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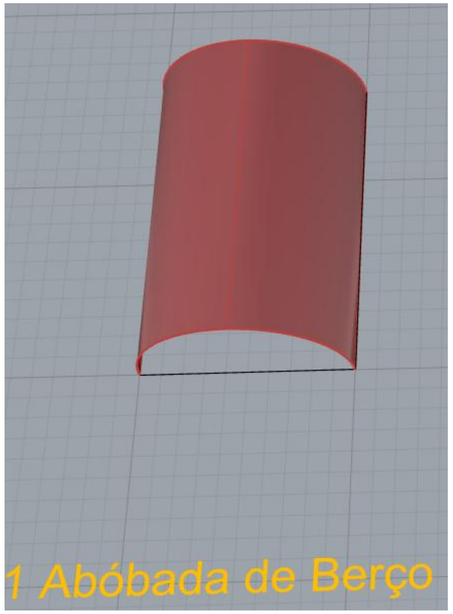
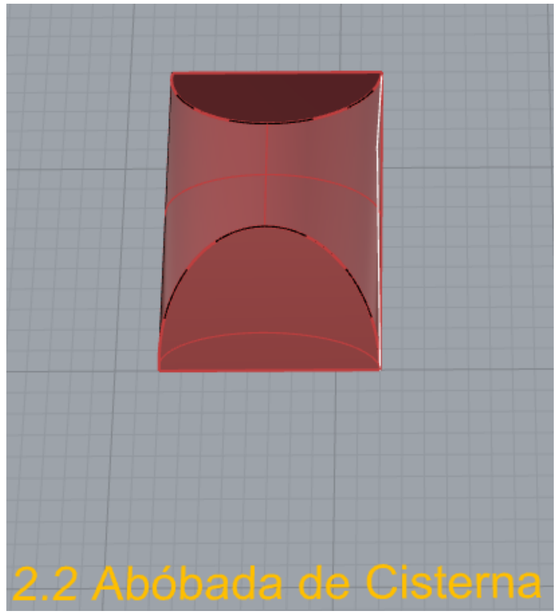
FACULDADE DE ARQUITETURA
UNIVERSIDADE DE LISBOA

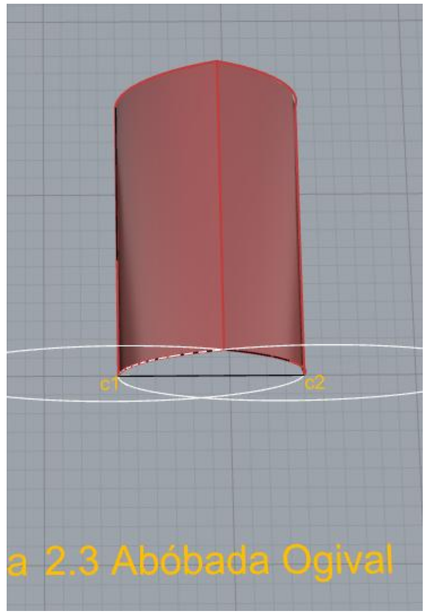
MGG

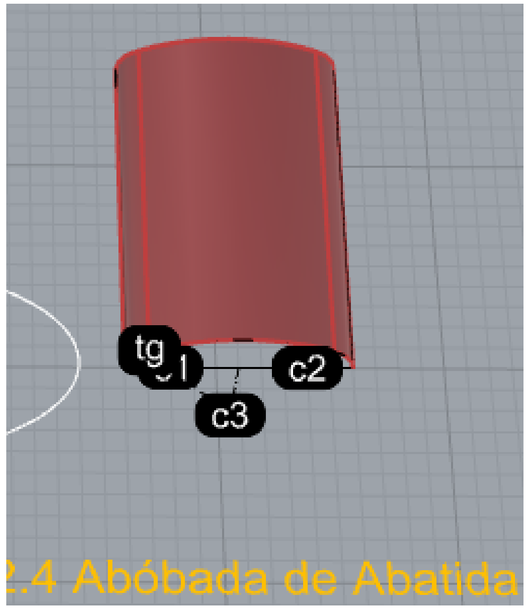
Mestrado Integrado em Arquitectura
Ano Lectivo 2025-2026 2º Semestre
Docente - Nuno Alão 2º Ano

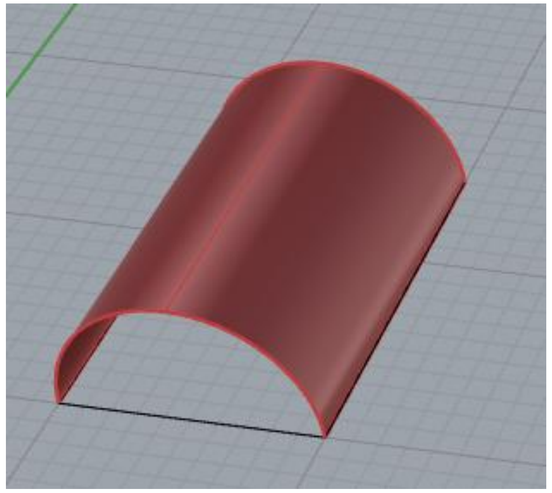
INÍCIO DO TRABALHO 2

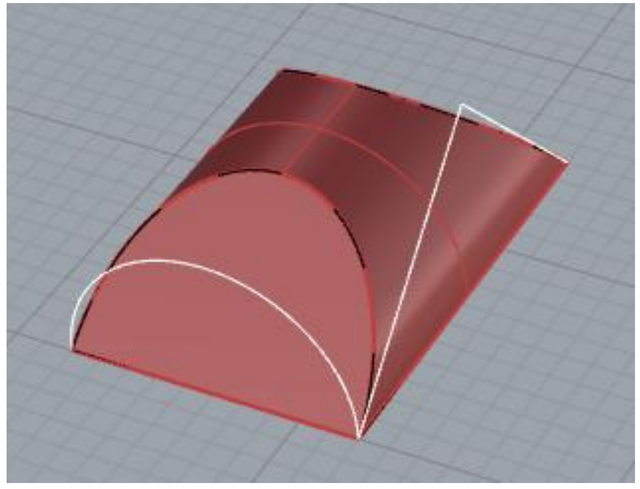

1 Abóbada de Berço

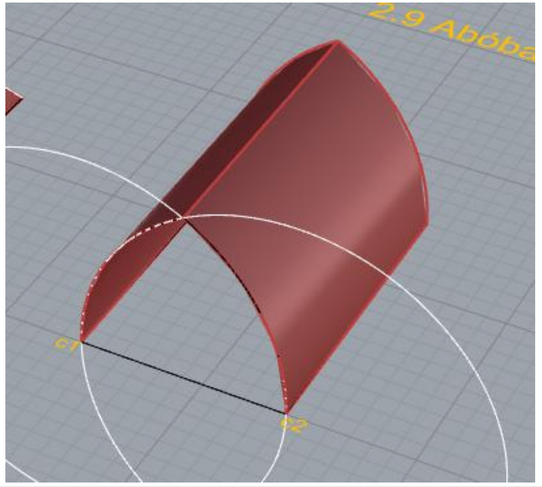

2.2 Abóbada de Cisterna


c1
c2
a 2.3 Abóbada Ogival


tg
c1
c2
c3
2.4 Abóbada de Abatida






2.9 Abóba
c1
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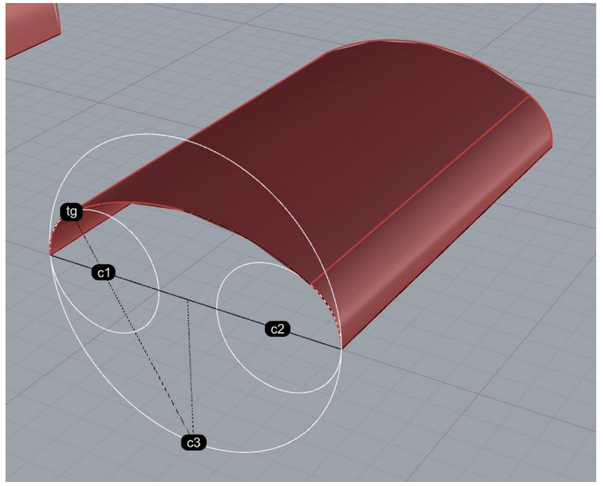
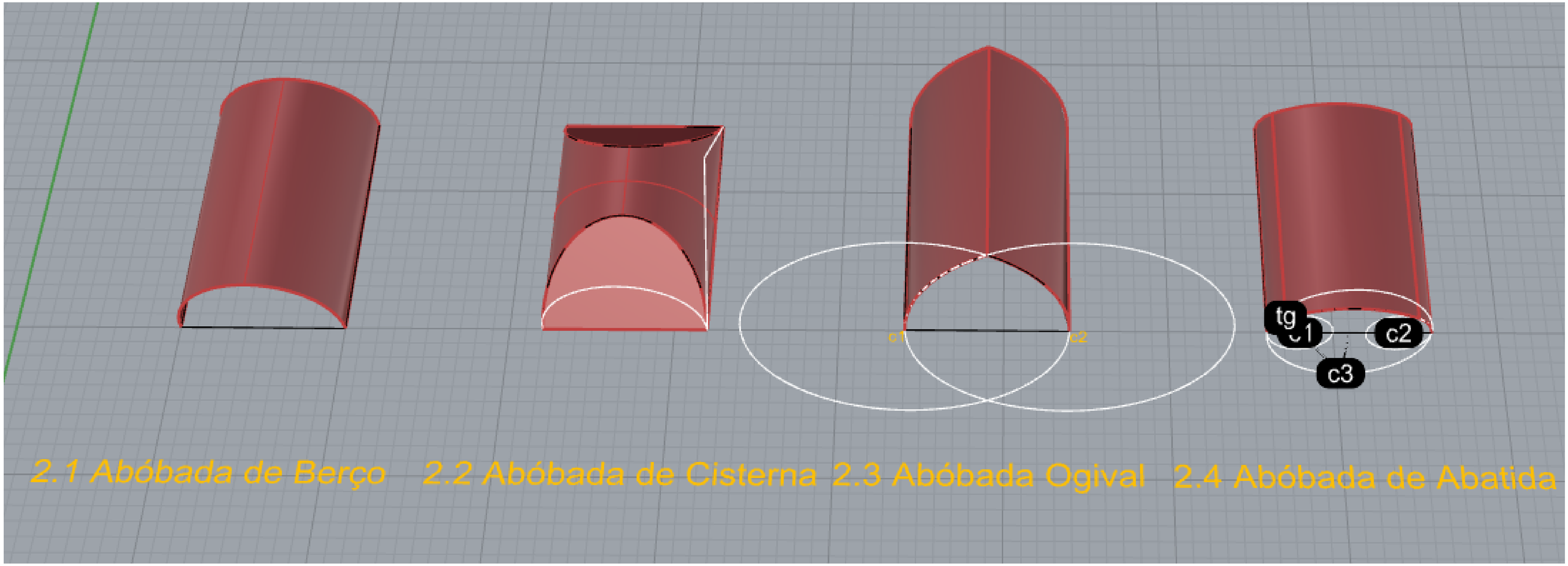
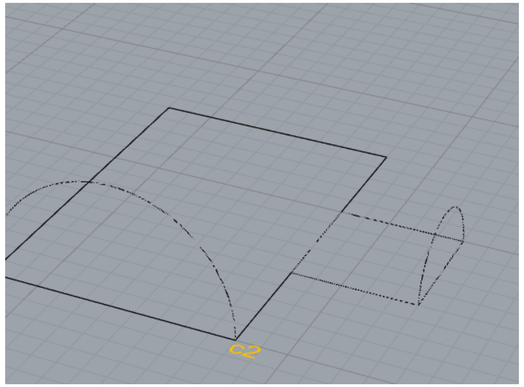
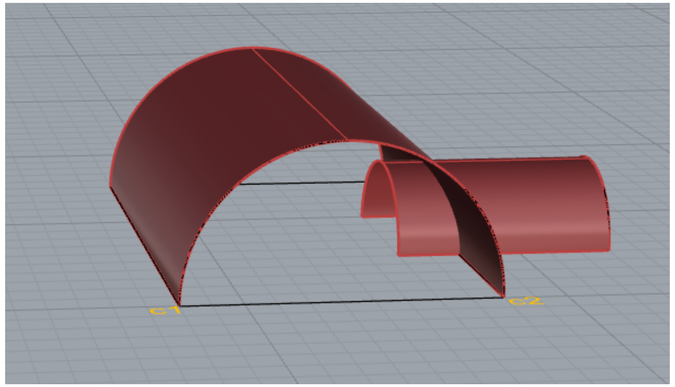

tg
c1
c2
c3

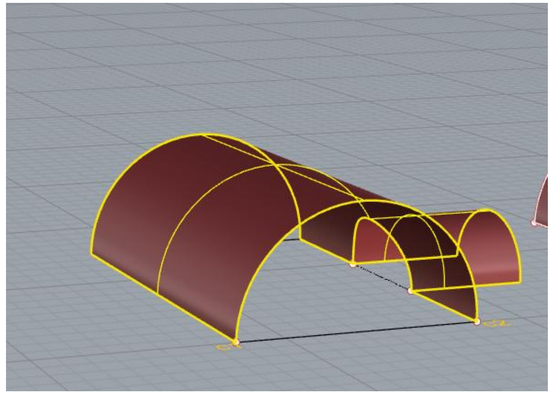


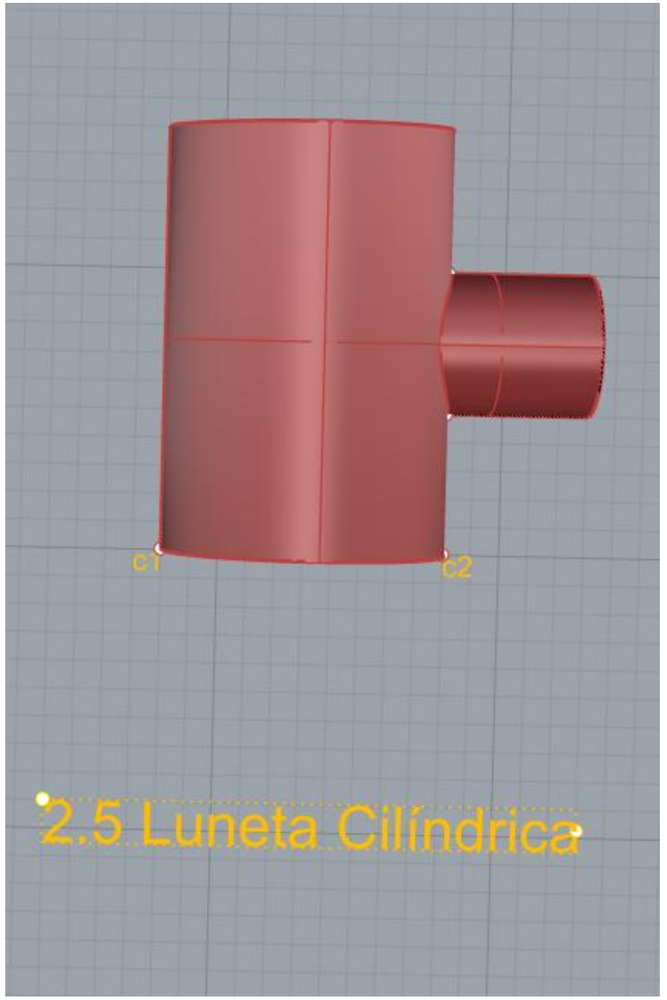
2.1 Abóbada de Berço *2.2 Abóbada de Cisterna* 2.3 Abóbada Ogival 2.4 Abóbada de Abatida

Luneta cilíndica







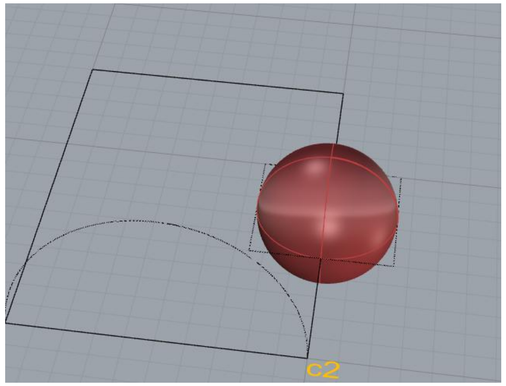


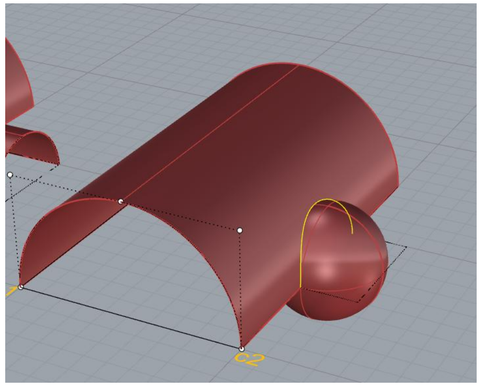
ExtrudeCurve: Faz a extrusão de ambos os meios círculos

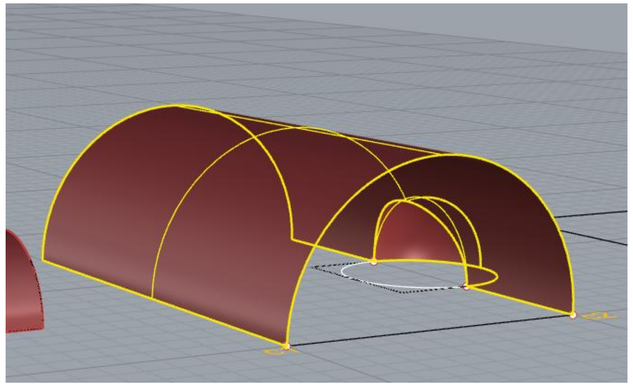
Intersect: Seleciona as duas superfícies e usa o comando Intersect para gerar as curvas onde as superfícies se tocam

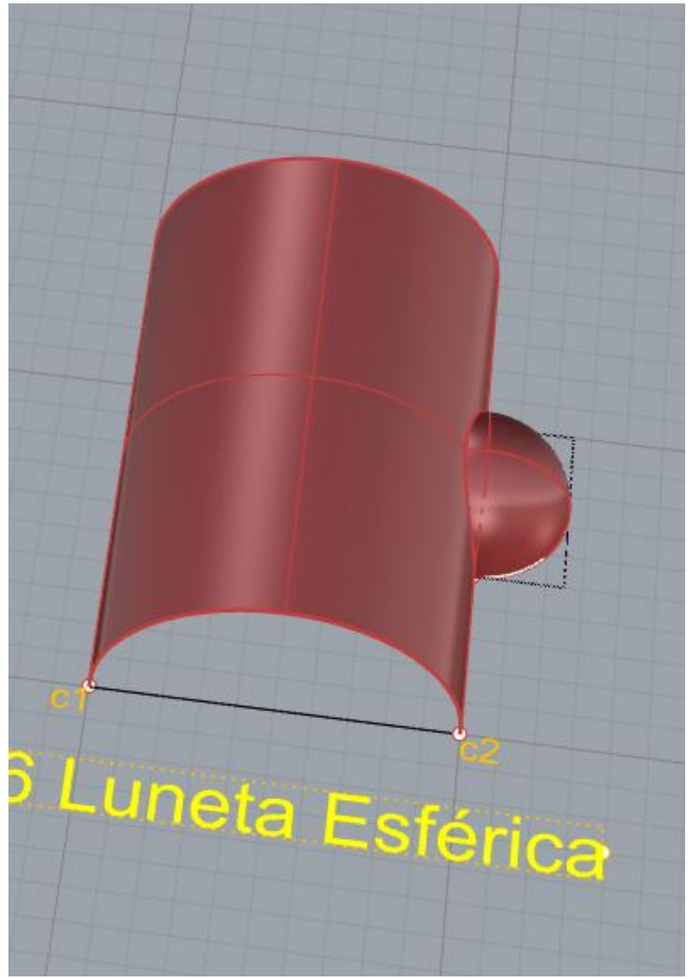
Trim: Usa essas curvas como limite de corte e remove as partes que não precisa

Luneta esférica









Círculo interno: Desenha um círculo centrado dentro do quadrado.

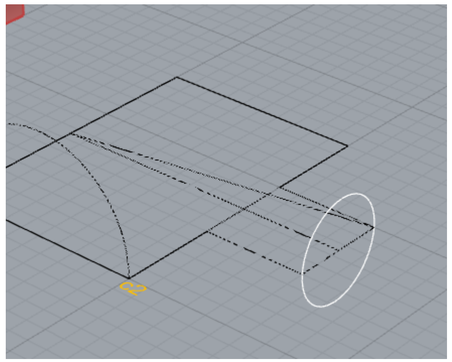
Criar a Esfera: Desenha uma esfera com o centro no mesmo ponto do círculo.

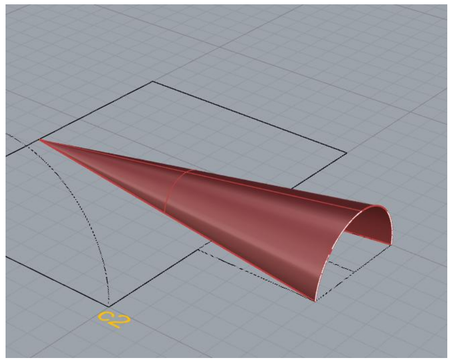
Extrusão: Usa o comando ExtrudeCurve no círculo para criar uma superfície curva que atravesse a esfera.

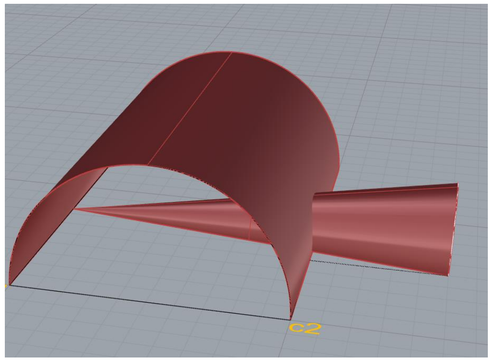
Interseção: Utiliza o comando Intersect entre a esfera e o cilindro para obter as curvas de corte.

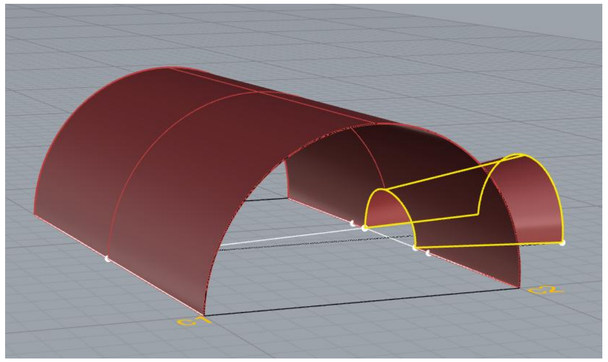
Trim: Usa o comando Trim para eliminar as partes da esfera e da superfície curva que não precisa.

Luneta cónica





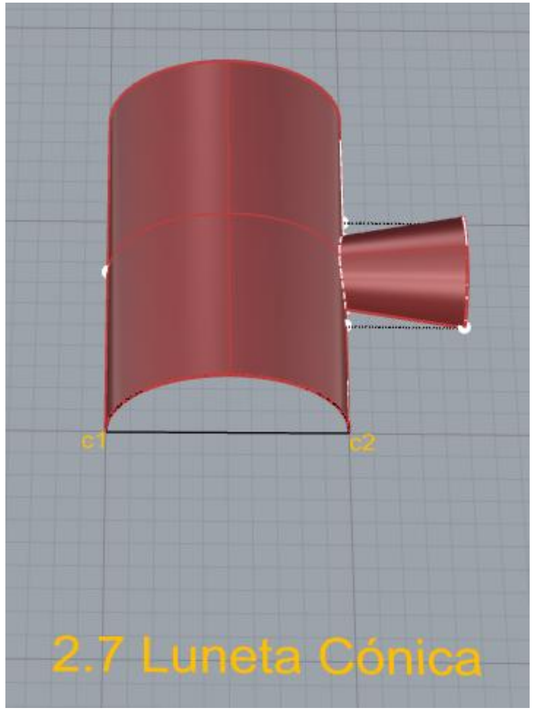




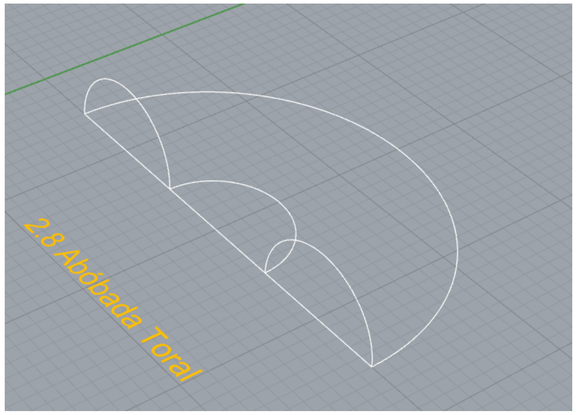
RailRevolve:
Perfil: Seleciona a curva que define a forma da face.

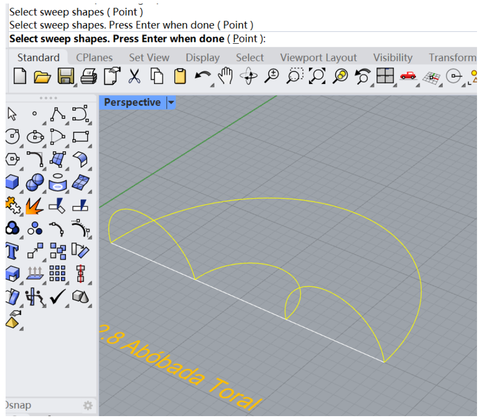
Carril (Rail): Seleciona a curva que serve de caminho (o limite exterior).

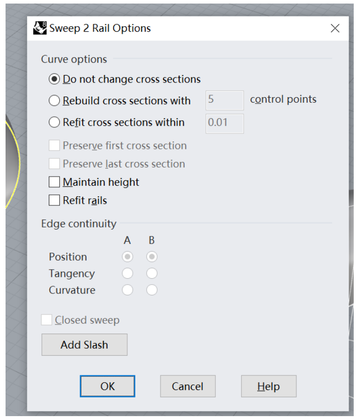
Eixo: Desenha uma linha reta (clica em dois pontos) para definir o centro da rotação.

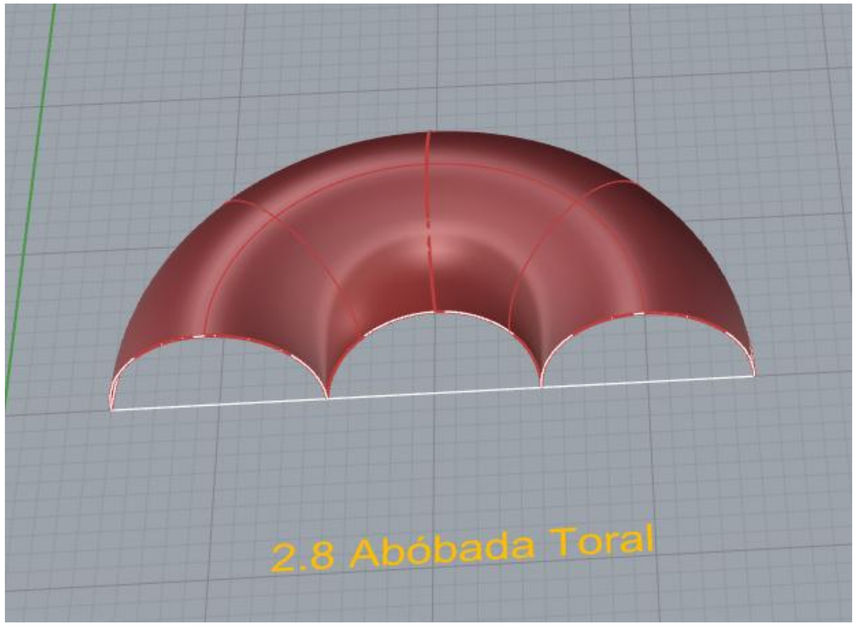


Abóbada Toral









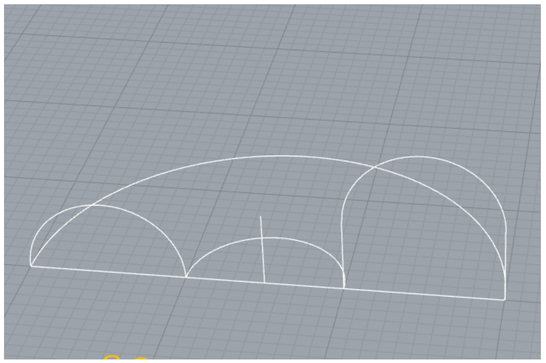
Sweep2 :
Preparar Curvas: Deve ter dois carris (caminhos laterais) e uma ou mais secções transversais (o perfil).

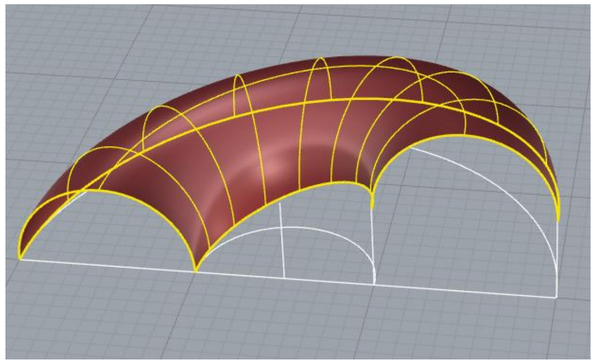
Comando: Sweep2 na linha de comandos.

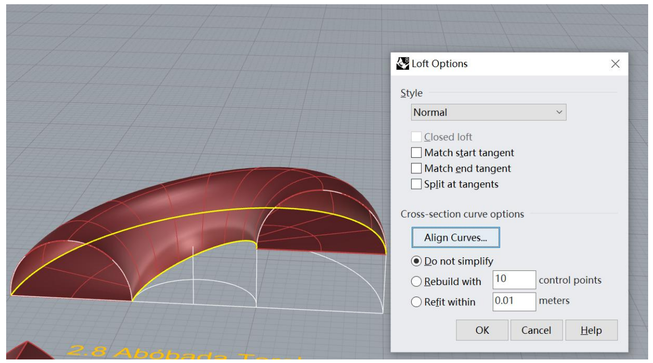
Selecionar Carris: Seleciona o primeiro carril e depois o segundo carril.

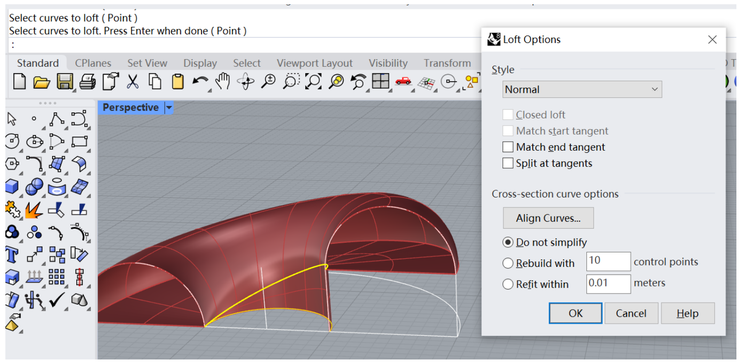
Selecionar Perfil: Seleciona a curva (ou curvas) de secção que quer que percorra os carris e prime Enter.

Abóbada Helicoidal







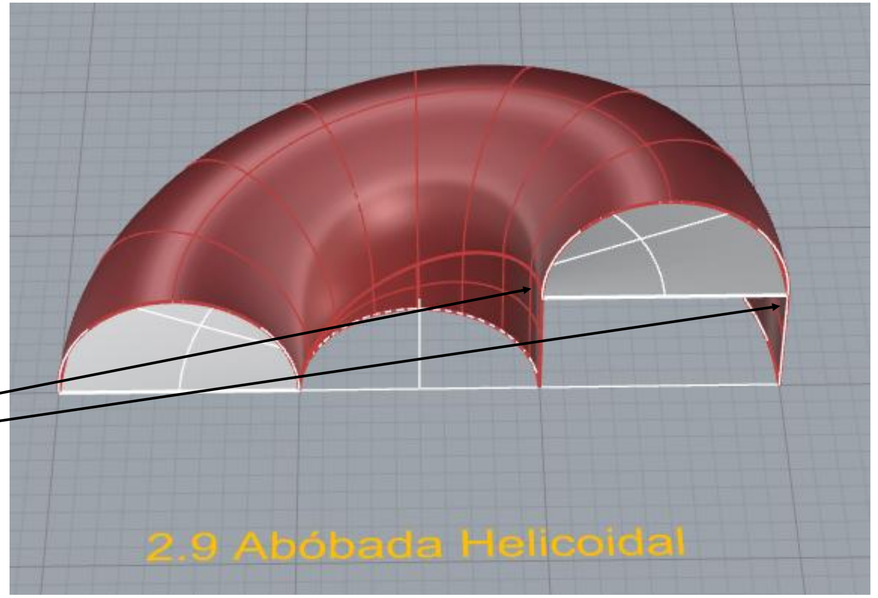


Preparar Curvas: Desenha dois arcos (um de cada lado) e duas hélices que liguem as extremidades desses arcos.

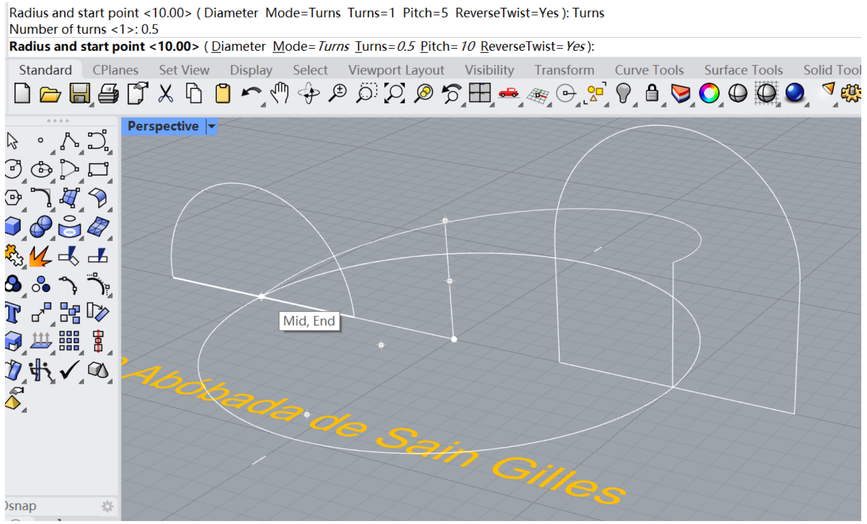
Sweep2: Seleciona as duas hélices como carris (rails) e os arcos como perfis para criar a superfície curva superior.

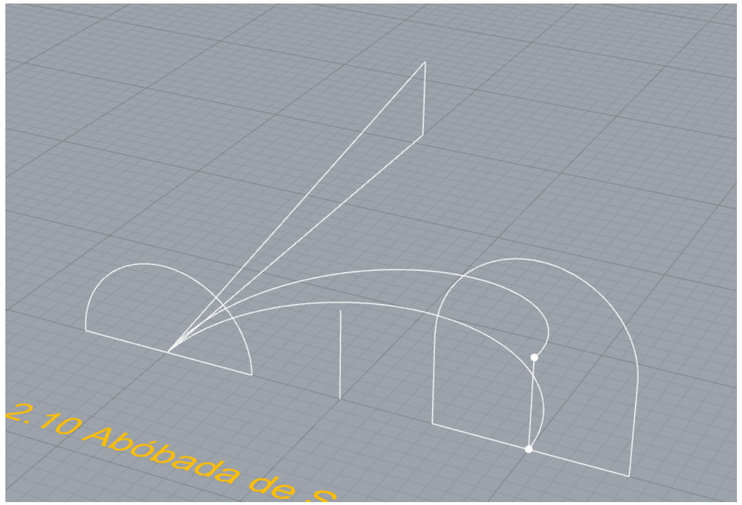
Loft (Lados): Seleciona as curvas da base e as curvas inferiores da superfície para criar as faces laterais verticais.

Loft (Superfície):usa novamente o Loft entre as



Abóbada Helicoidal





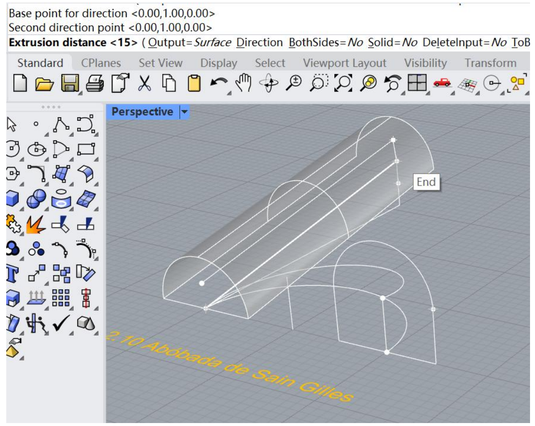
Helix

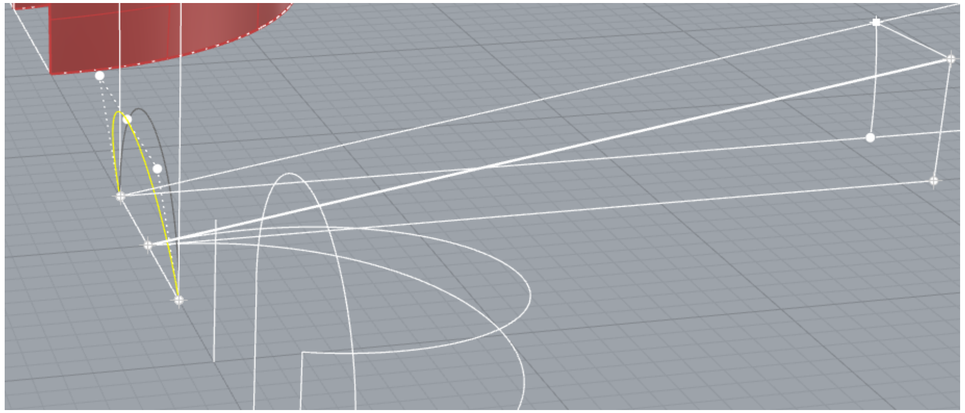
Eixo Vertical: Clica no ponto central da base e depois no ponto superior para definir a altura do eixo.
Raio: Clica na extremidade de um dos teus arcos (o perfil inicial) para definir o raio da hélice.
Ajustar Voltas: No menu superior, muda Turns para um valor baixo (por exemplo, 0.5 para meio volta) para que a curva não dê voltas a mais.
Pitch (Passo): ajusta o Pitch para controlar a inclinação da subida.
Reverse Twist (Yes): Isto inverte o sentido da espiral

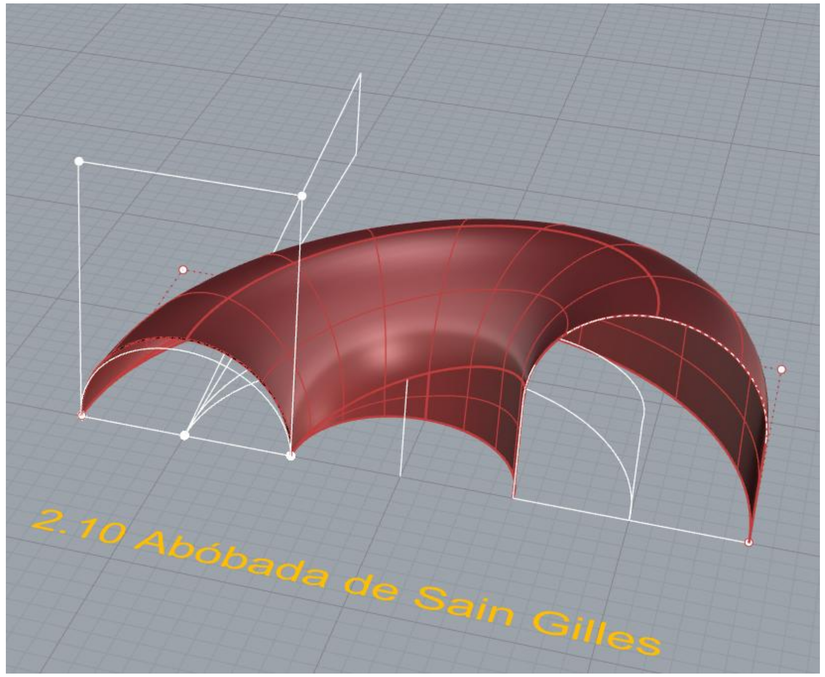
Length

Seleção: Clica na curva ou hélice que quer medir.
Resultado: O valor aparece imediatamente na barra de histórico (no topo do ecrã) em unidades (ex: Length = 31.42 m).

Abóbada Helicoidal







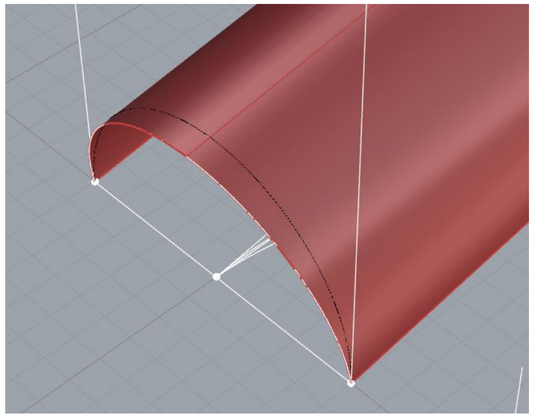
ExtrudeCurve

Opção Direction: Na linha de comandos clica na Direction

Primeiro Ponto (Base): Clica no ponto de origem da curva

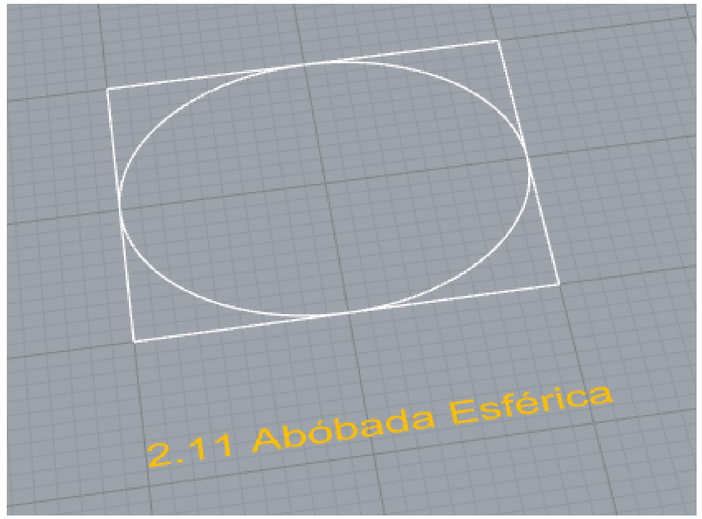
Segundo Ponto (Direção): Clica num segundo ponto para definir o vetor (ângulo e sentido) da extrusão.

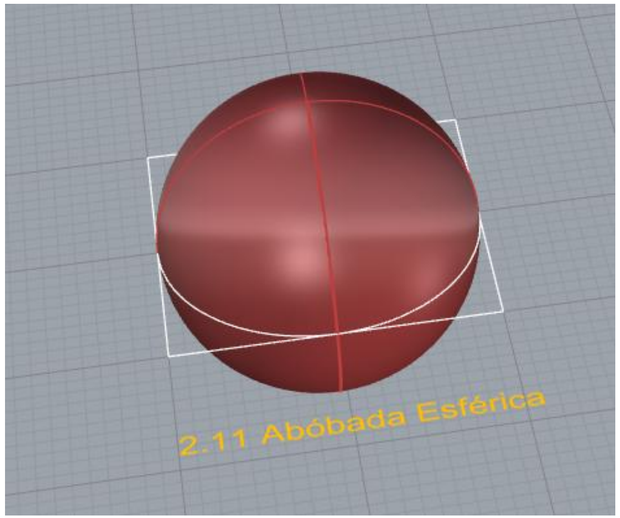
Rotate 3d

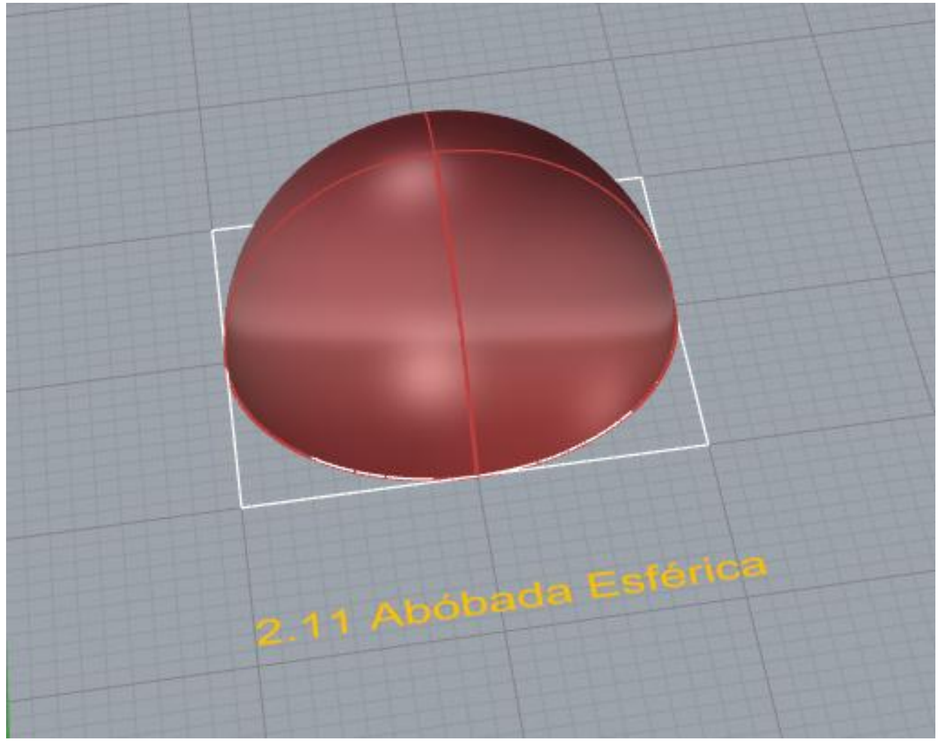


Fazer interseção, vai dar a curva e usa essa curva para fazer o resto

Abóbada Esférica





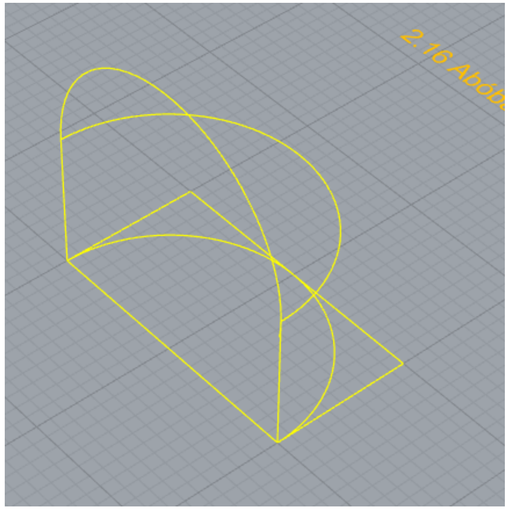


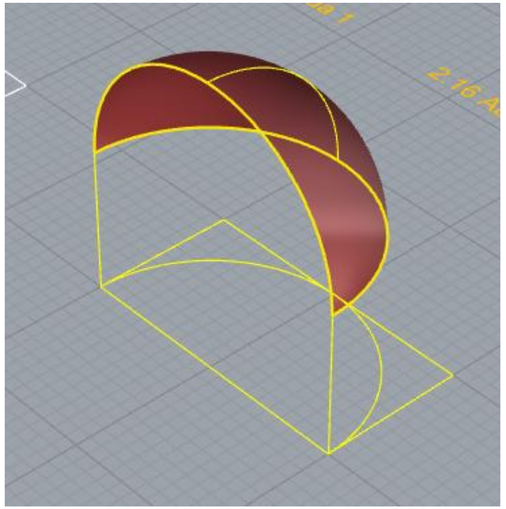
Desenhar Esfera: Usa o comando Sphere para criar a forma base

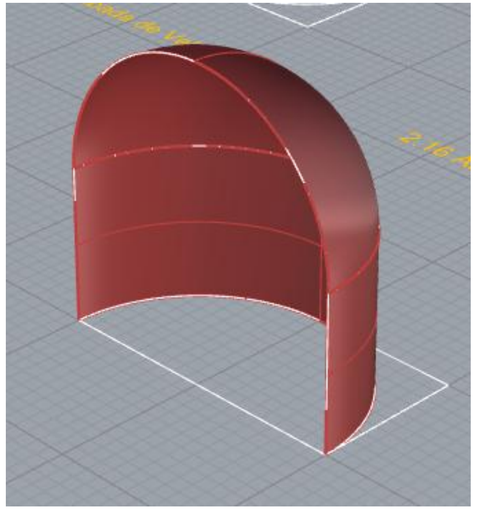
Criar Base: Desenha um quadrado (Rectangle) centrado por baixo da esfera

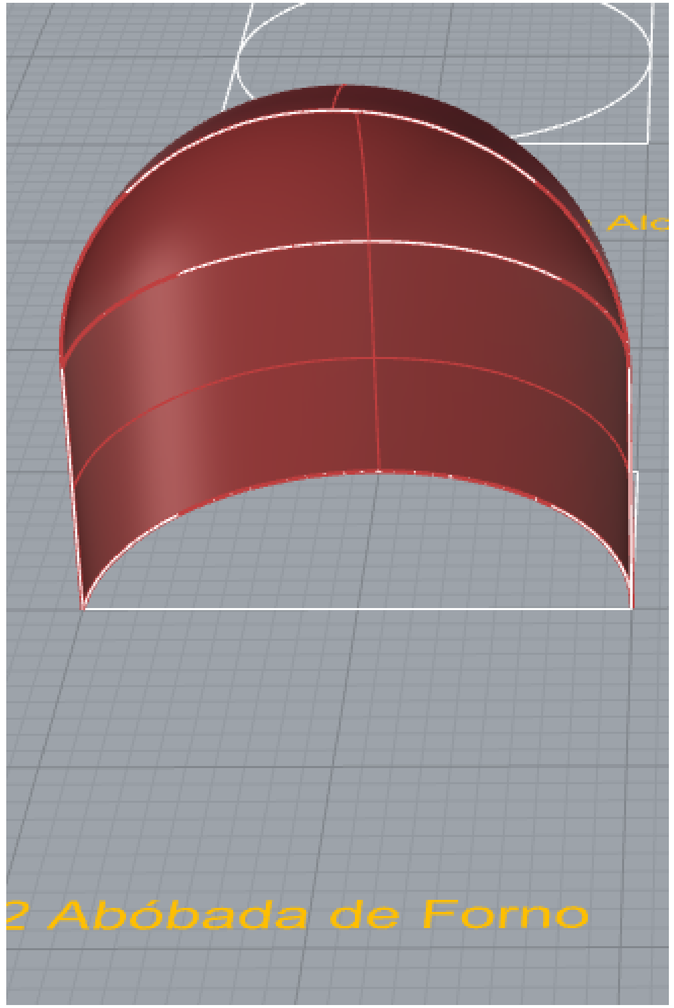
Trim: Usa trim para eleminar a parte que não quer

Abóbada de Forno









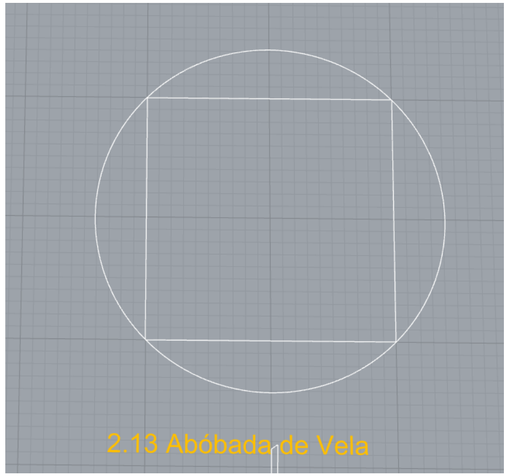
Desenhar uma esfera com Sphere.

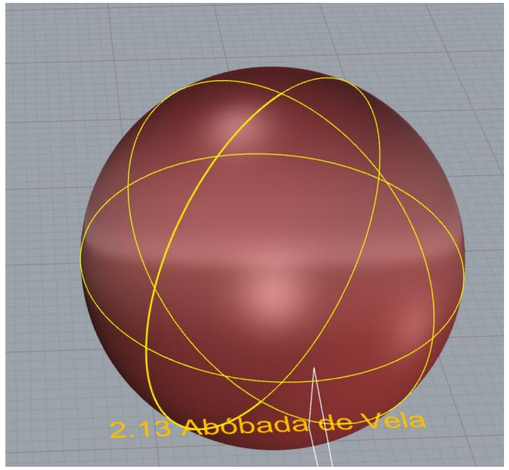
Cortar a esfera com Trim para obter apenas a parte que vai servir de abóbada.

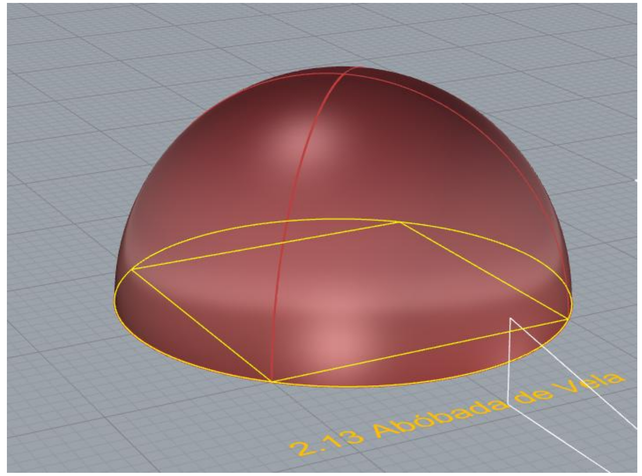
Desenhar curvas de perfil (arcos) ao longo da abertura.

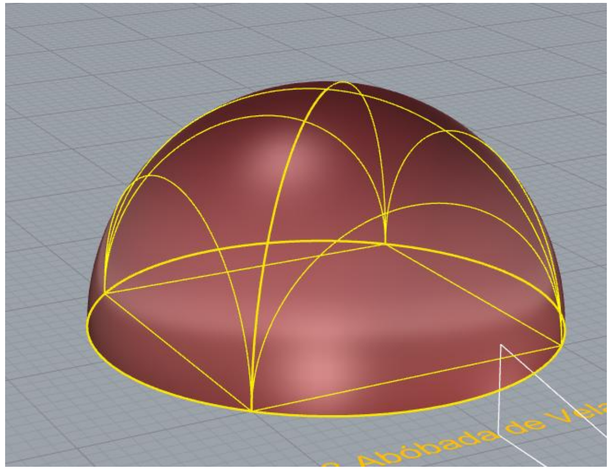
Usas Loft entre essas curvas para criar a superfície final da abóbada.

Abóbada de Vela





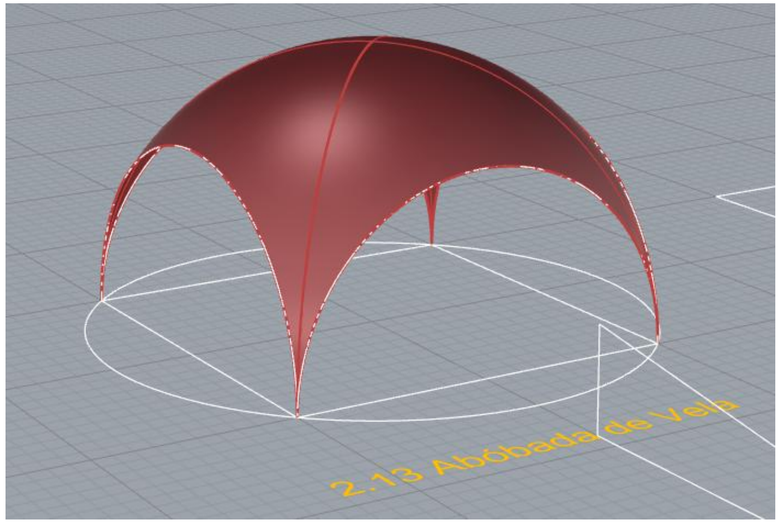




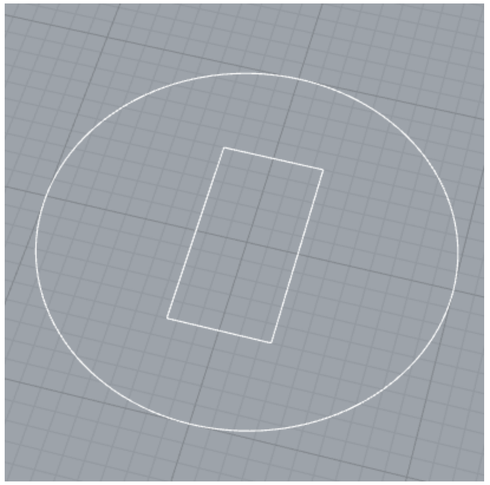
Desenha uma esfera com o comando Sphere

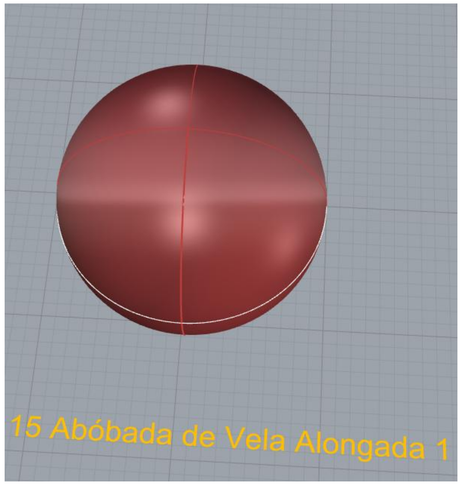
Projectas as linhas do quadrado sobre a esfera com Project

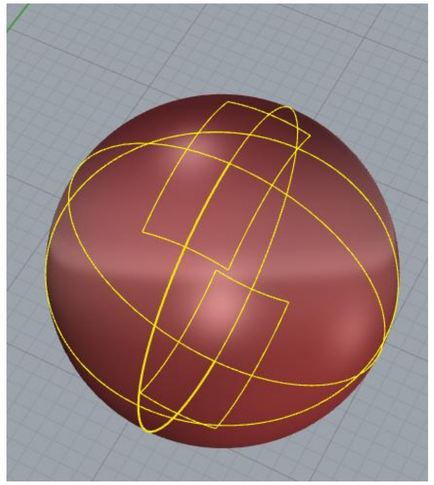
Trim o que não precisar.

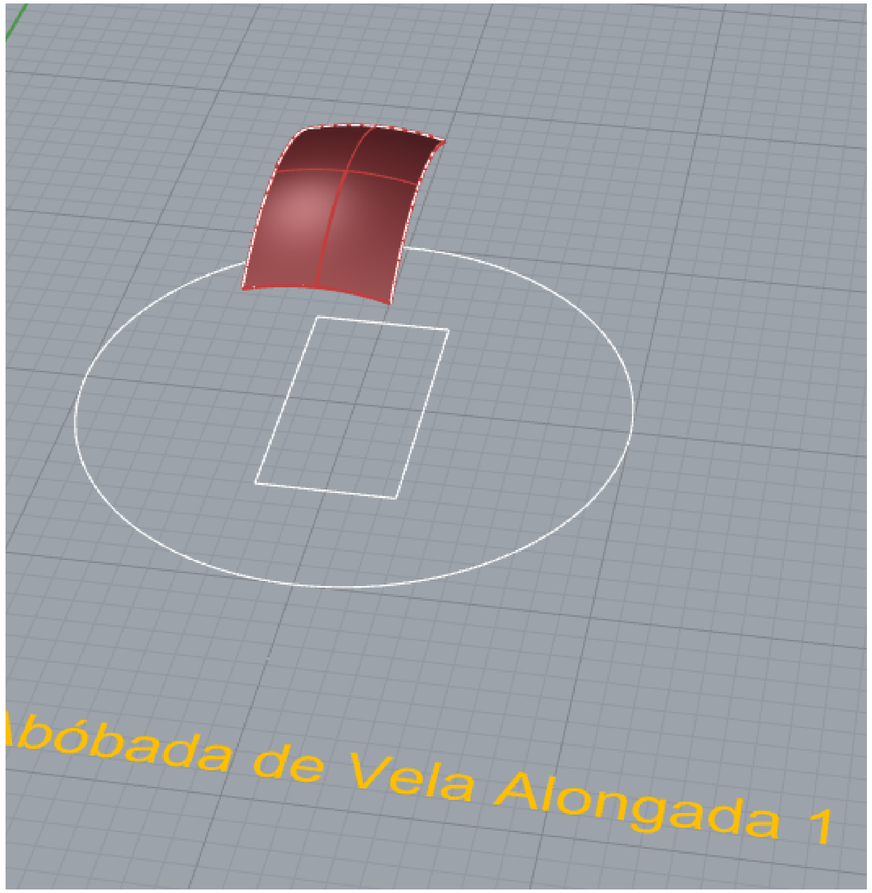


Abóbada de Vela Alongada 1







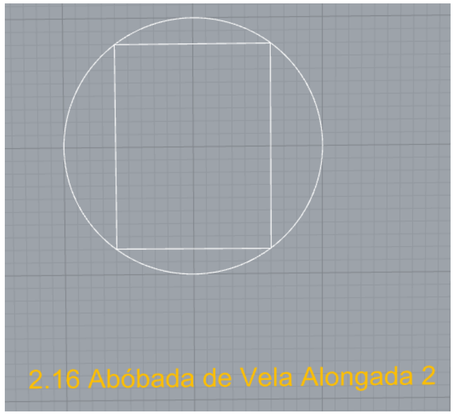


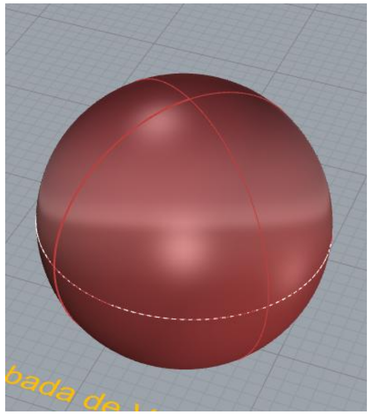
Desenha uma esfera com o comando Sphere

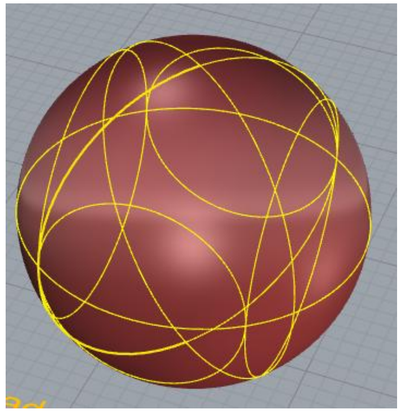
Projectas as linhas do retângulo sobre a esfera com Project

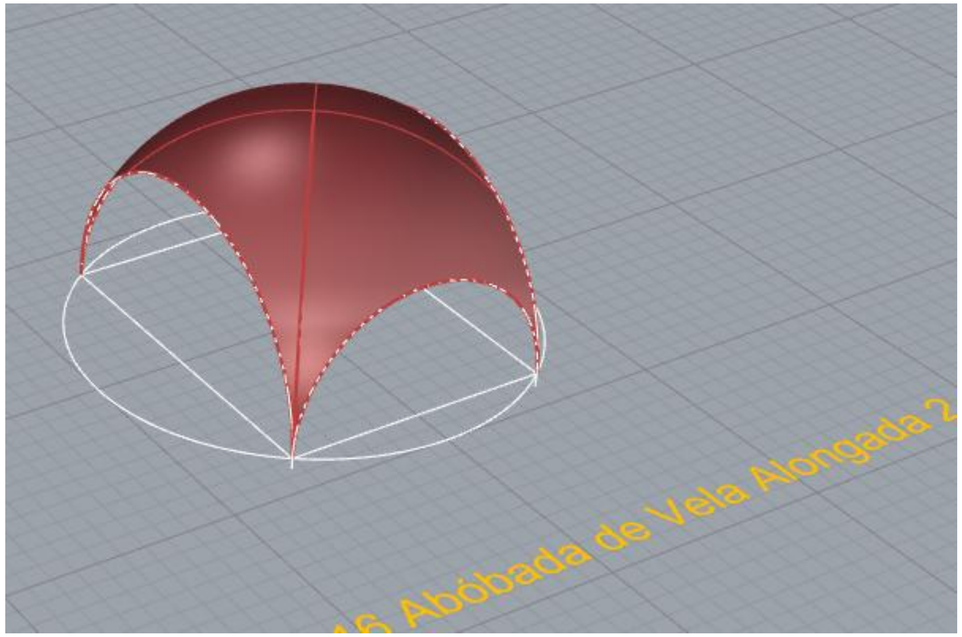
Trim o que não precisar.

Abóbada de Vela Alongada 2







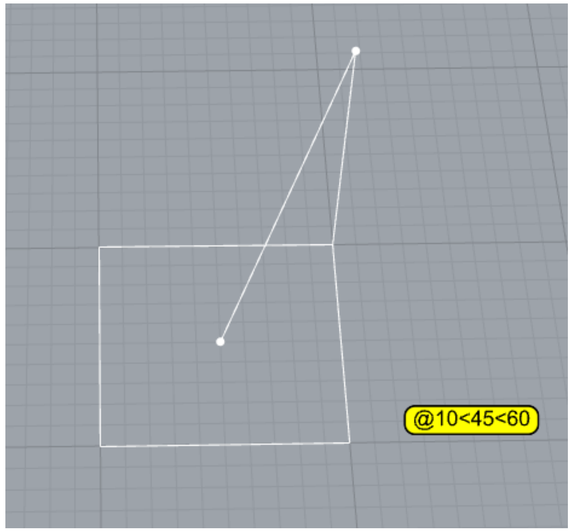


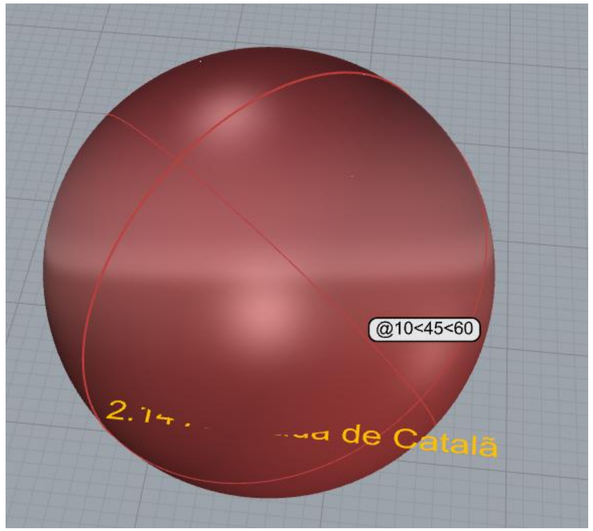
Desenha uma esfera com o comando Sphere

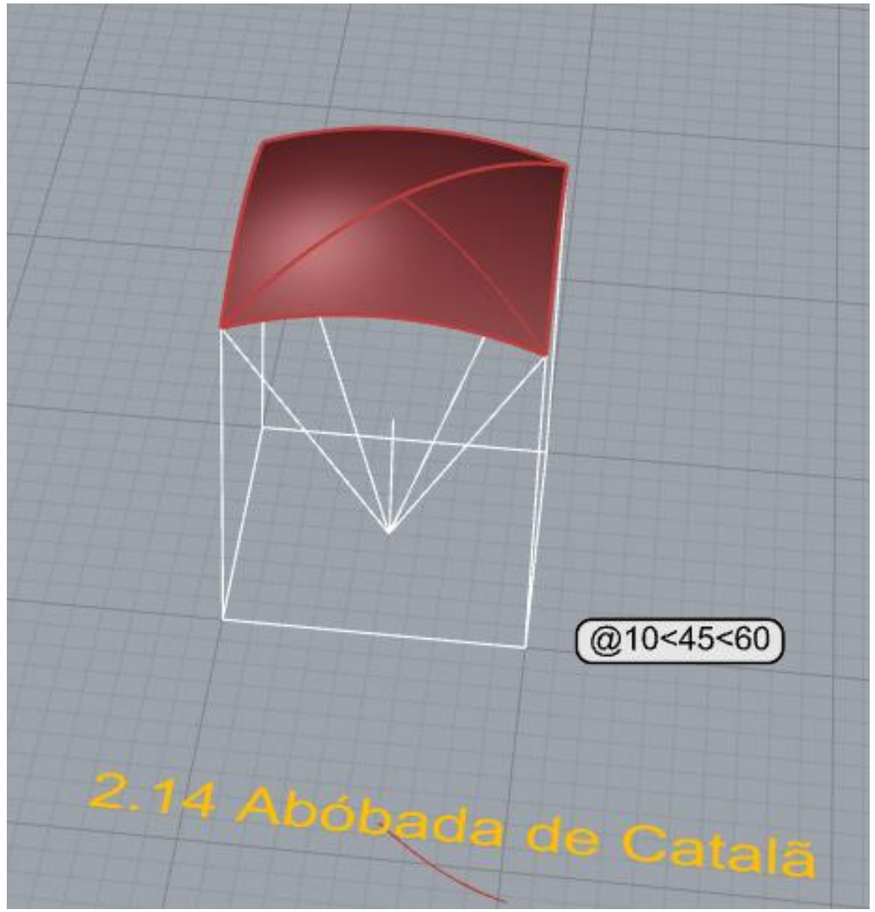
Projectas as linhas do retângulo sobre a esfera com Project

Trim o que não precisar.

Abóbada de Catalã

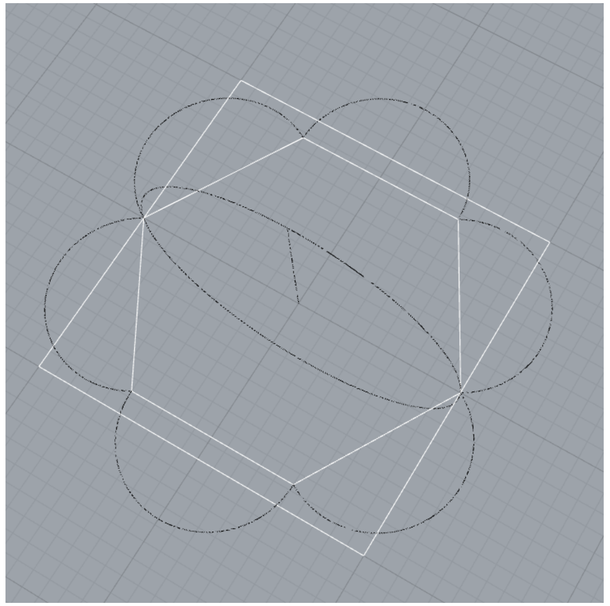


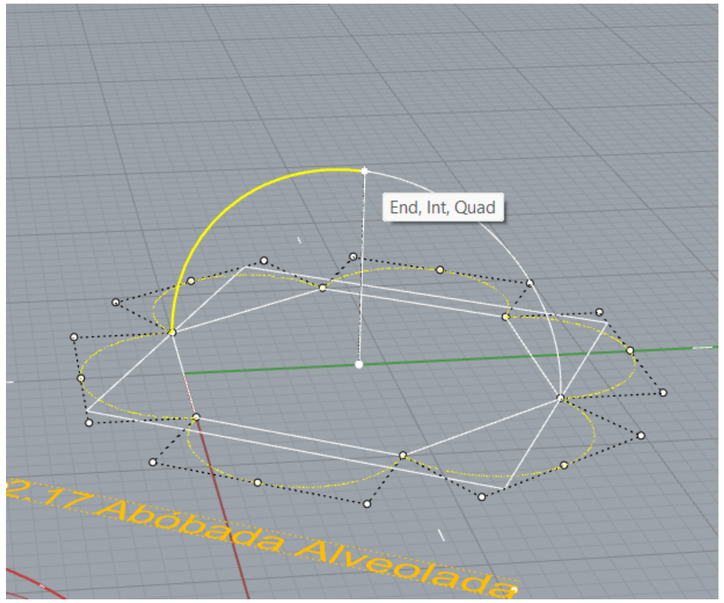


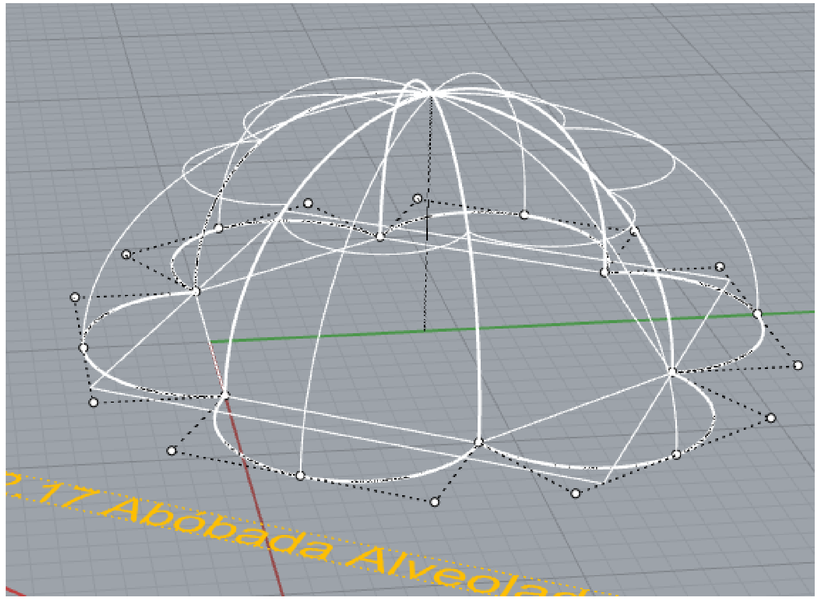


1. Desenha um quadrado que servirá como base da abóbada.
2. A partir do centro do quadrado, cria uma linha de @10<45<60 que define o raio da esfera.
3. Duplica essa linha em quatro direções usando ArrayPolar com 4 elementos.
4. Gera uma esfera com centro no quadrado e raio igual ao comprimento da linha.
5. Projeta o contorno do quadrado sobre a superfície da esfera.
6. Recorta a esfera usando o quadrado projetado para obter apenas a parte necessária da abóbada.

Abóbada Alveolada

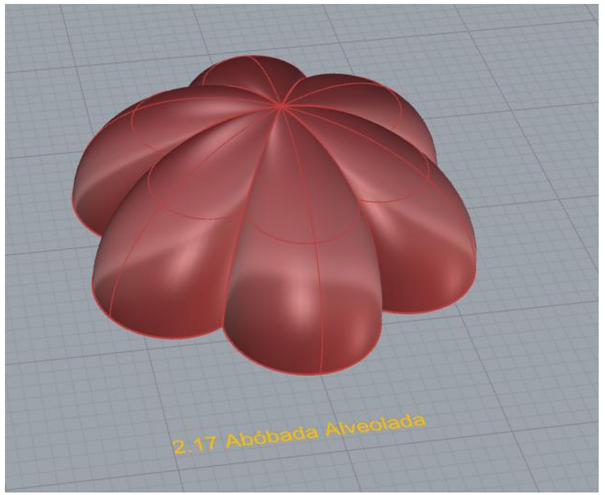




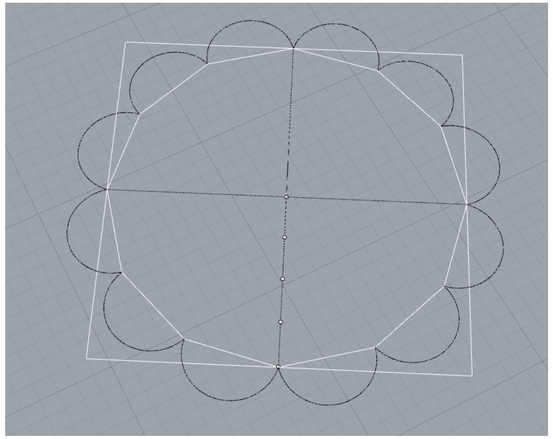


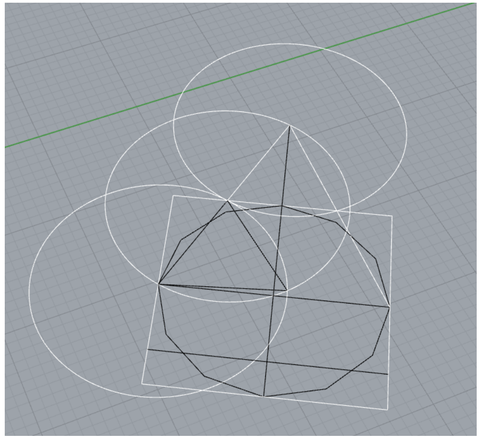
SPLIT

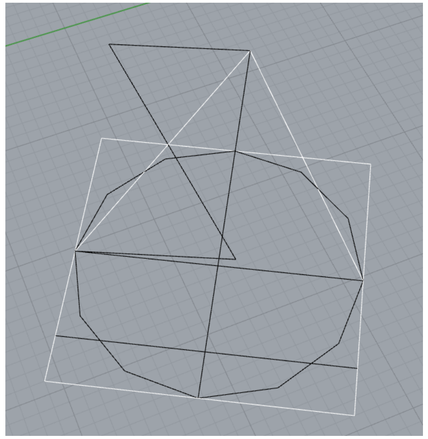
1. Desenha um hexágono regular como base.
2. Cria um semicírculo sobre um dos lados do hexágono.
3. Faz um ArrayPolar do semicírculo com 6 repetições.
4. Usa Join para unir todas as curvas num único contorno.
5. Desenha um círculo vertical com centro no centro do hexágono.
6. Recorta o círculo vertical para manter apenas o arco necessário.
7. Usa Split para dividir o semi-arco e isolar um quadrante.
8. Aplica RailRevolve usando o quadrante como perfil e a parte flor como rail.

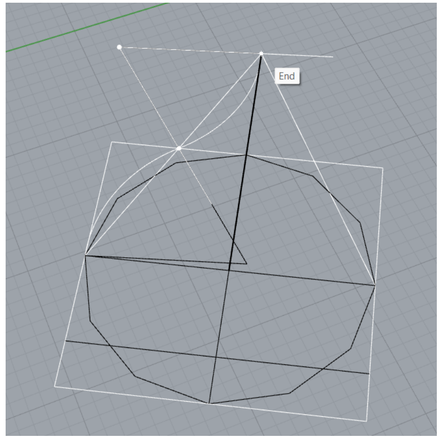


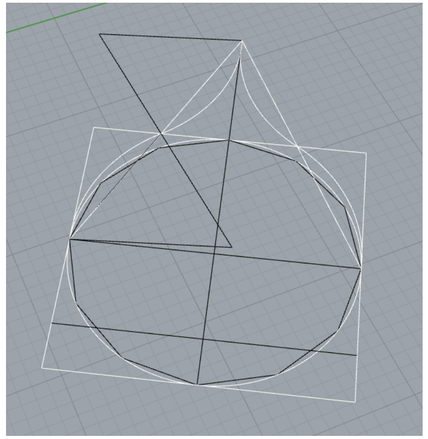
Abóbada de Bolbo Alveolada

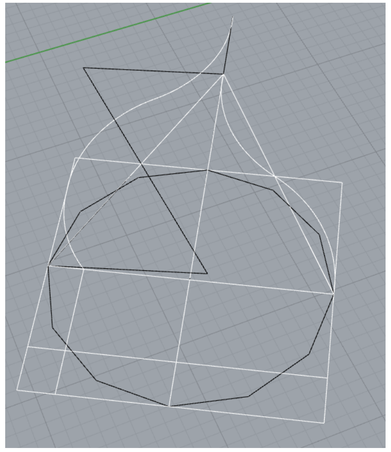


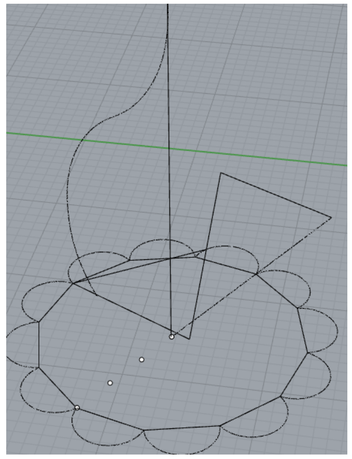


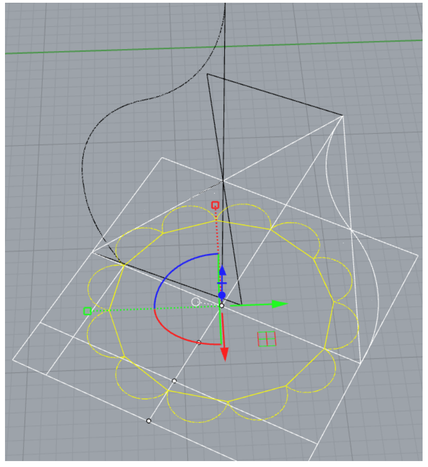


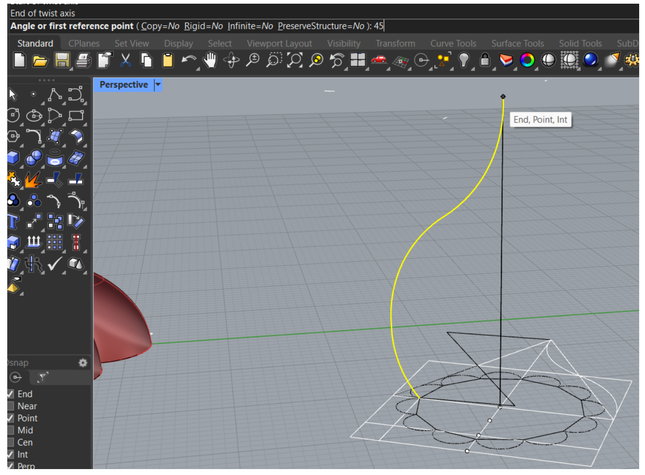


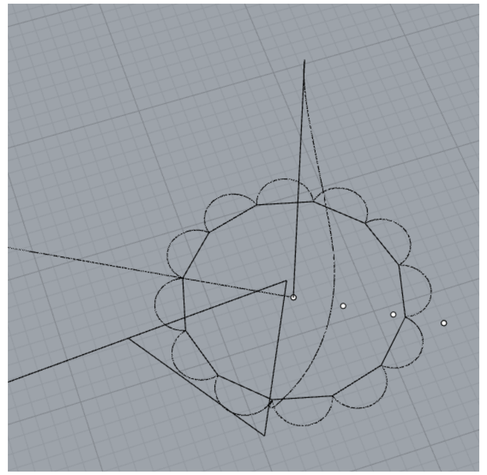






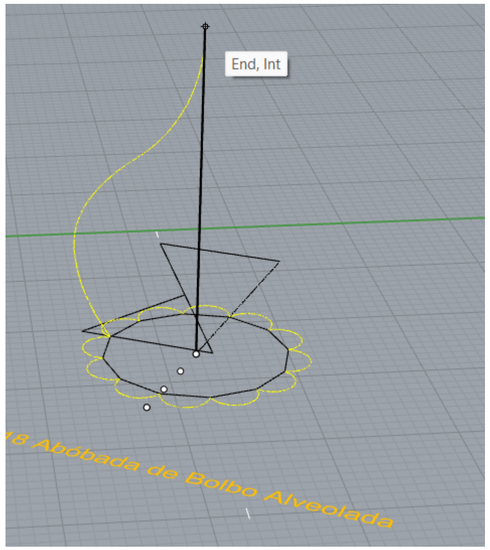


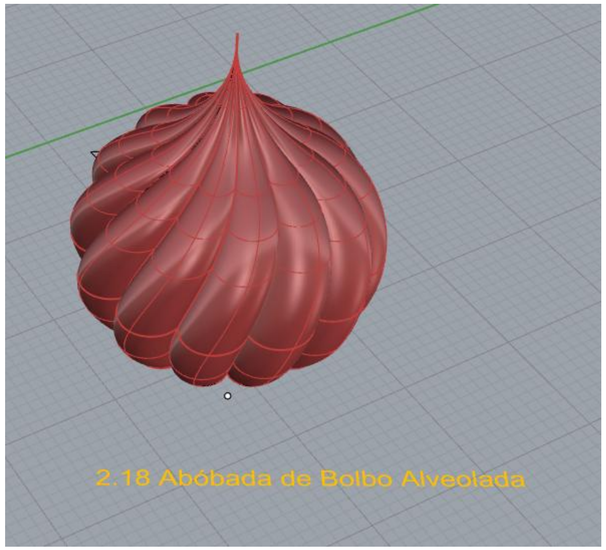


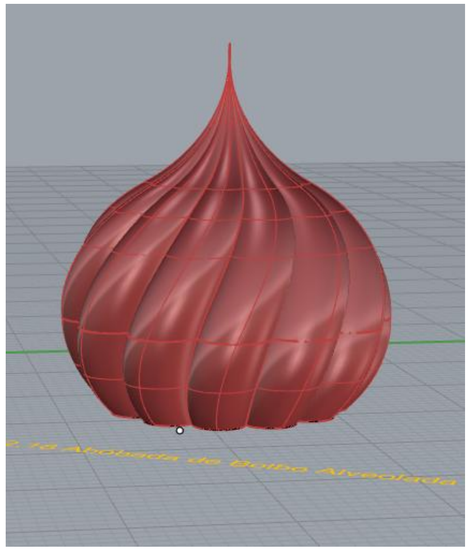


Twist

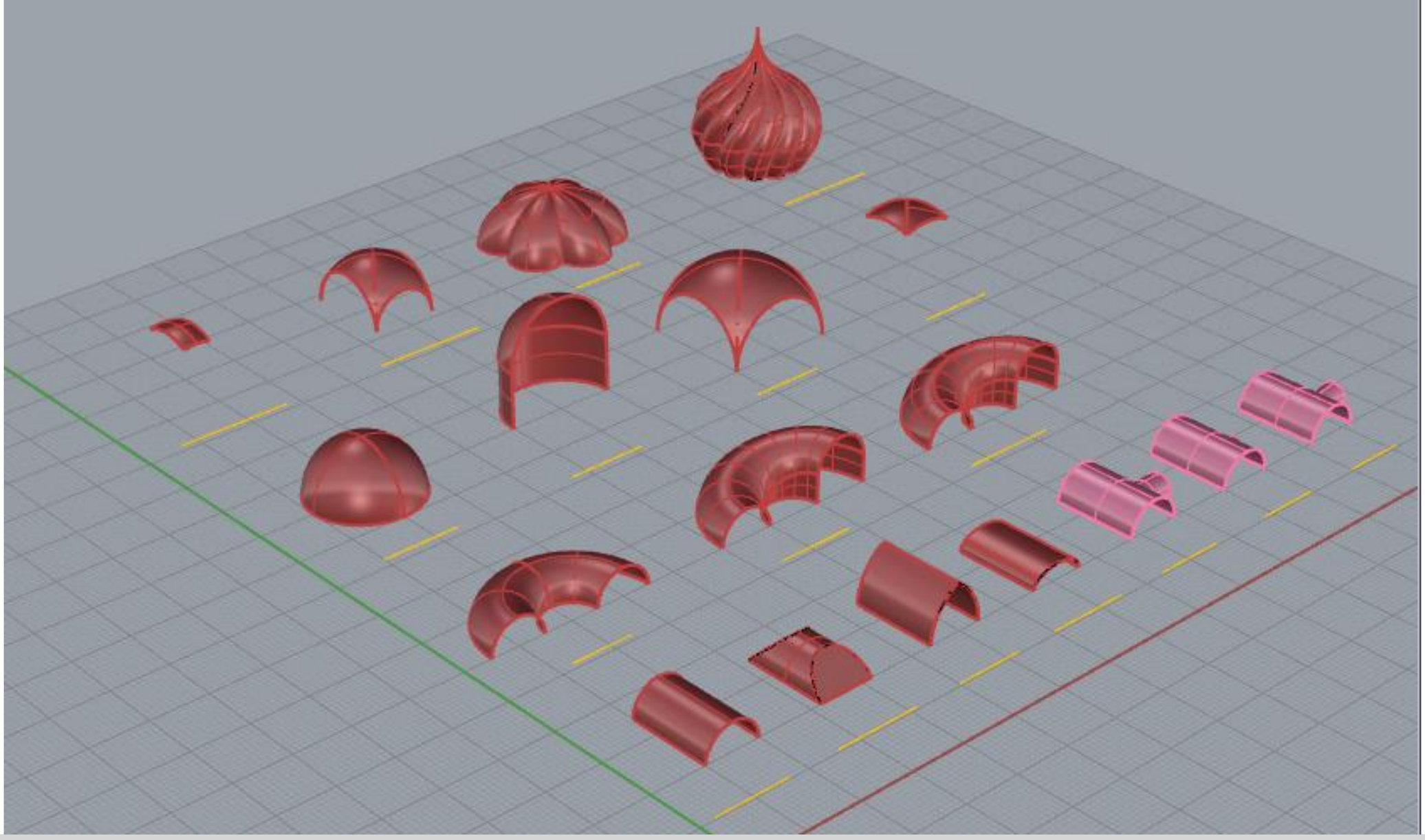
Abóbada de Bolbo Alveolada

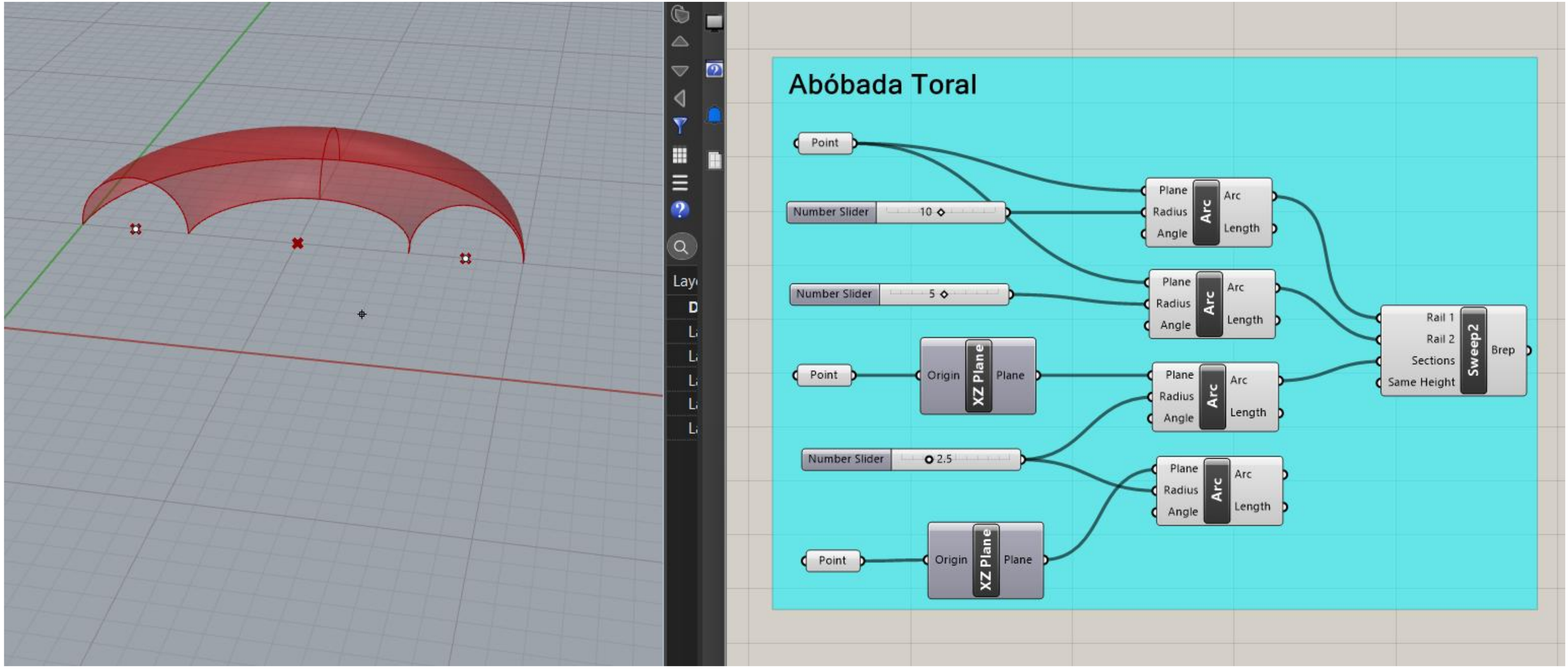






railrevolve

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Number Slider
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Number Slider
5
Point
Origin
XZ Plane
Plane
Number Slider
2.5
Point
Origin
XZ Plane
Plane
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Radius
Angle
Arc
Arc
Length
Plane
Radius
Angle
Arc
Arc
Length
Plane
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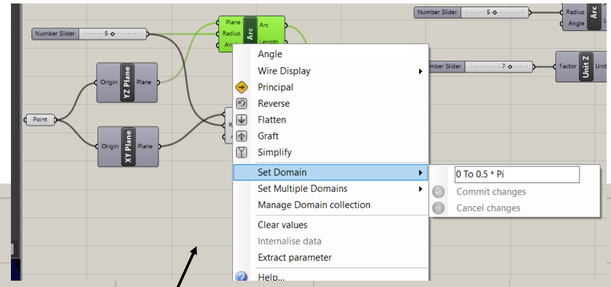
Length
Rail 1
Rail 2
Sections
Same Height
Sweep2
Brep


Angle
Wire Display
Principal
Reverse
Flatten
Graft
Simplify
Set Domain
Set Multiple Domains
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Clear values
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0 To 0.5 * Pi
Commit changes
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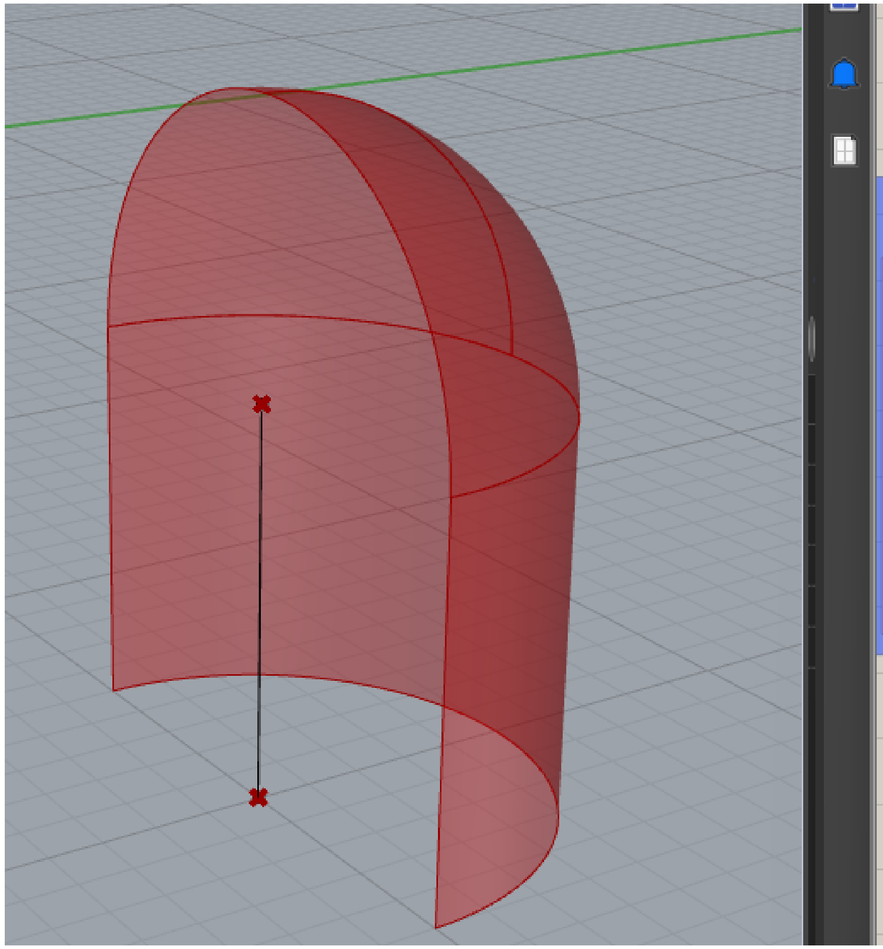

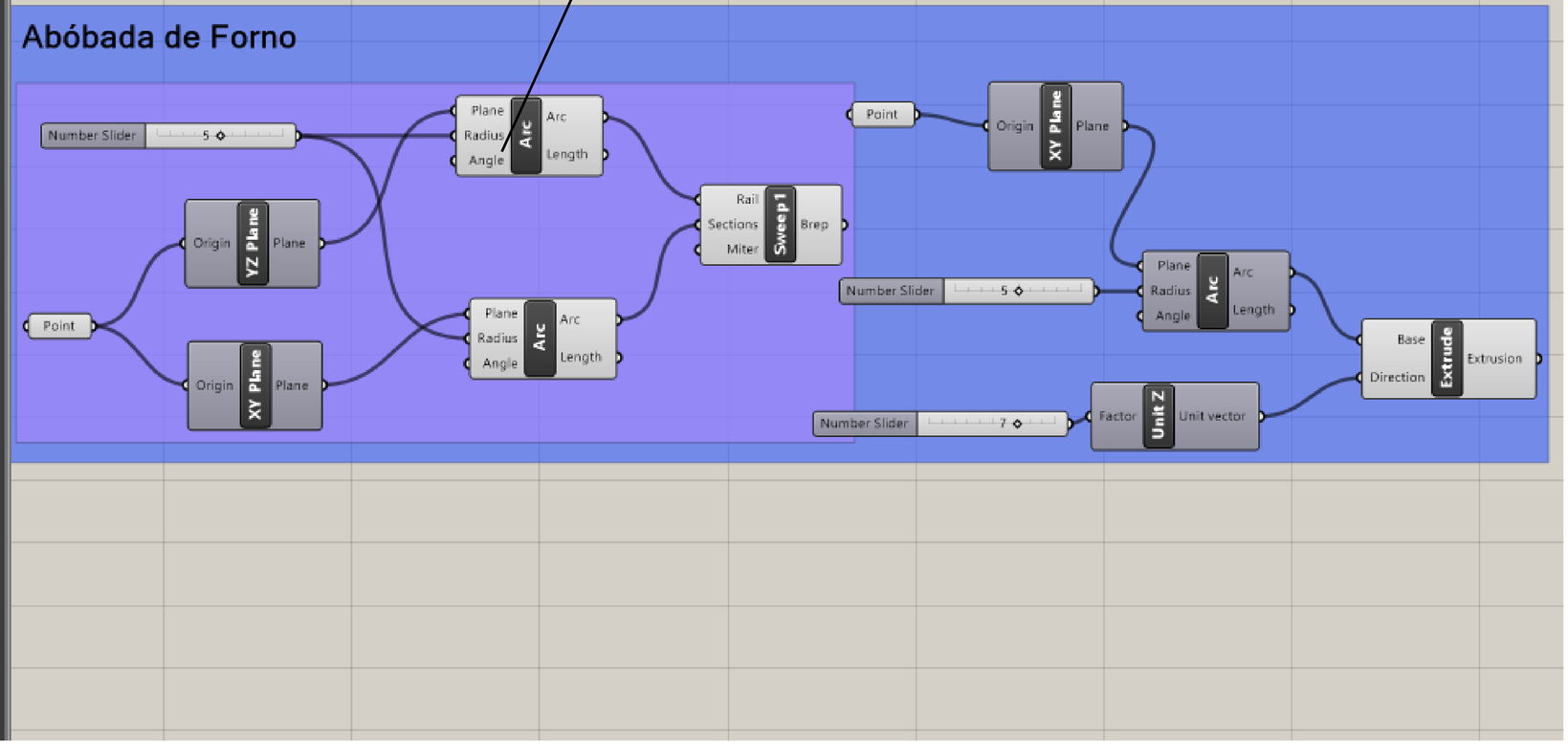
Abóbada de Forno
Number Slider
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Point
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YZ Plane
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Rail
Sections
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Base
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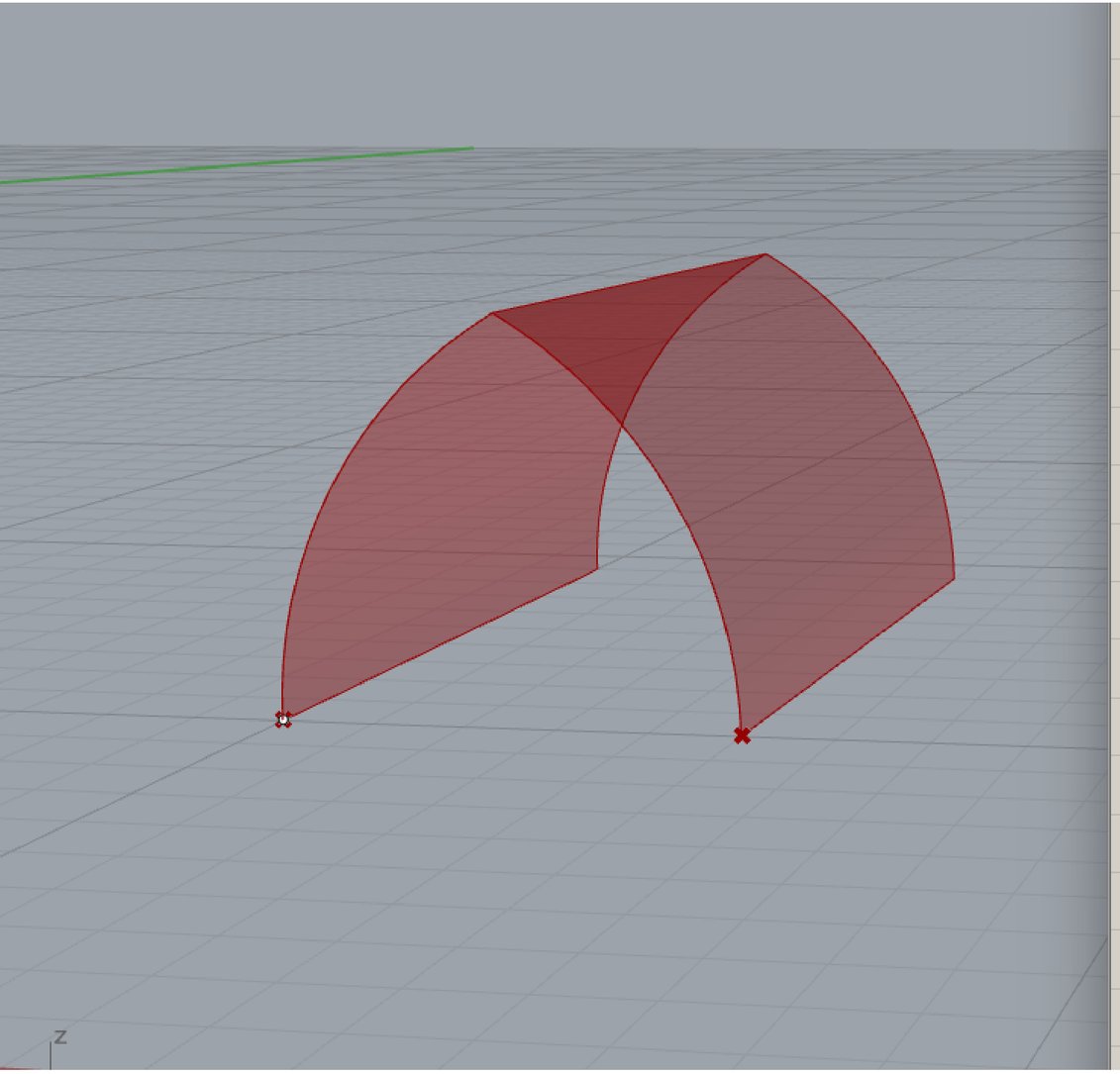
Unit Z
Unit vector
7


Z


Origin
YZ Plane
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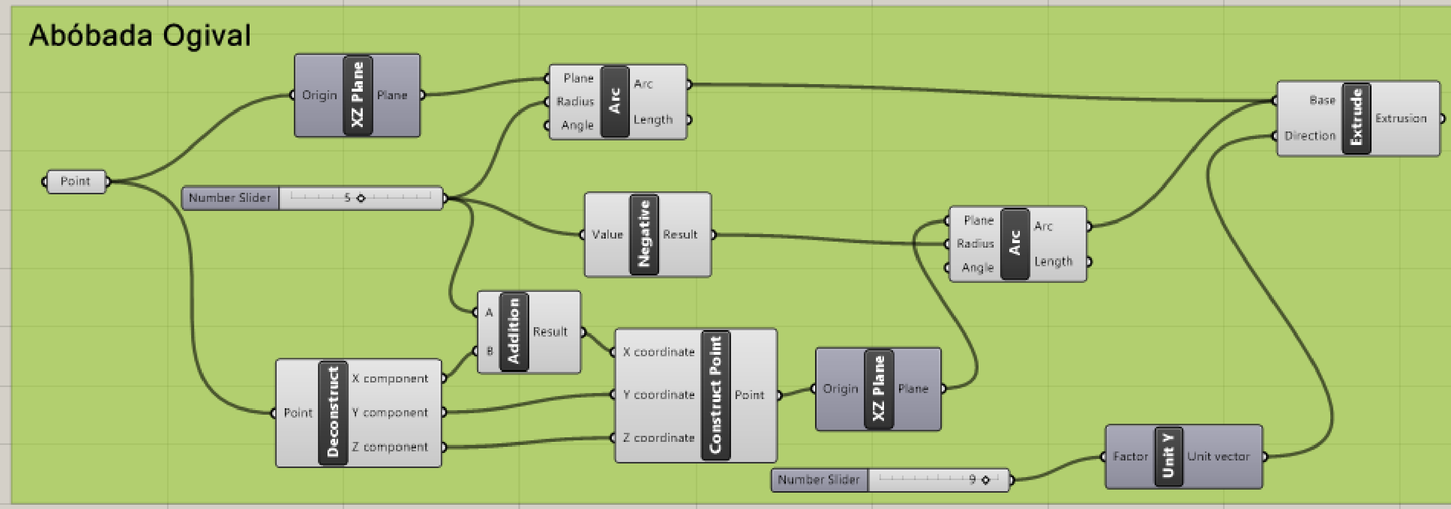
Abóbada Ogival
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Direction
Extrude
Extrusion
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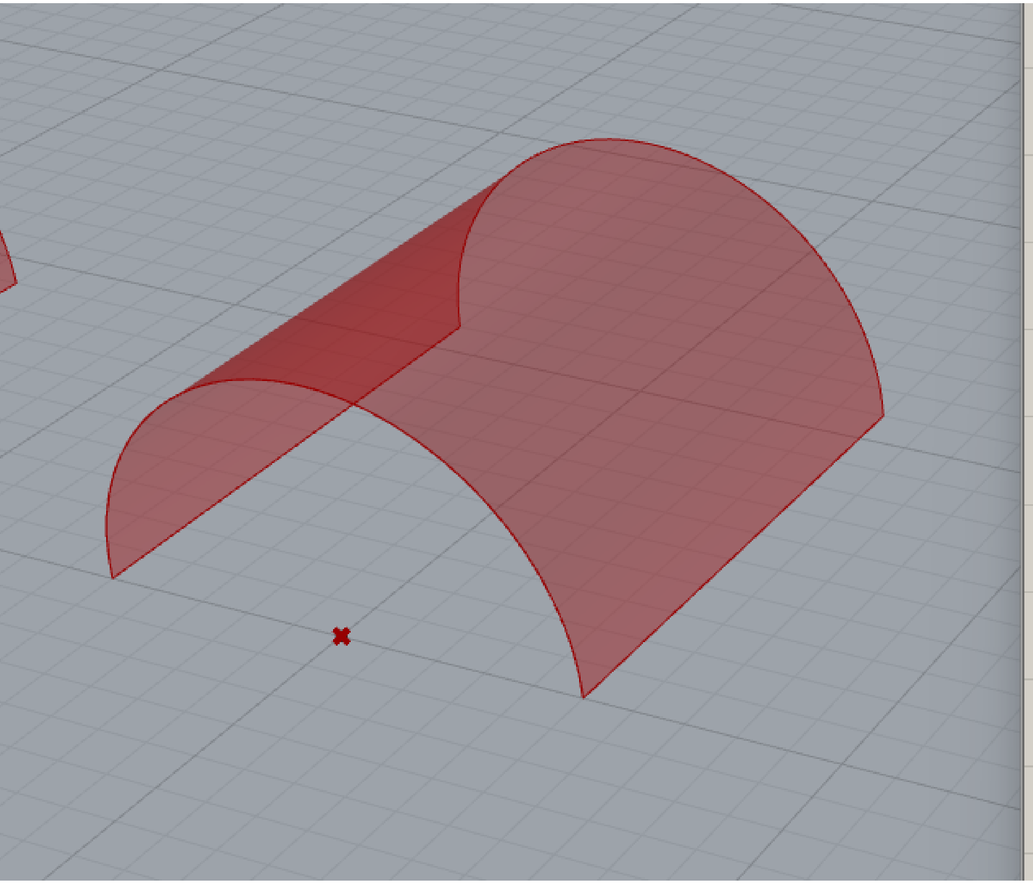
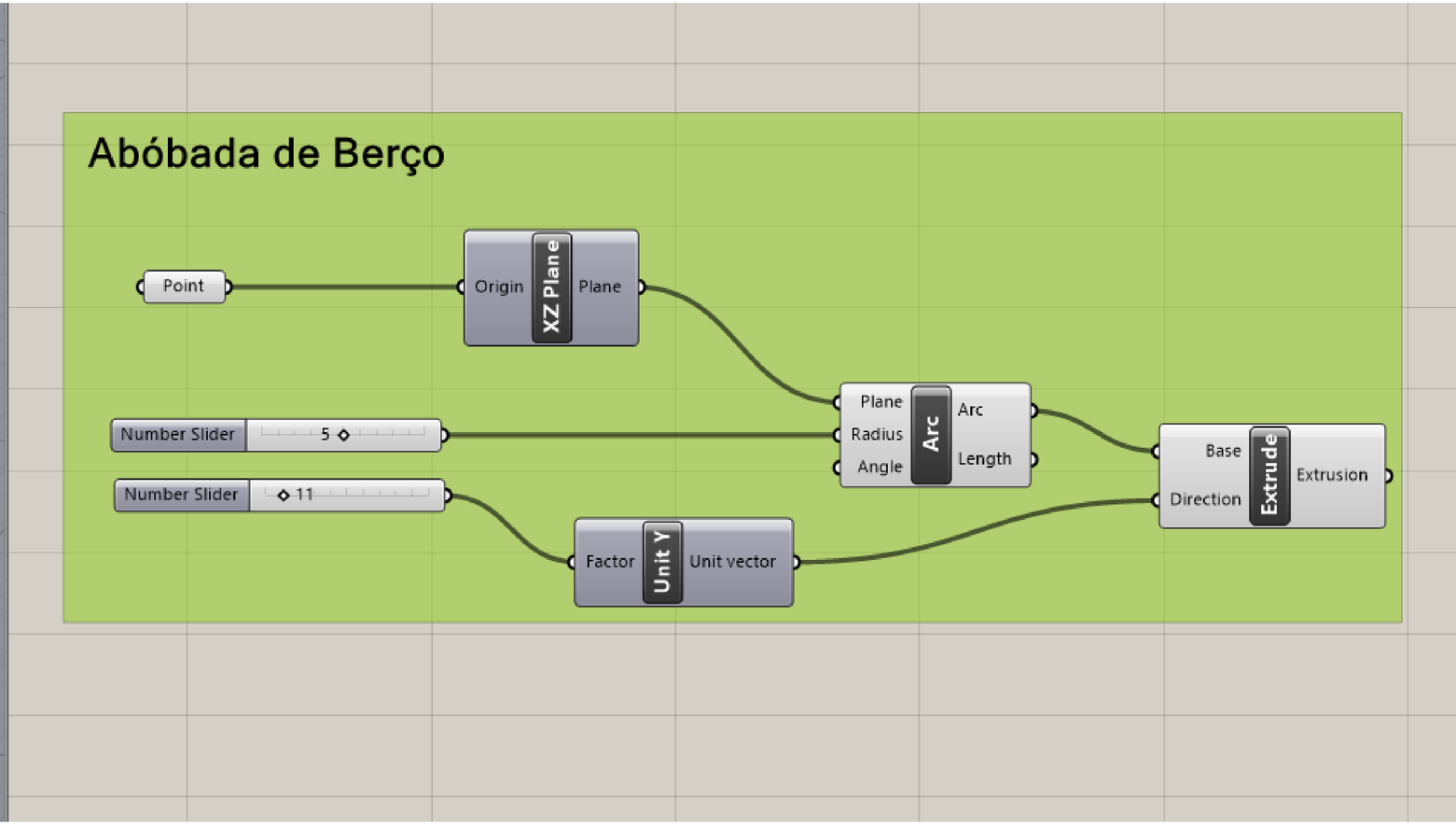
Number Slider
5
Value
Negative
Result
Plane
Radius
Angle
Arc
Arc
Length
A
B
Addition
Result
Point
Deconstruct
X component
Y component
Z component
X coordinate
Y coordinate
Z coordinate
Construct Point
Point
Origin
XZ Plane
Plane
Number Slider
9
Factor
Unit Y
Unit vector





FIM DO TRABALHO 2