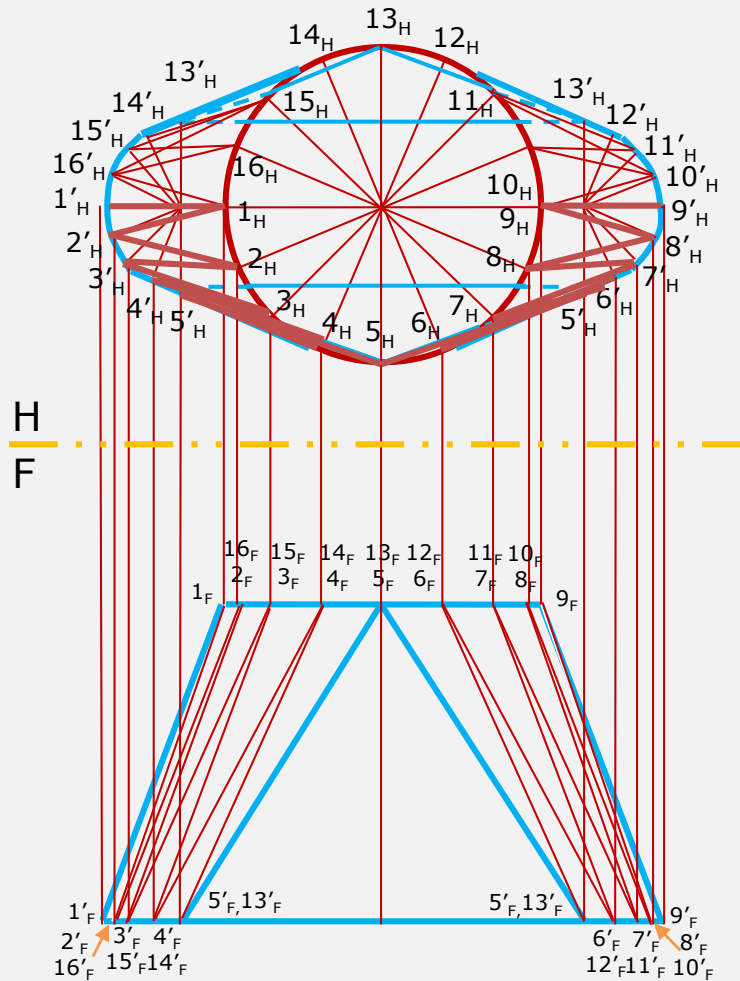


Development of a Transition Piece-Oval to Round

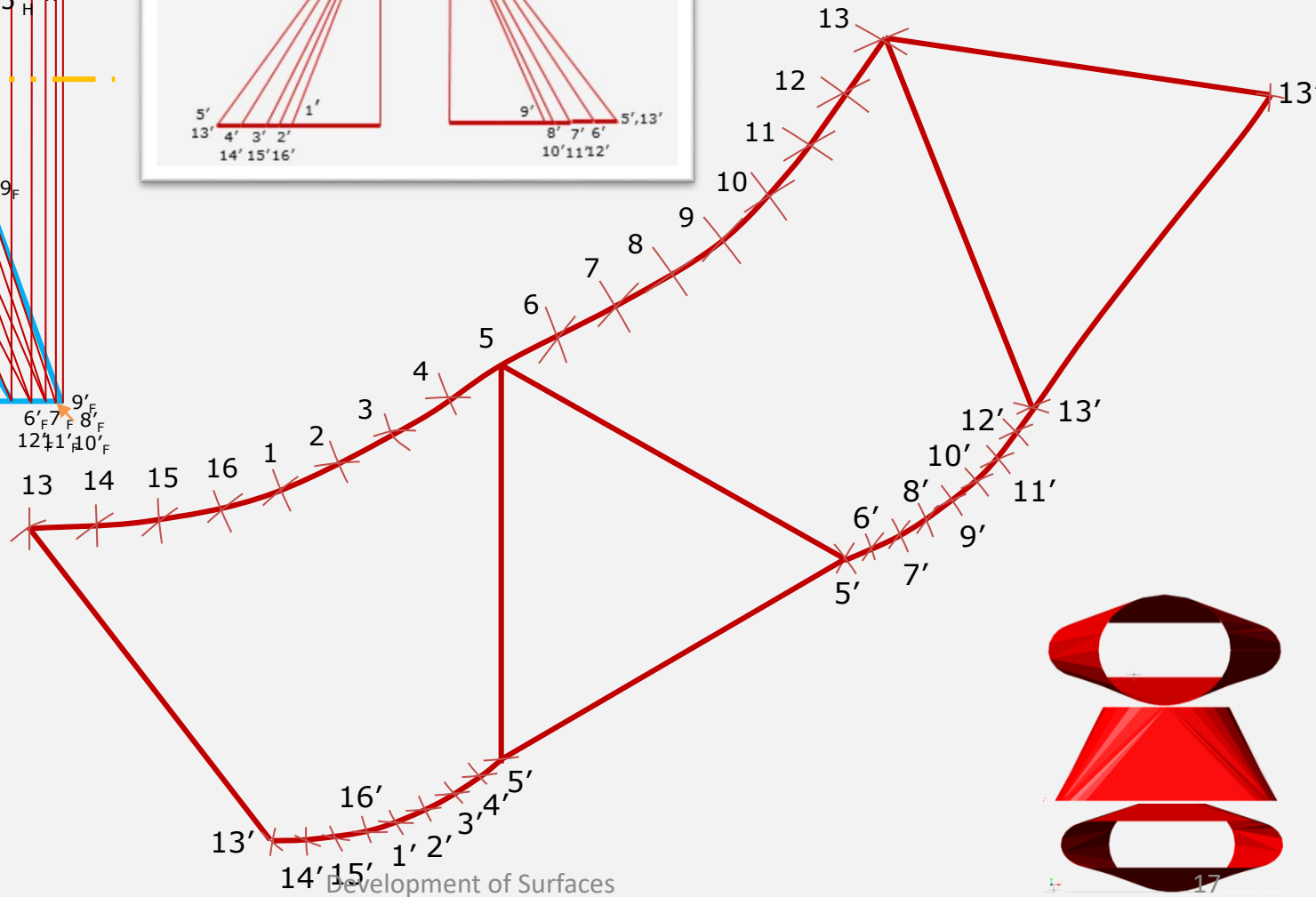
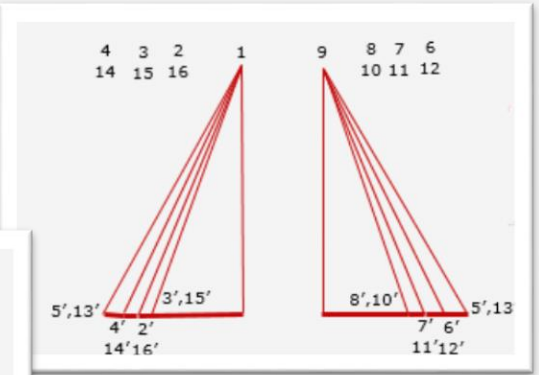
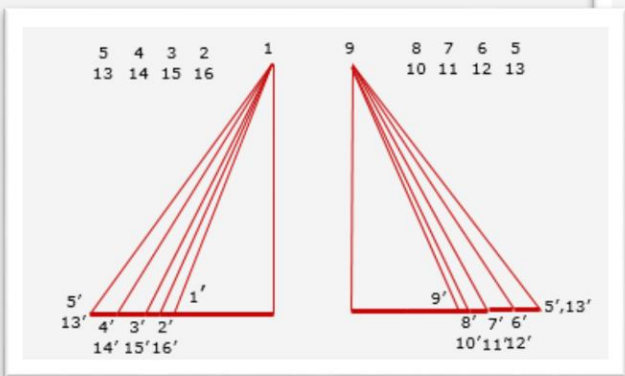
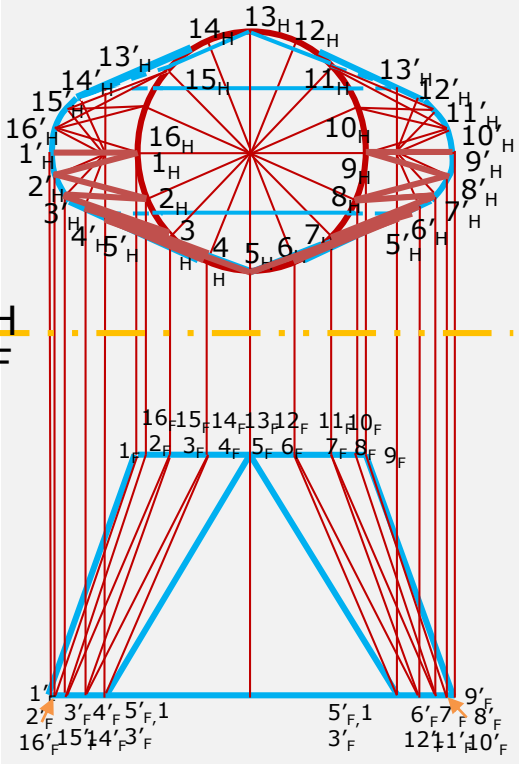




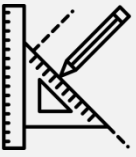
Development of a Transition Piece-Oval to Round



Development of a Transition Piece-Oval to Round



Development of Surfaces



Thank you !