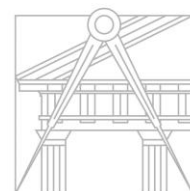


Modelação Geométrica e Generativa



20241280



MARIA MADALENA ALVES BATISTA GONÇALVES

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Instalação do Rhino (modelação 3D)

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65 <br>
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74 </html>
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MGG- Aula 1 de apresentação 12/2

Rhino versão experimental 8
ficheiros são no formato 3dm (ficheiros.3dm)
avaliação atraves de trabalhos (2/3) data de entrega sempre ate a sexta feira a
noite dessa semana (entregas atrasadas passam a 2 valores de penalização)
temos a opção de entregar na dada estipulada ou na semana seguinte mas
perdemos sempre dois valores/pontos
fazer caderno diario com layout do professor que ele vai mandar, publicar
depois de todas as aulas
Criar pagina nova html e meter um link na pagina antiga do semestre passado
que vai dar ao site novo de MGG
mudar o nome do index antigo com o nome rd e criar uma nova pagina
chamada index.html e nessa pagina vai ter os links rd.html e mgg.html
vamos trabalhar com sólidos arquimedianos

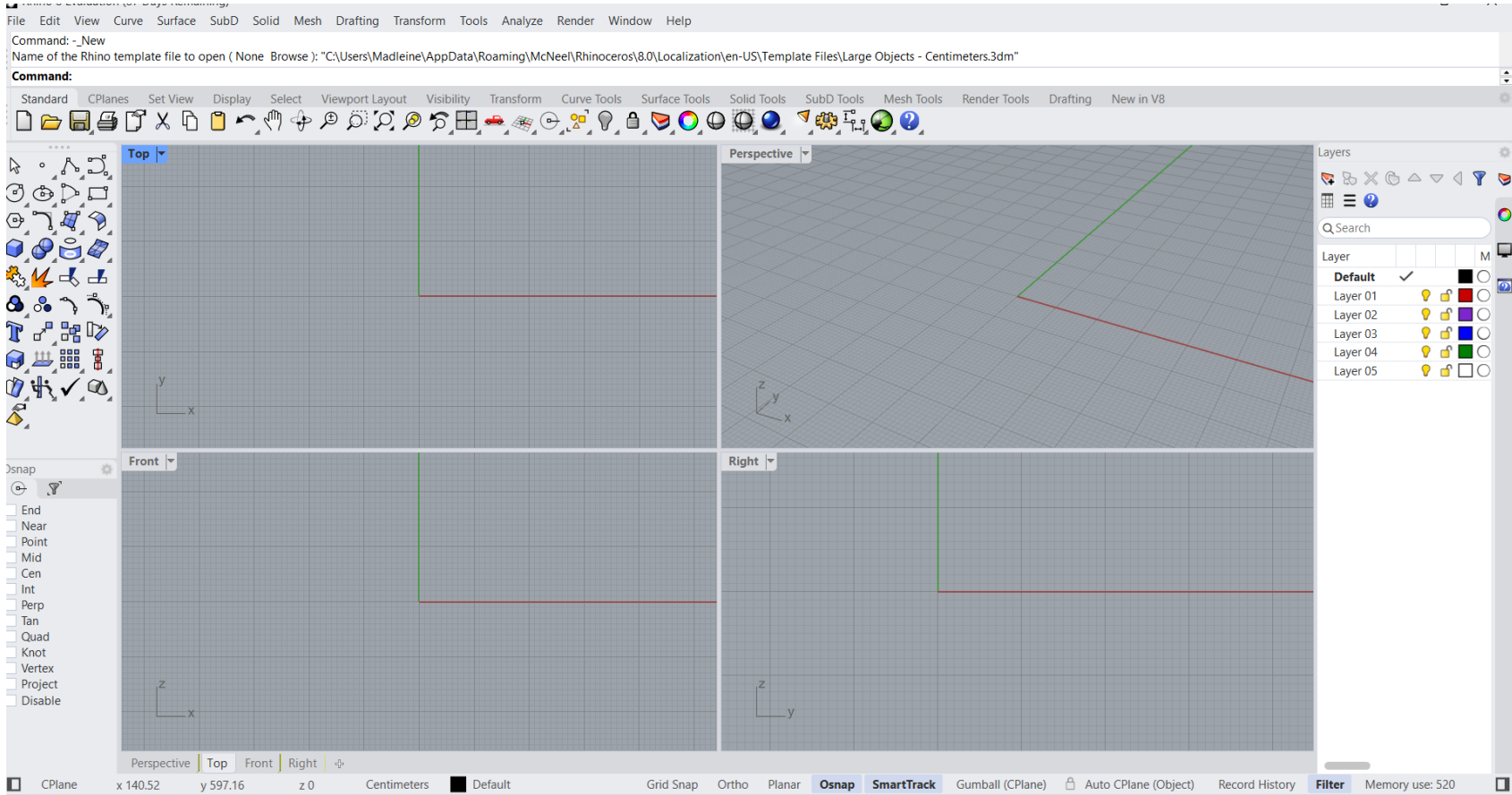
Operações geométricas: a identidade do sólido não é alterada: operações de
movimento alterando as suas coordenadas mas mantendo a sua indentidade
-translação -Copy
- rotação- Rotate
-rebatimento- 3d rotate/ rotate 3d
- reflexão - mirror
- homotetia - scale

Notas da aula

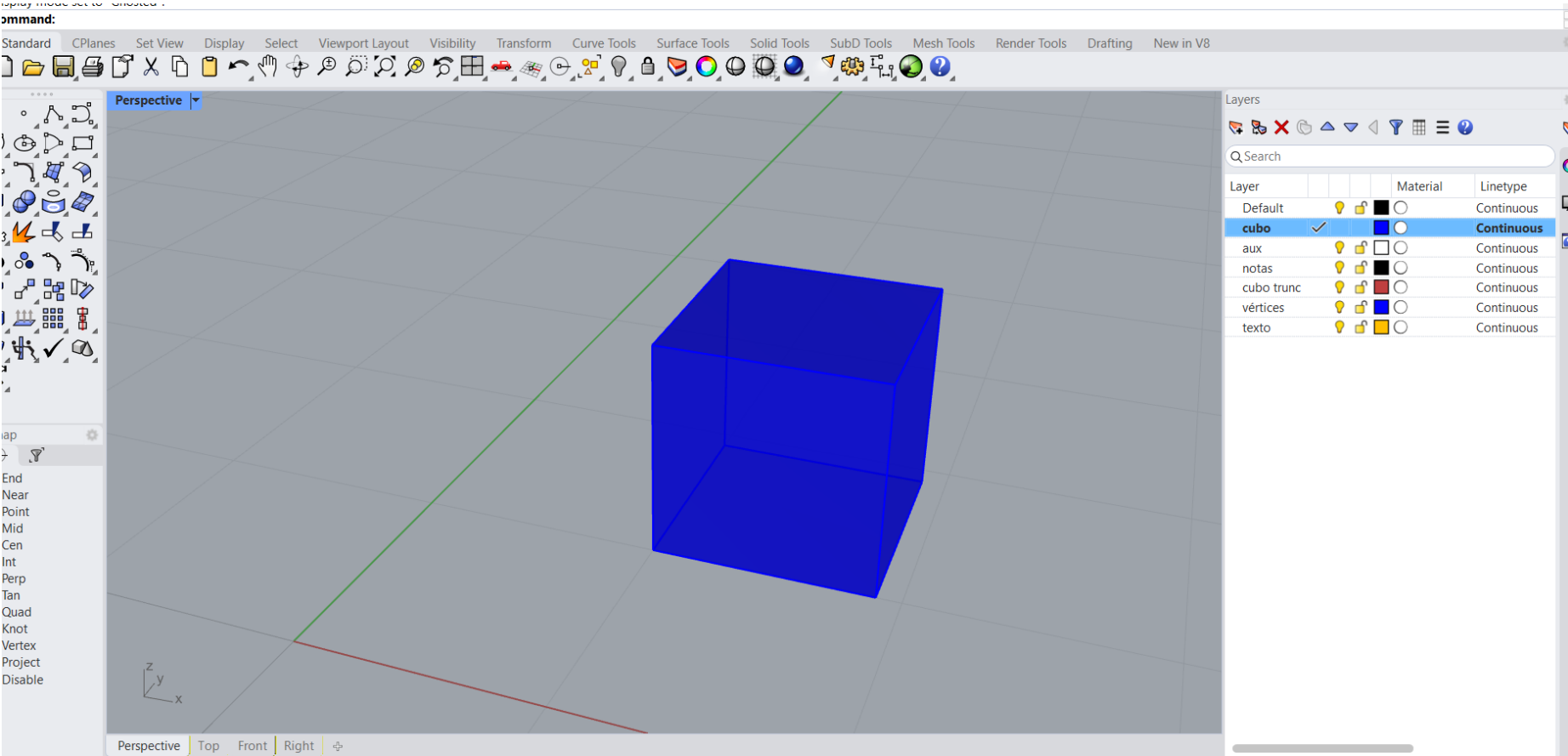


Criação através do NotePad++ de um site inicial e de um site específico para a cadeira de modelação

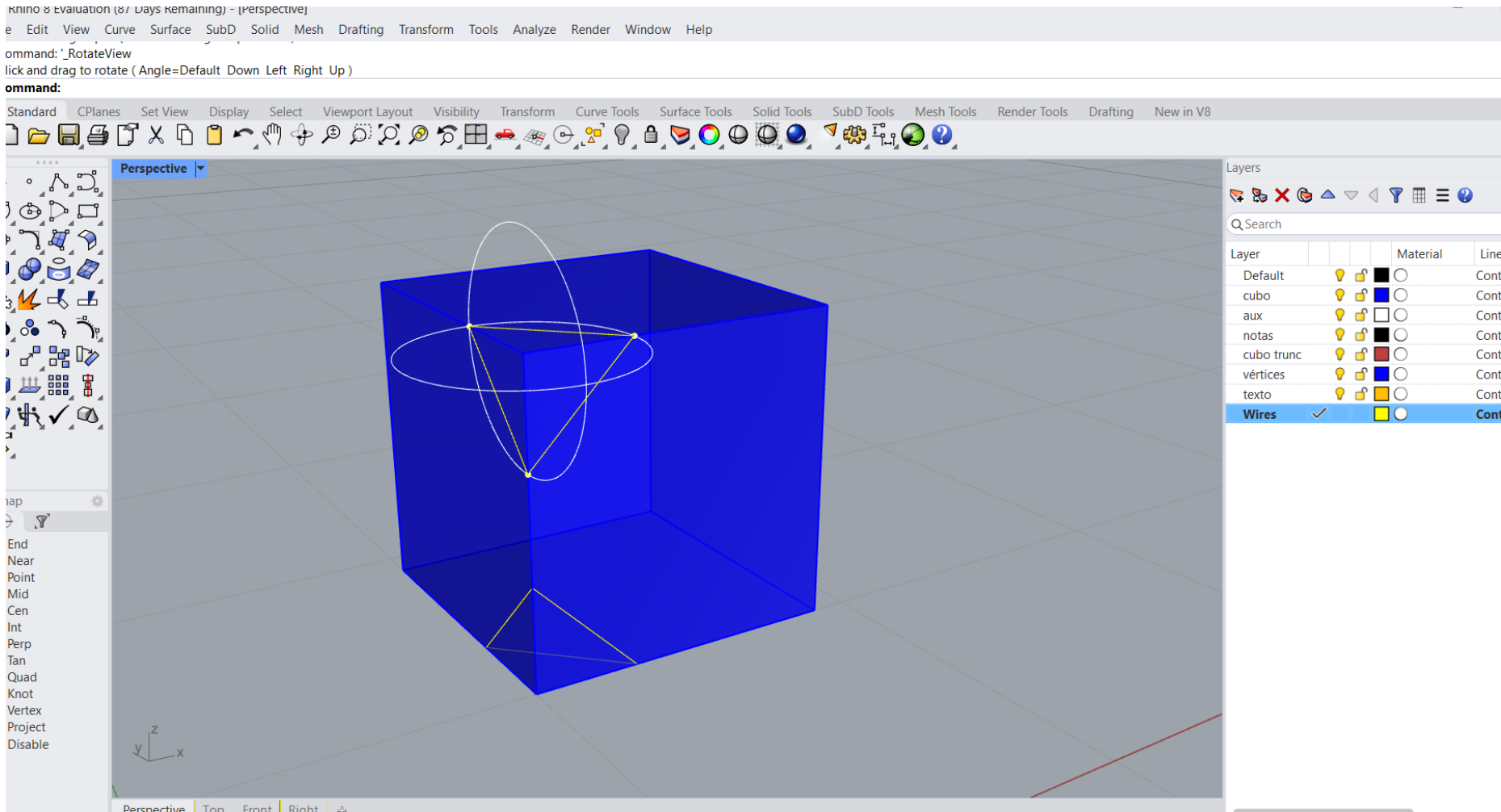
Aula 1- Apresentação de conteúdos



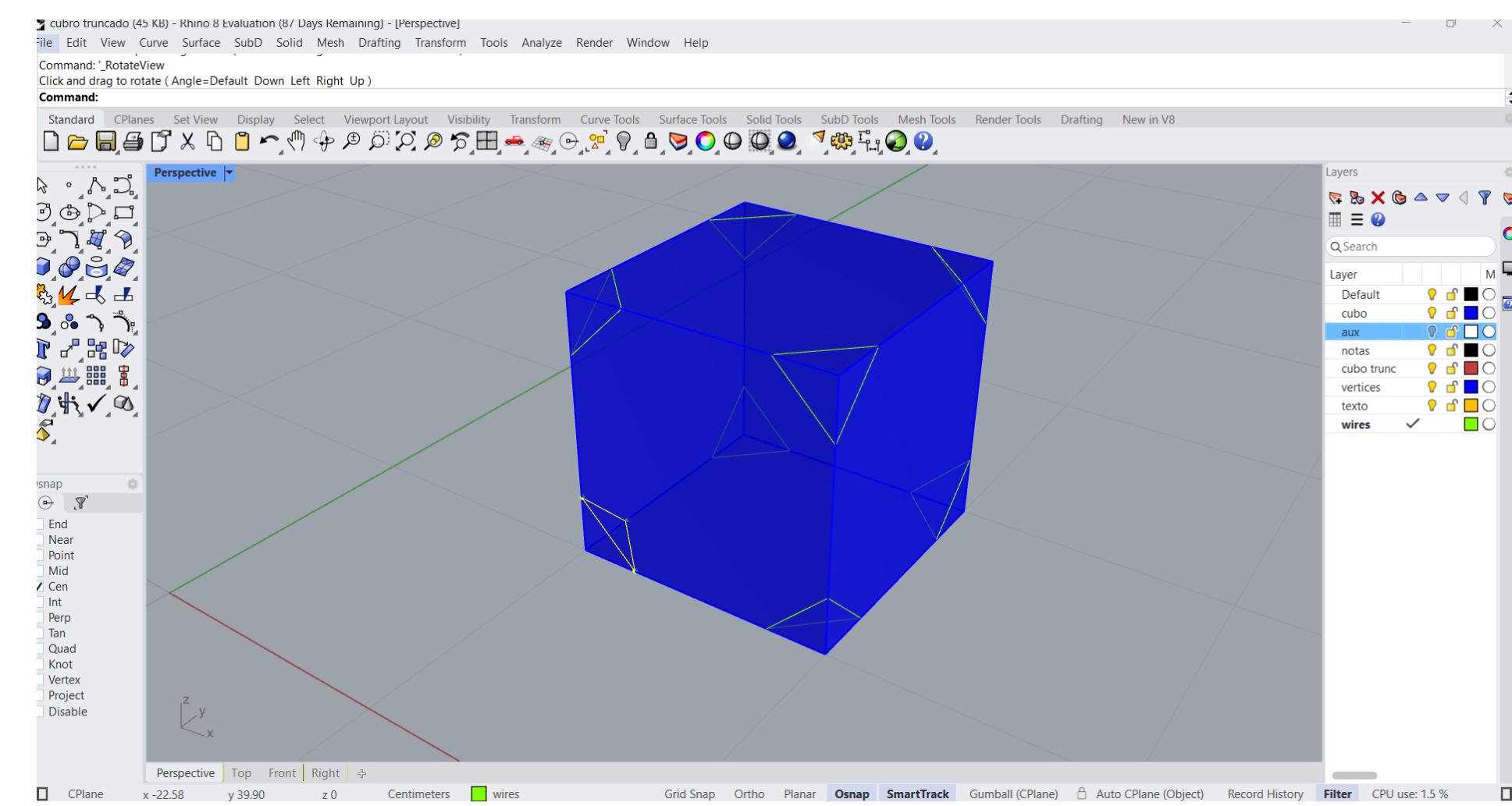
Workspace do Rhino



Criação de uma Box com 10,10,10

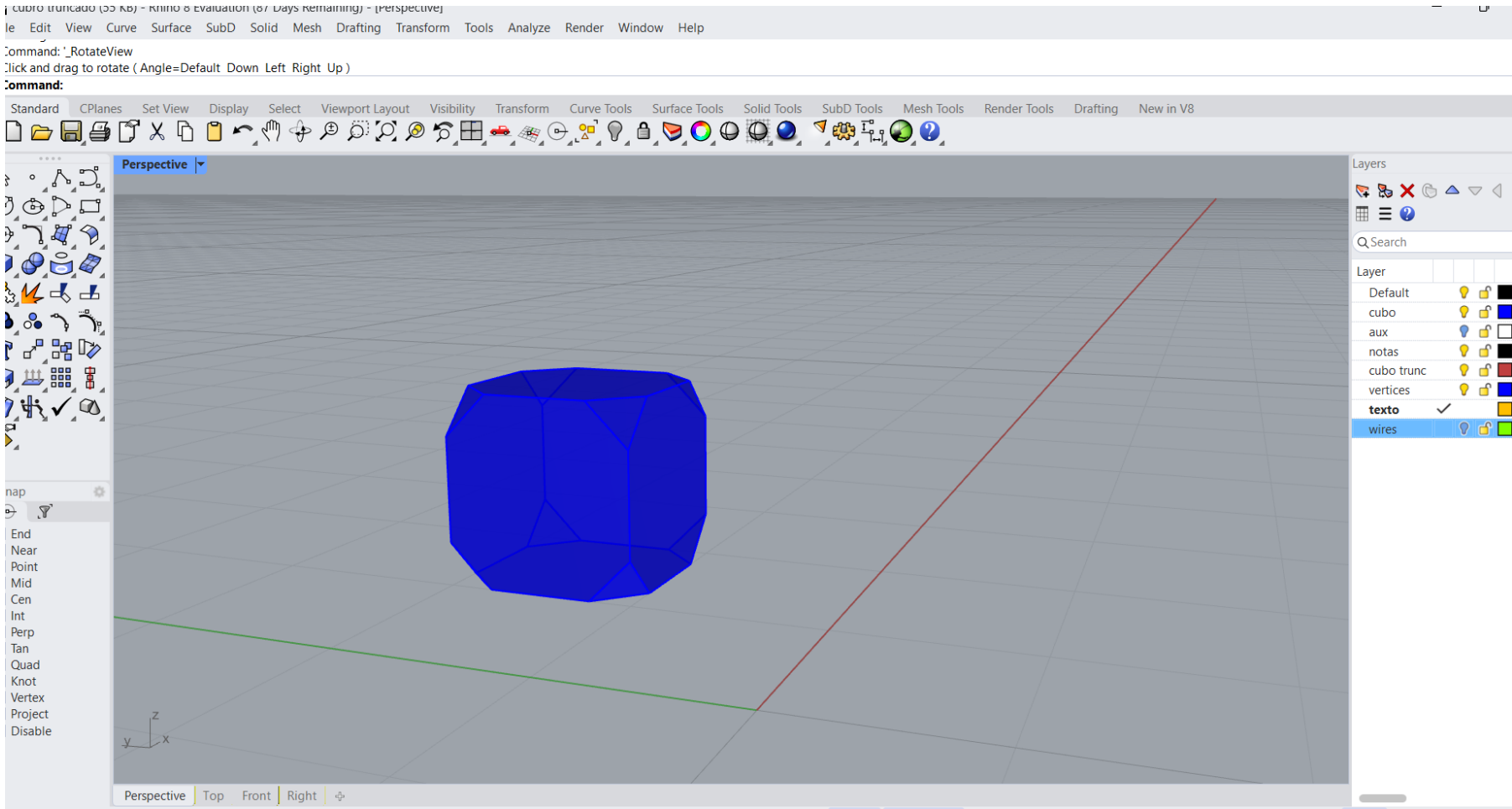


Utilização de duas circunferências a intersetar e do mirror

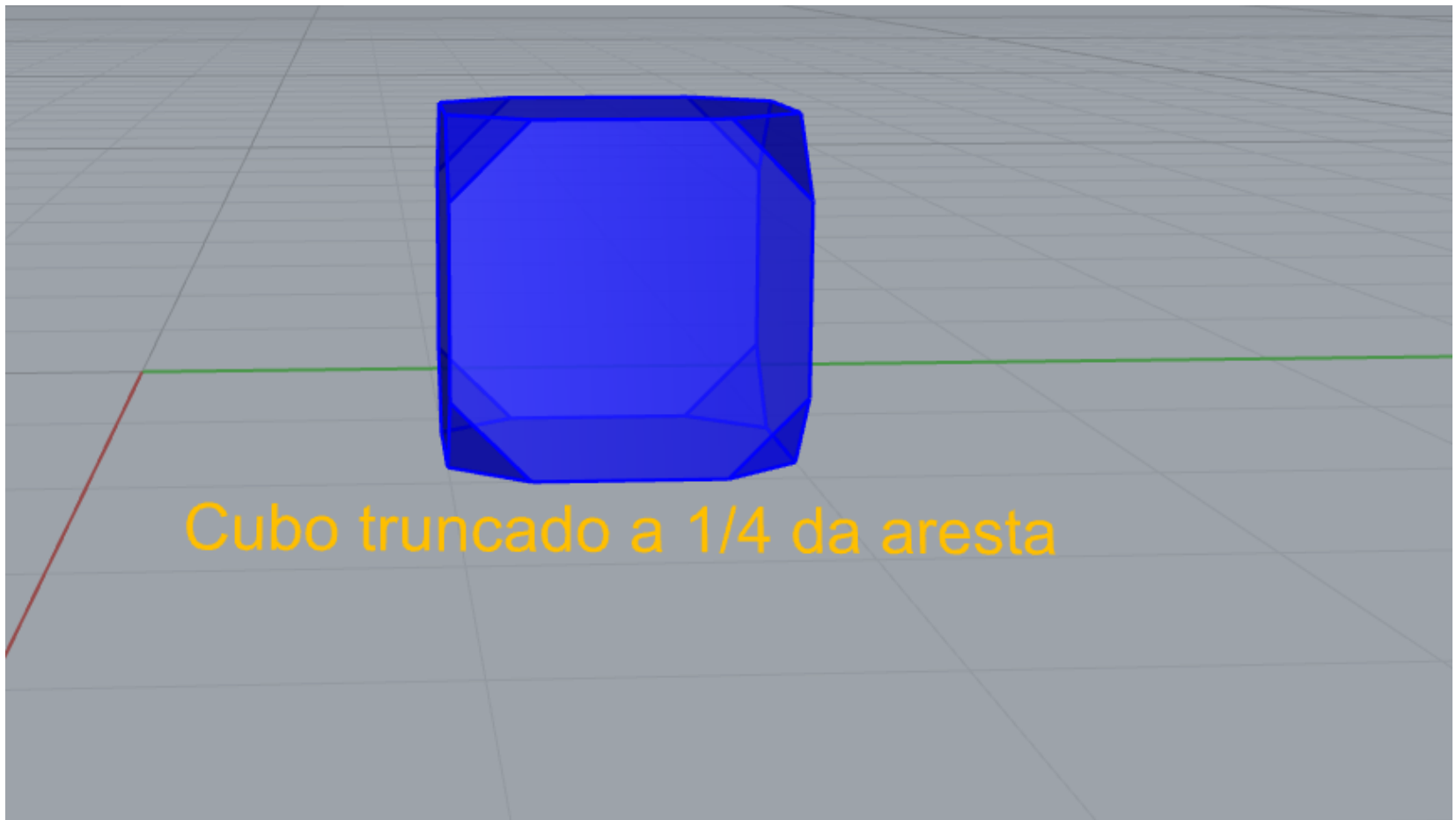


Utilização do ArrayPolar

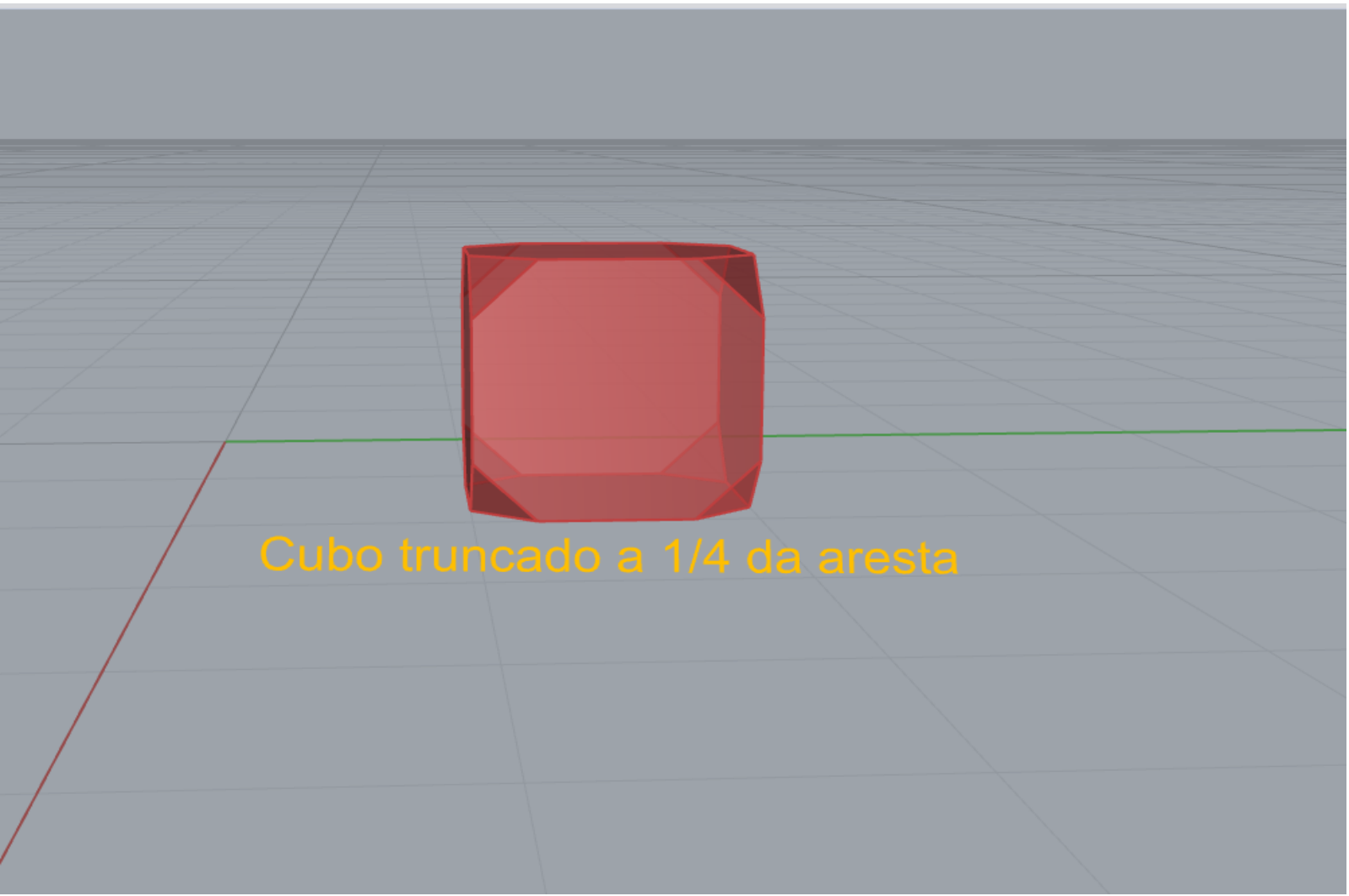
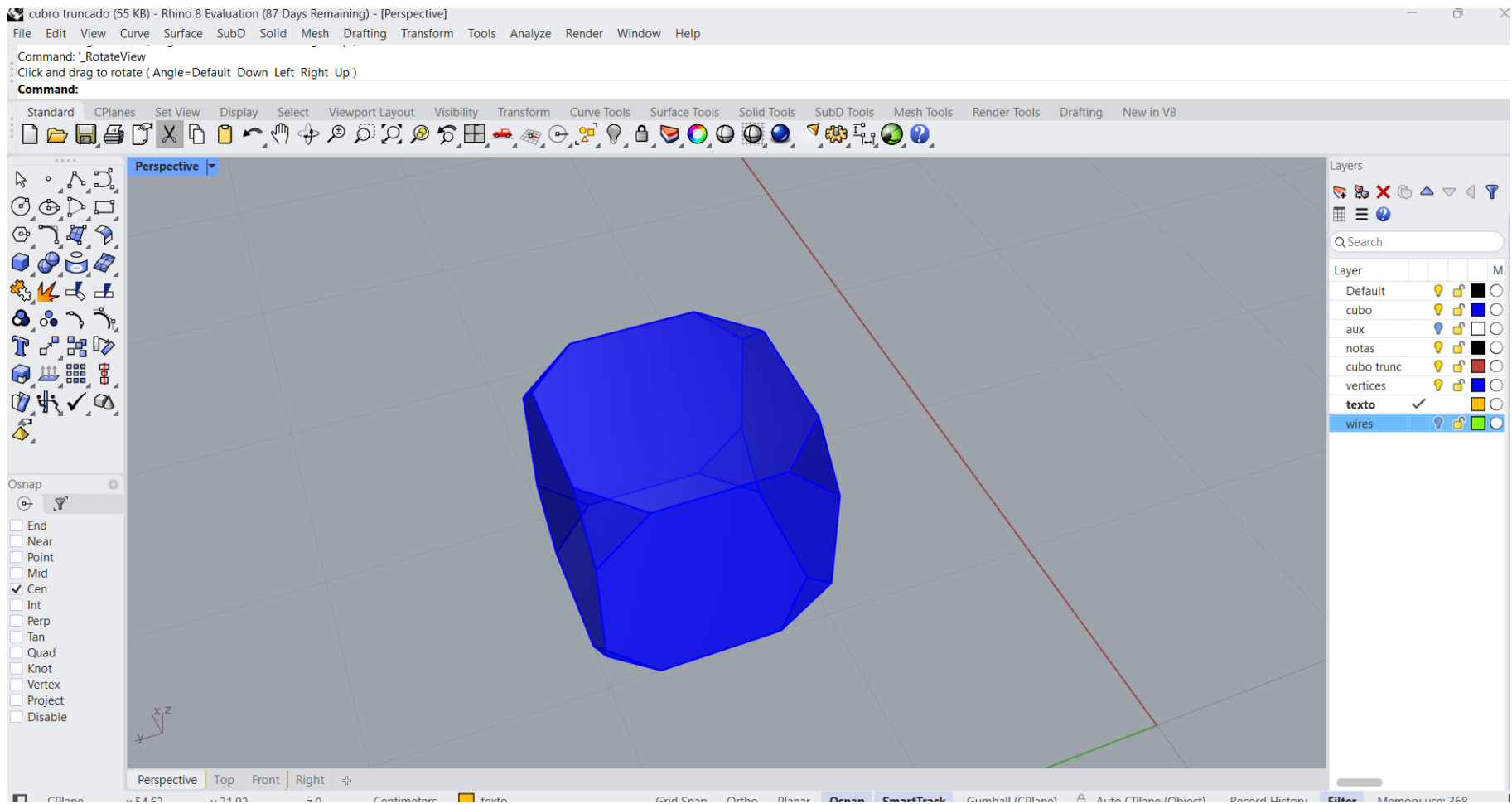
Aula 2- Ex:1 Sólidos Arquimedianos, Cubo Truncado



Utilização do WireCut para criar as truncagens

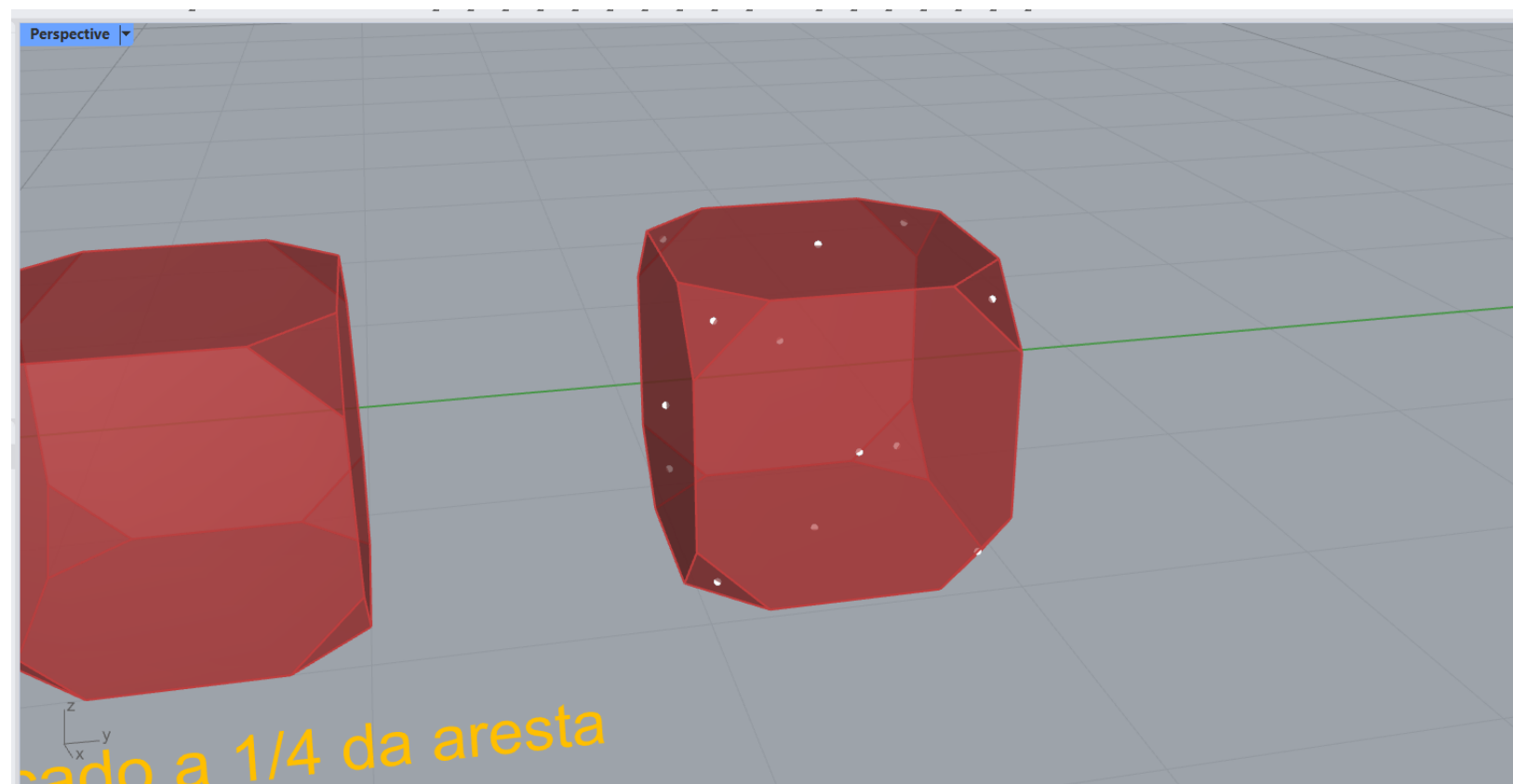


Adição do text

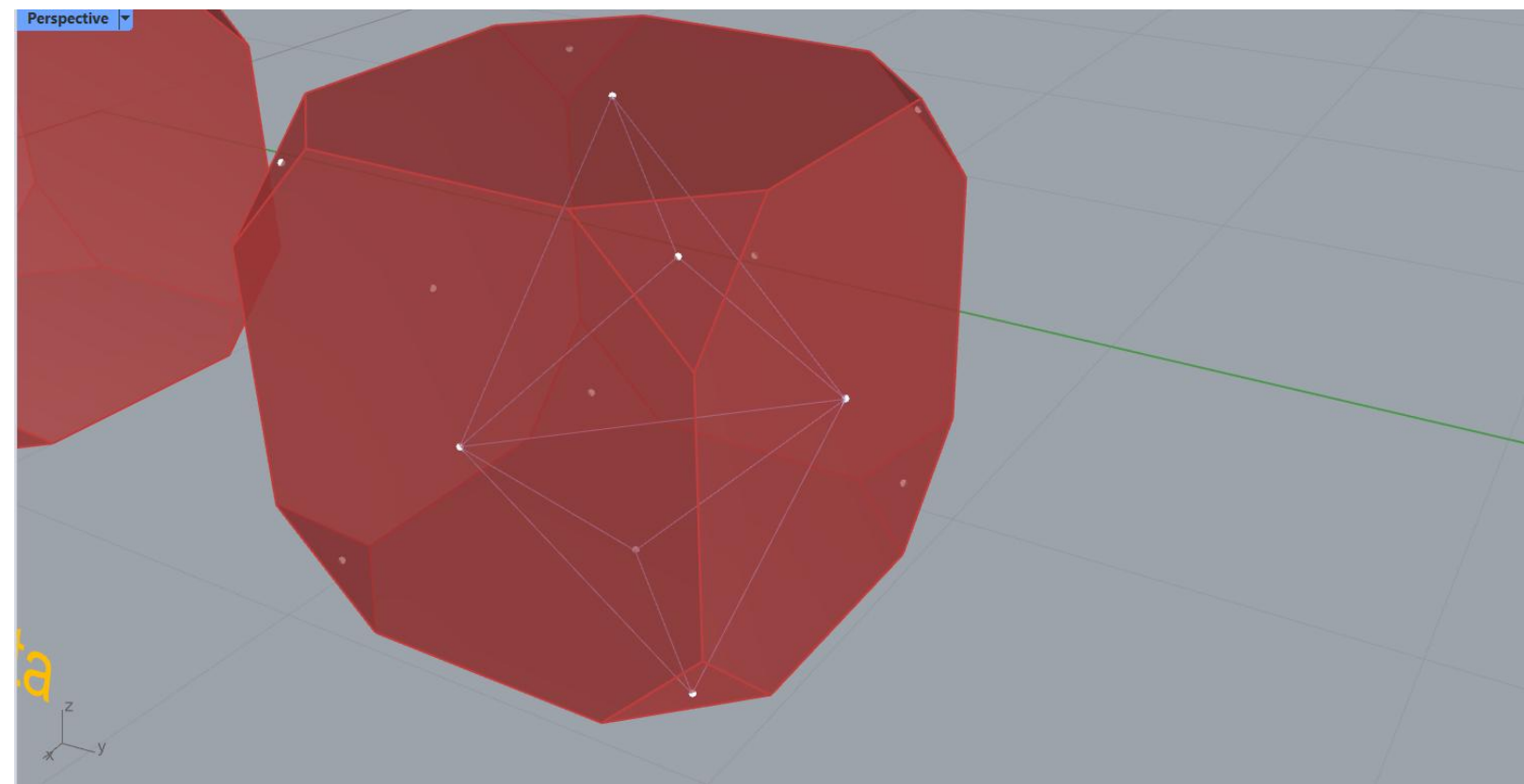


Cubo truncado mais legenda

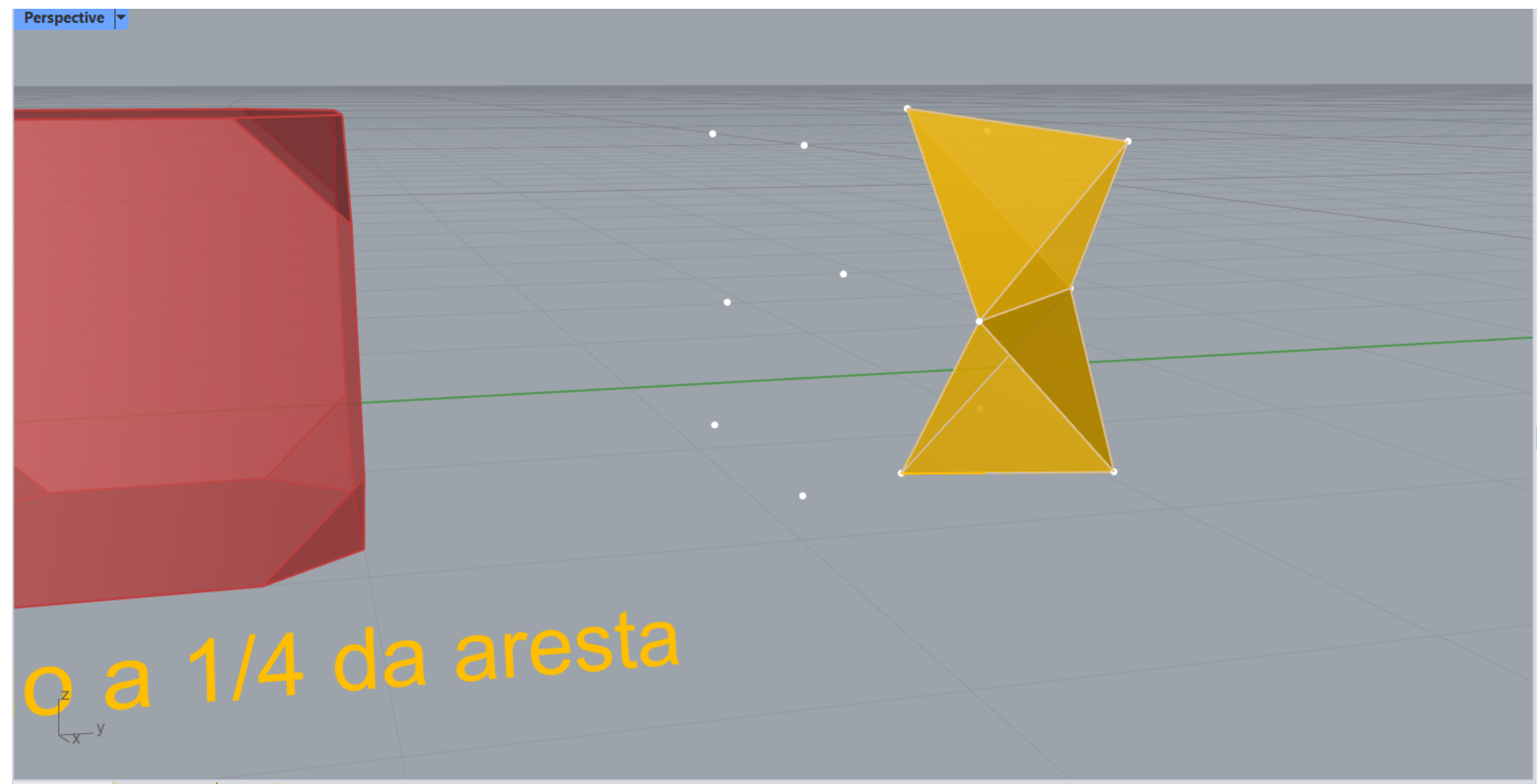
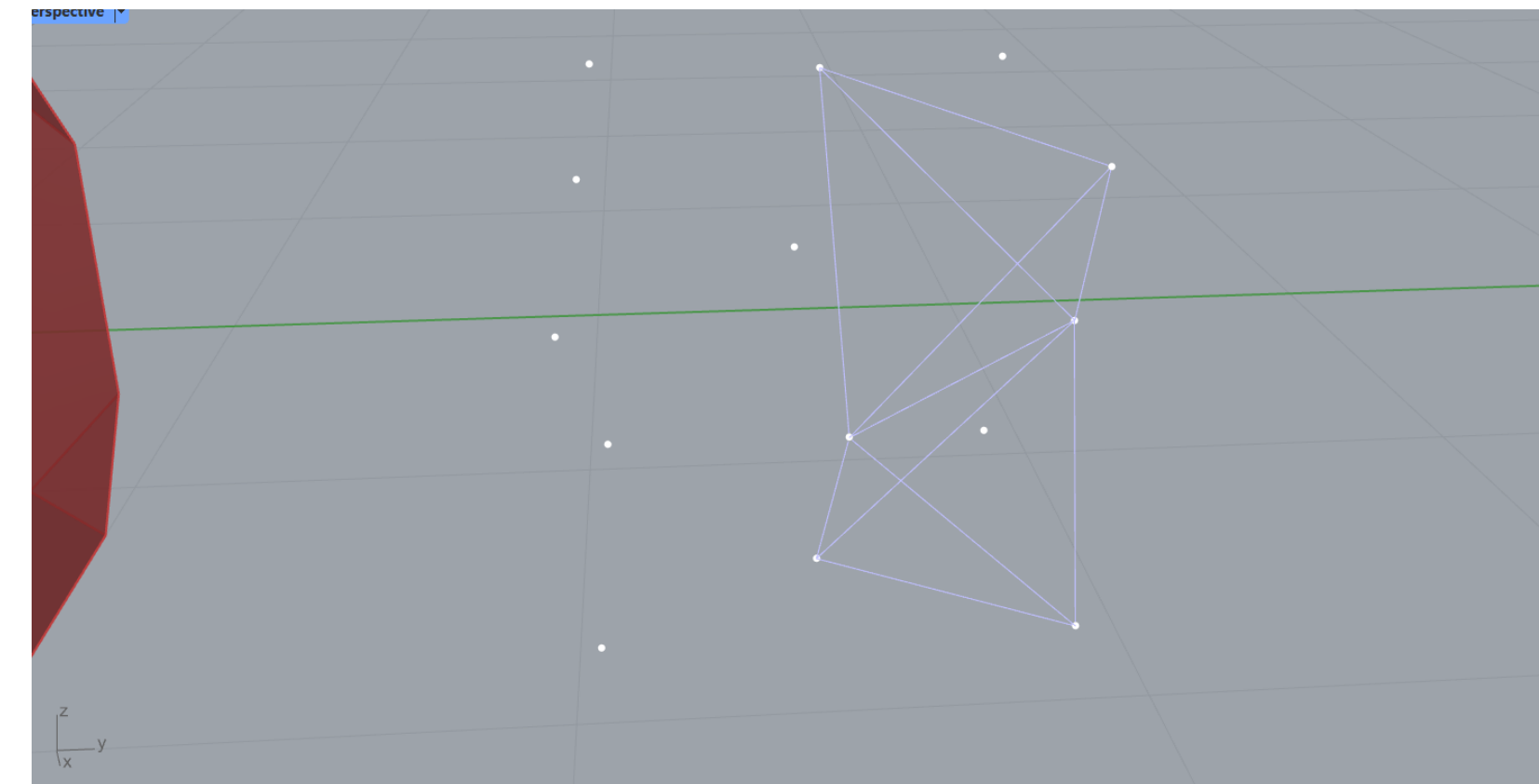
Aula 2- Ex:1 Sólidos Arquimedianos, Cubo Truncado



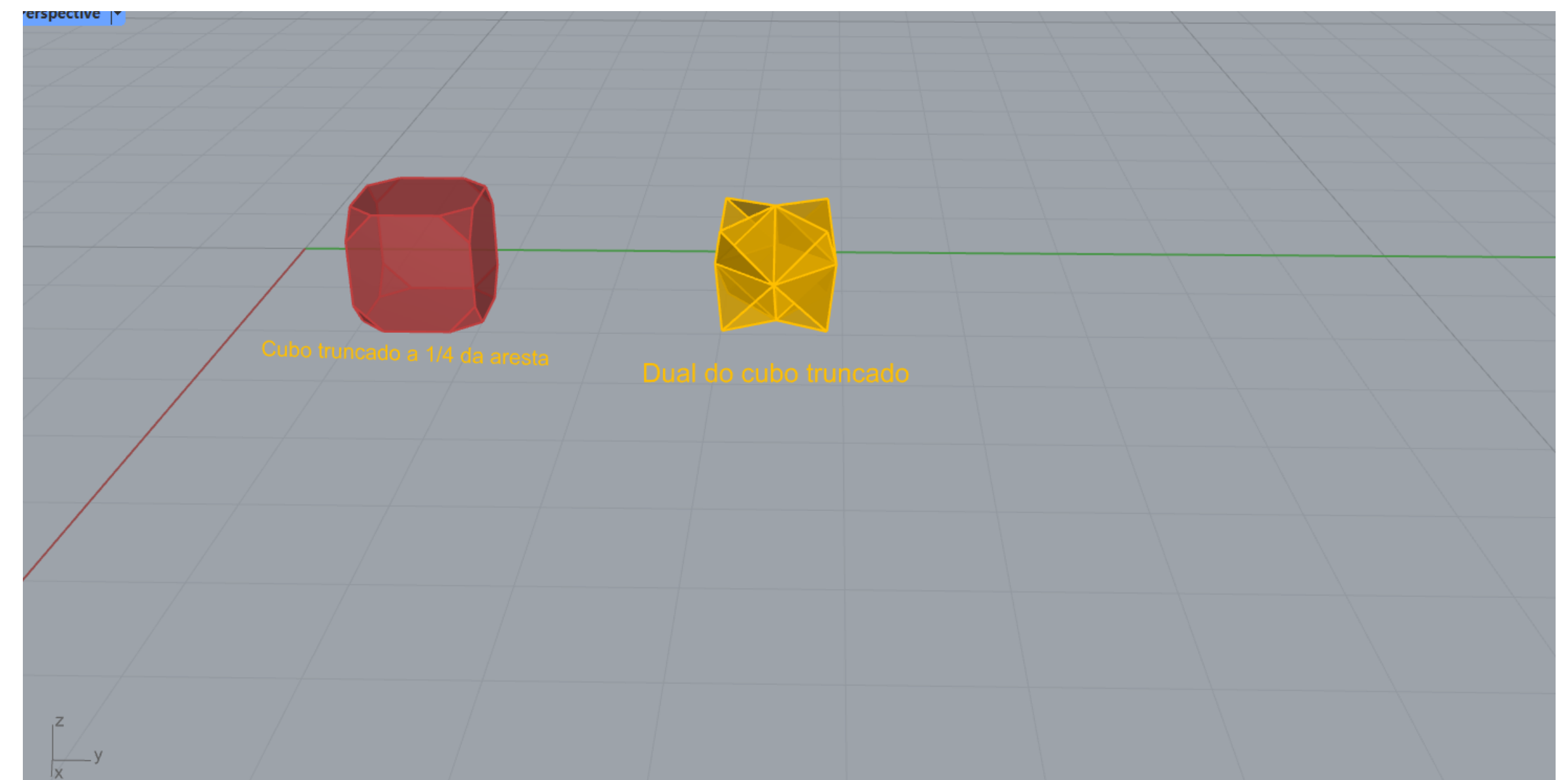
Inserção de pontos nos centros das faces



Uso da polyline para ligar os pontos para criar parte do dual

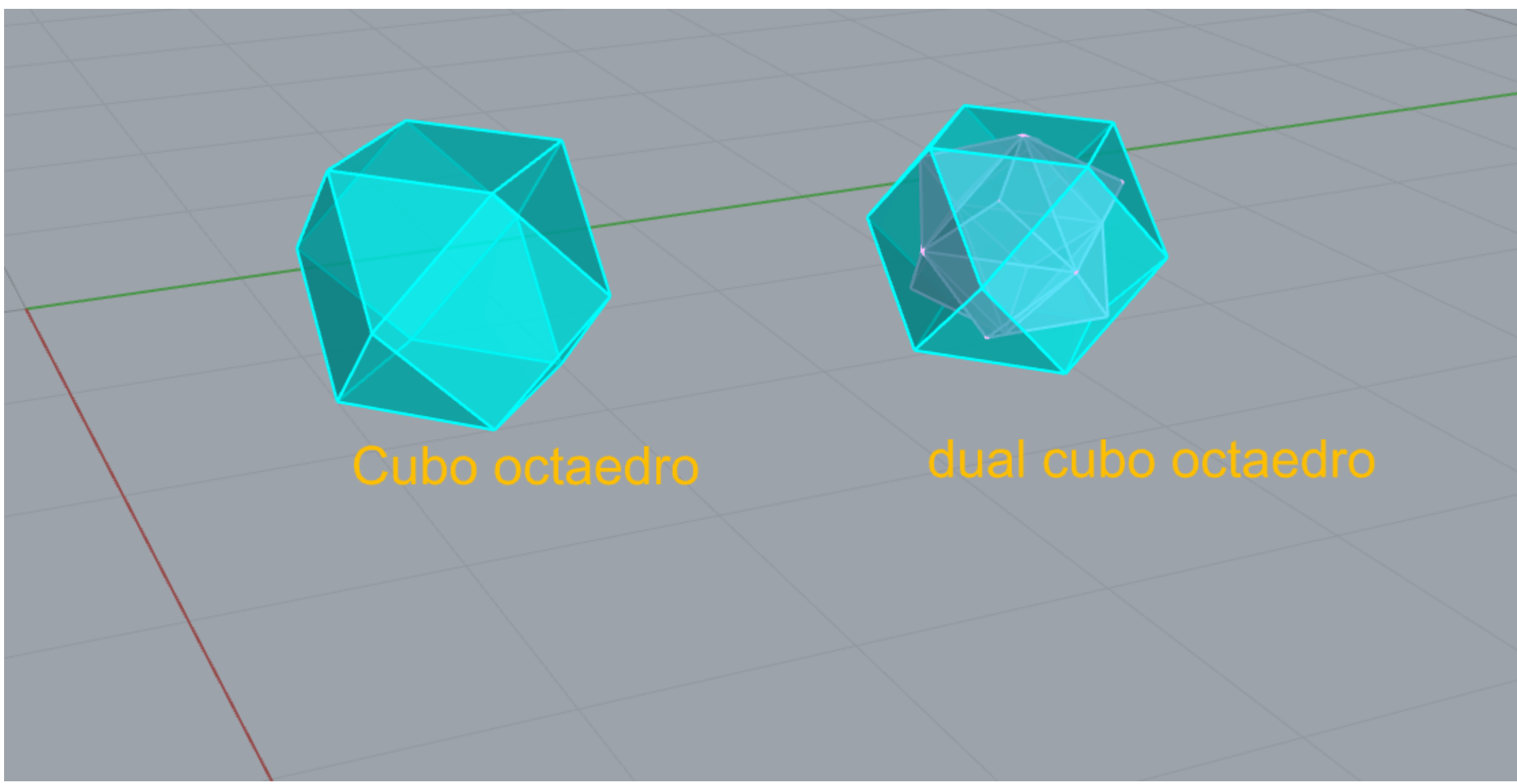
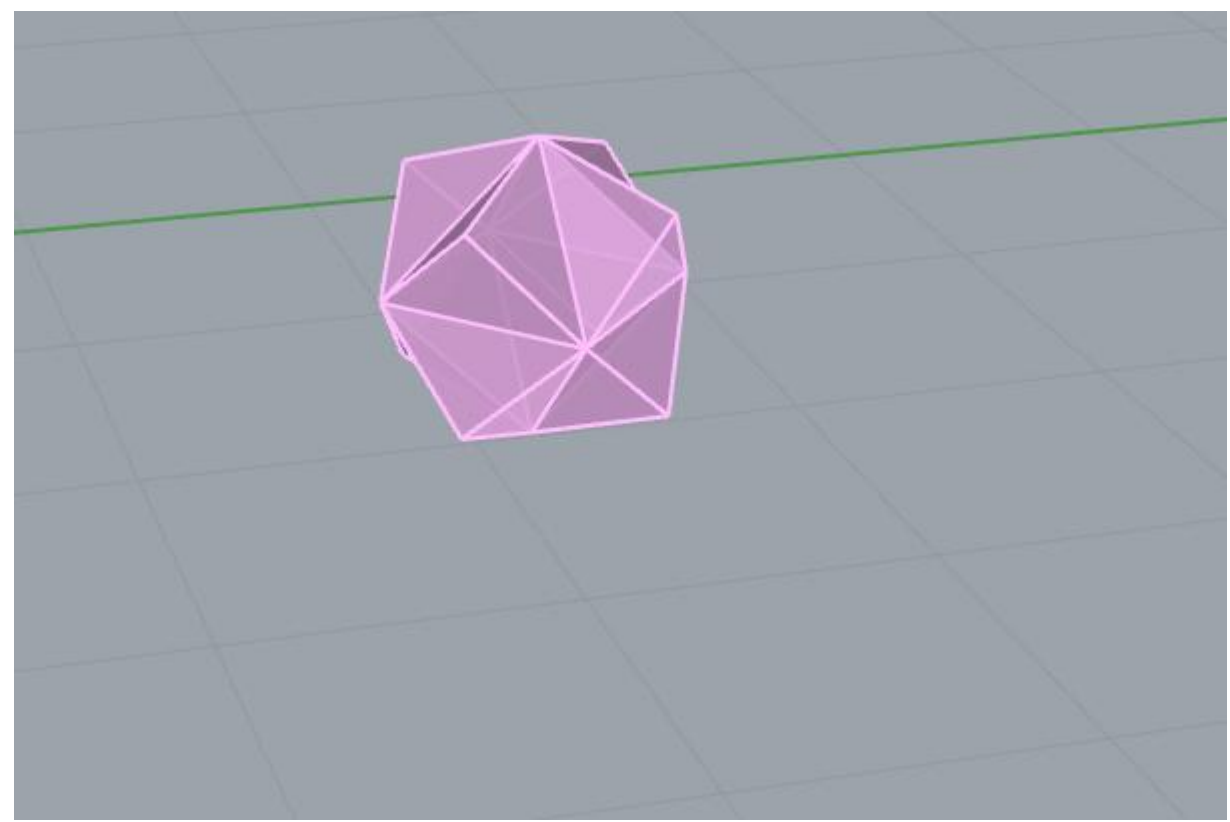
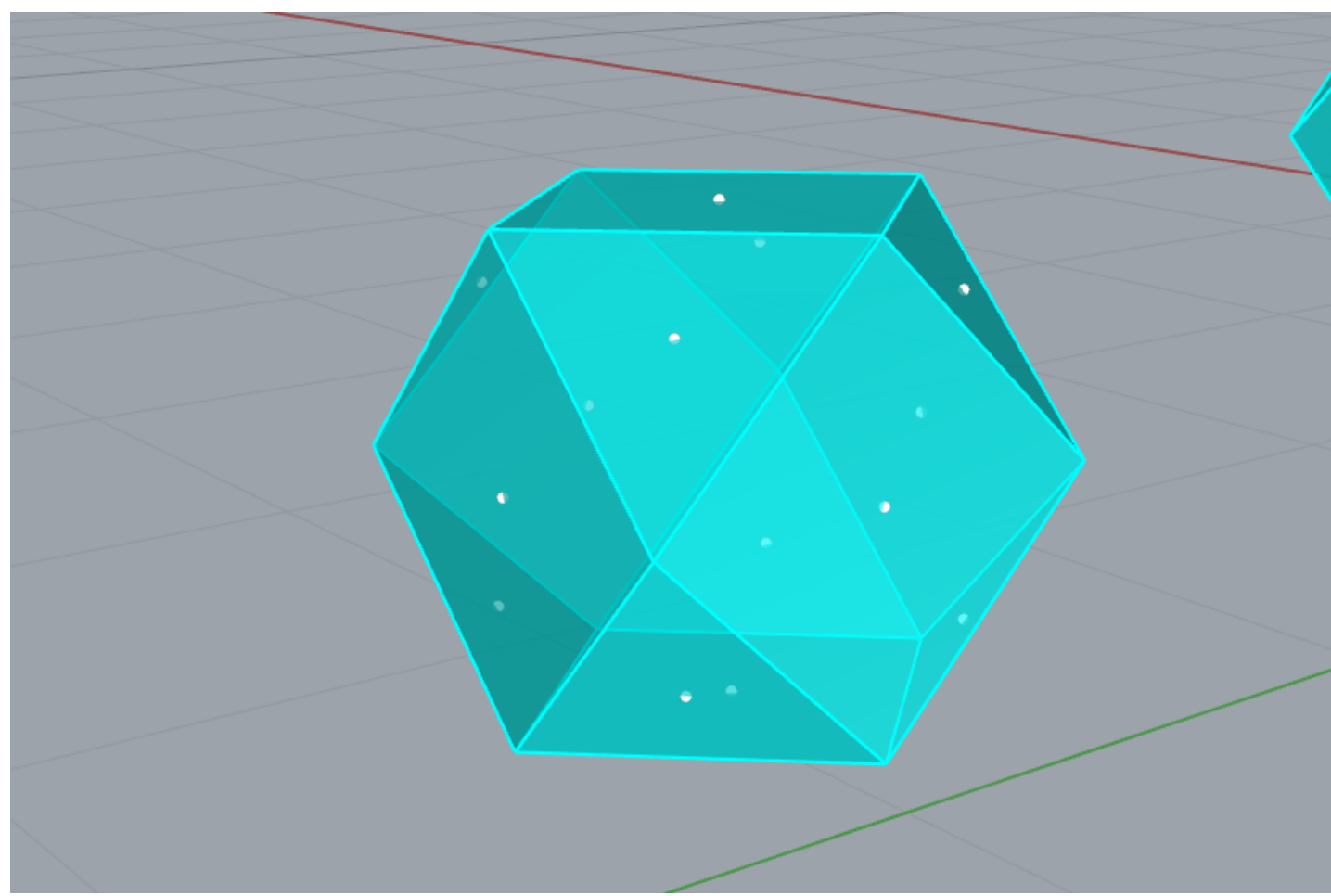
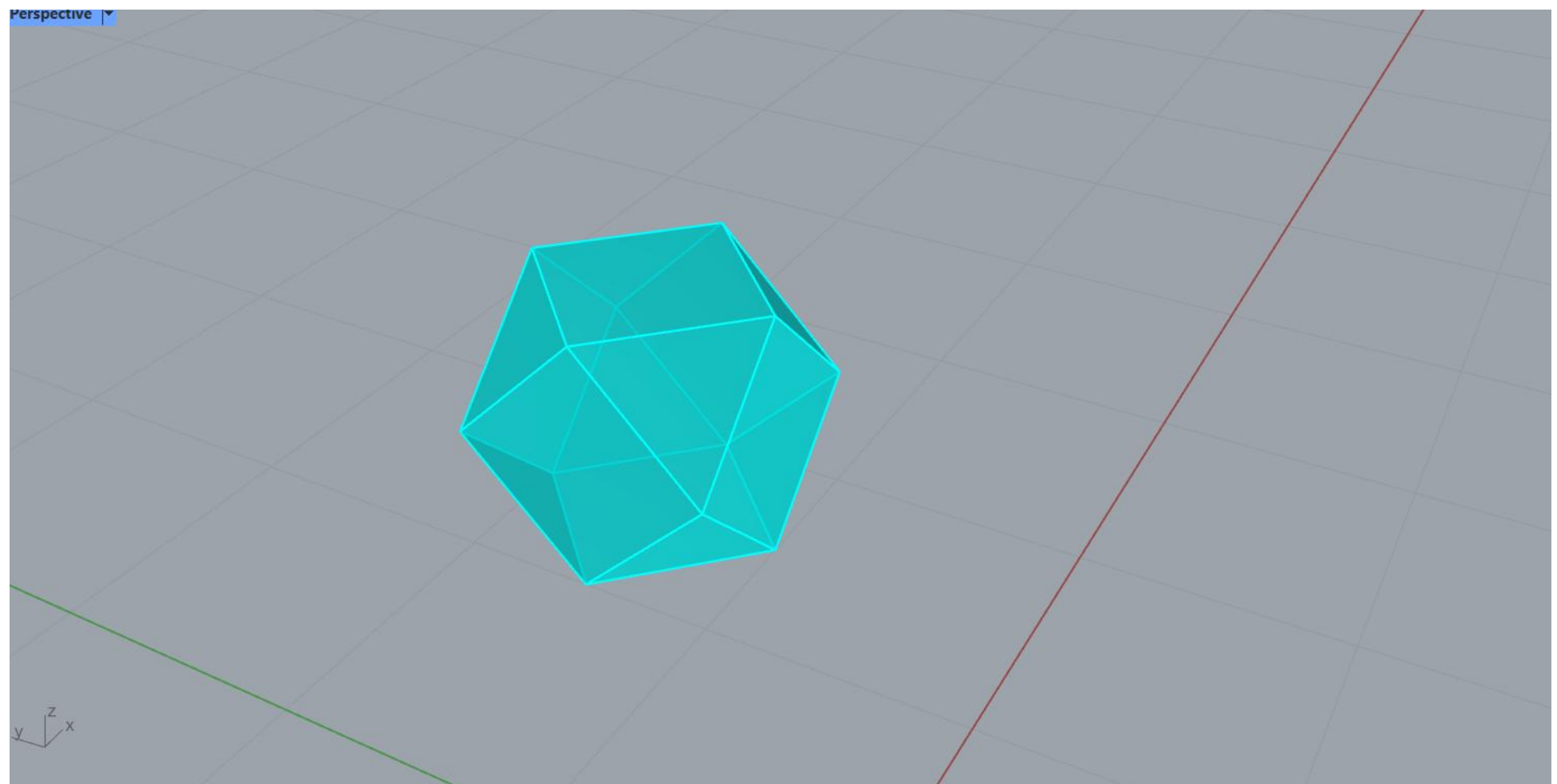
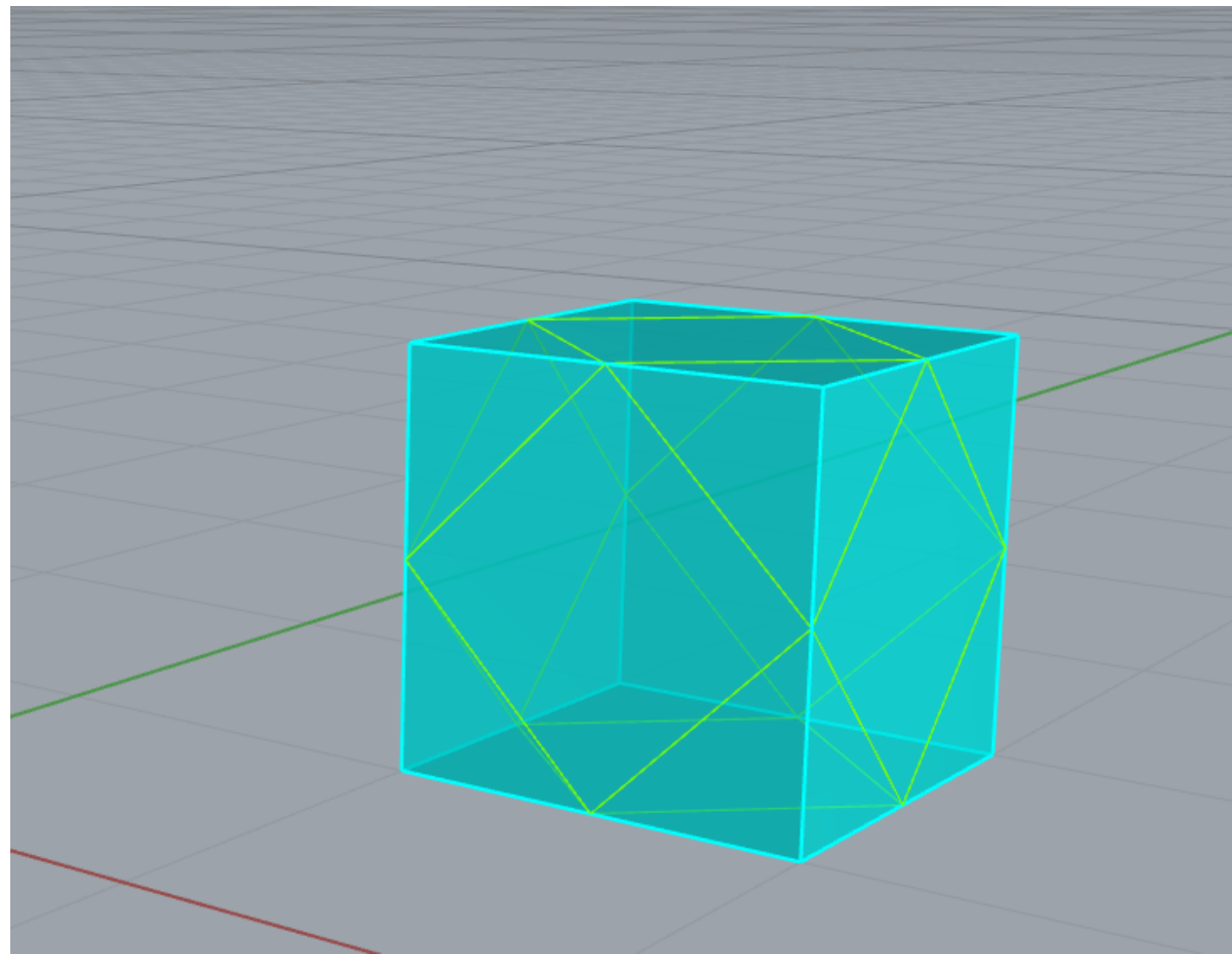
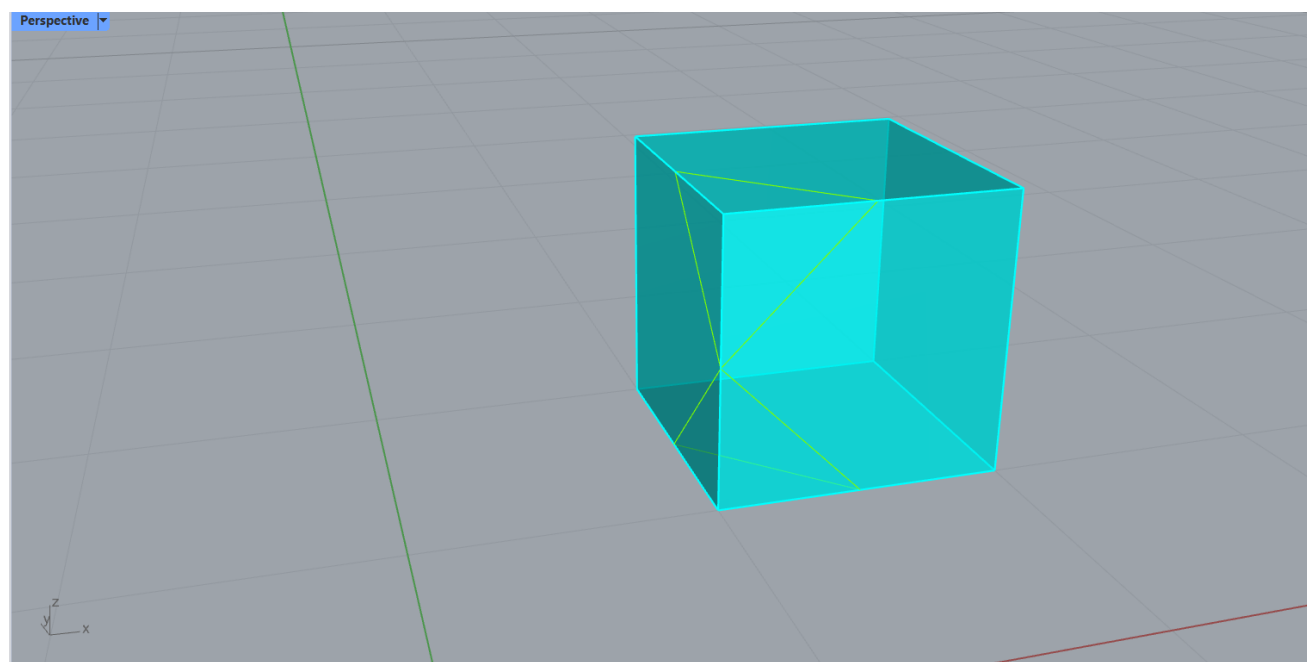


Uso do Surface para preencher as faces da parte do dual



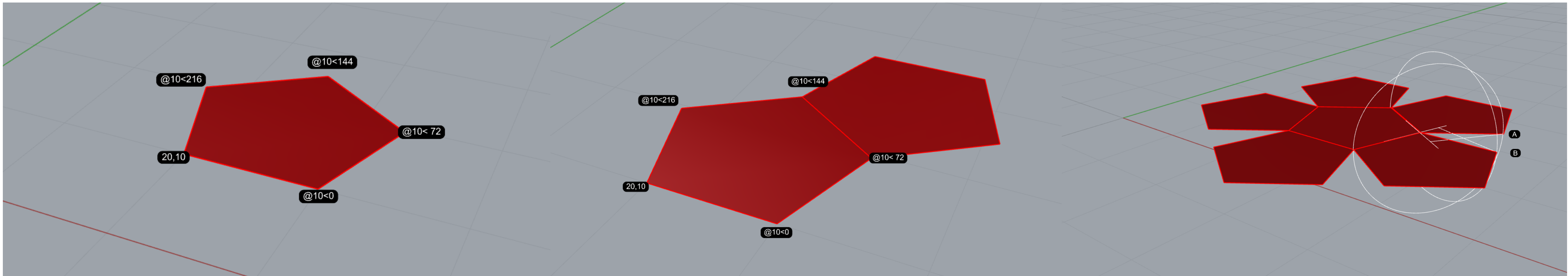
Dual concluído com o uso do ArrayPolar

Aula 3- Conclusão do Cubo Truncado e Dual



Mesmo método utilizado anteriormente

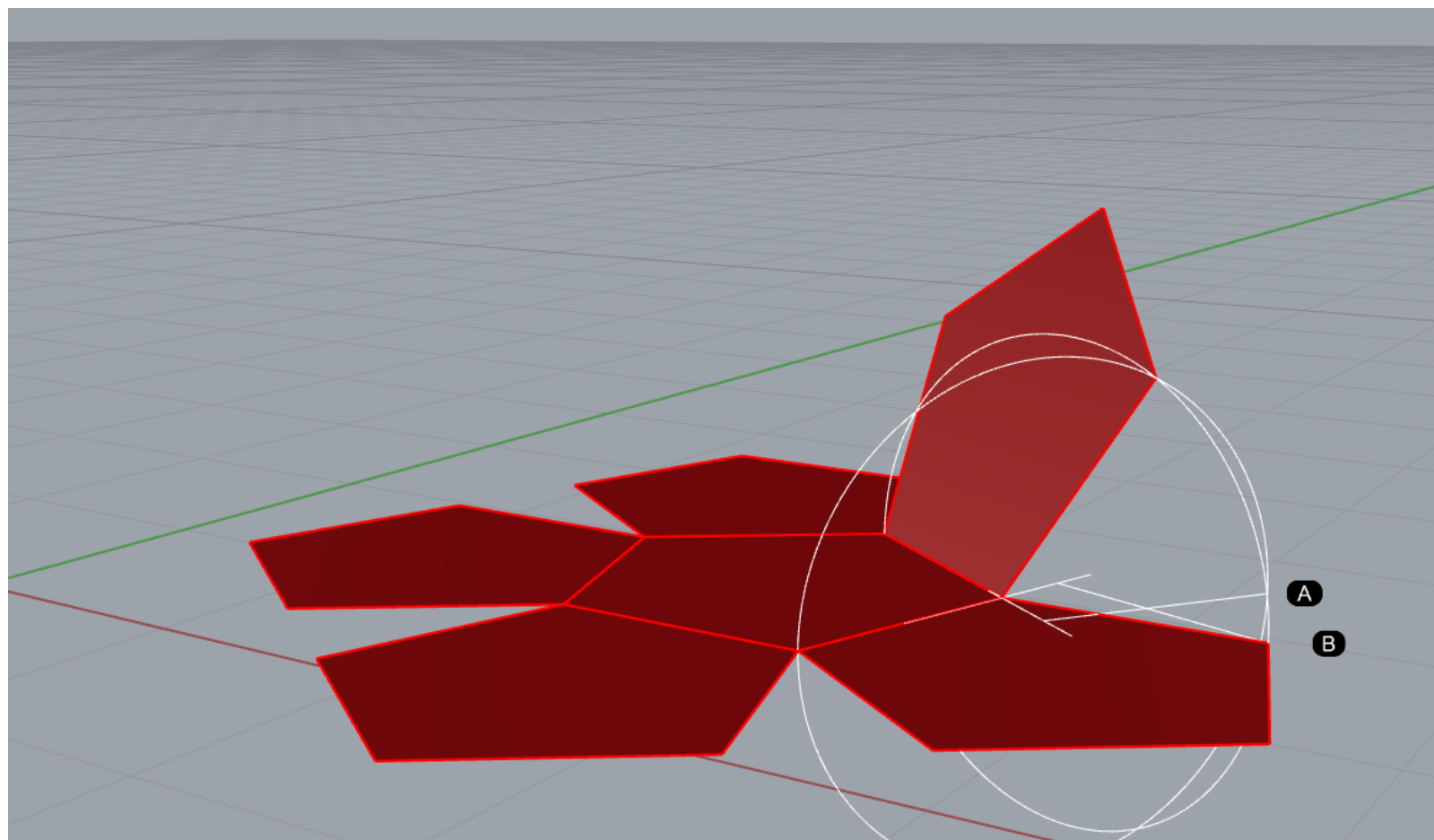
Aula 3-Realização de um Cubo Octaedro e Dual



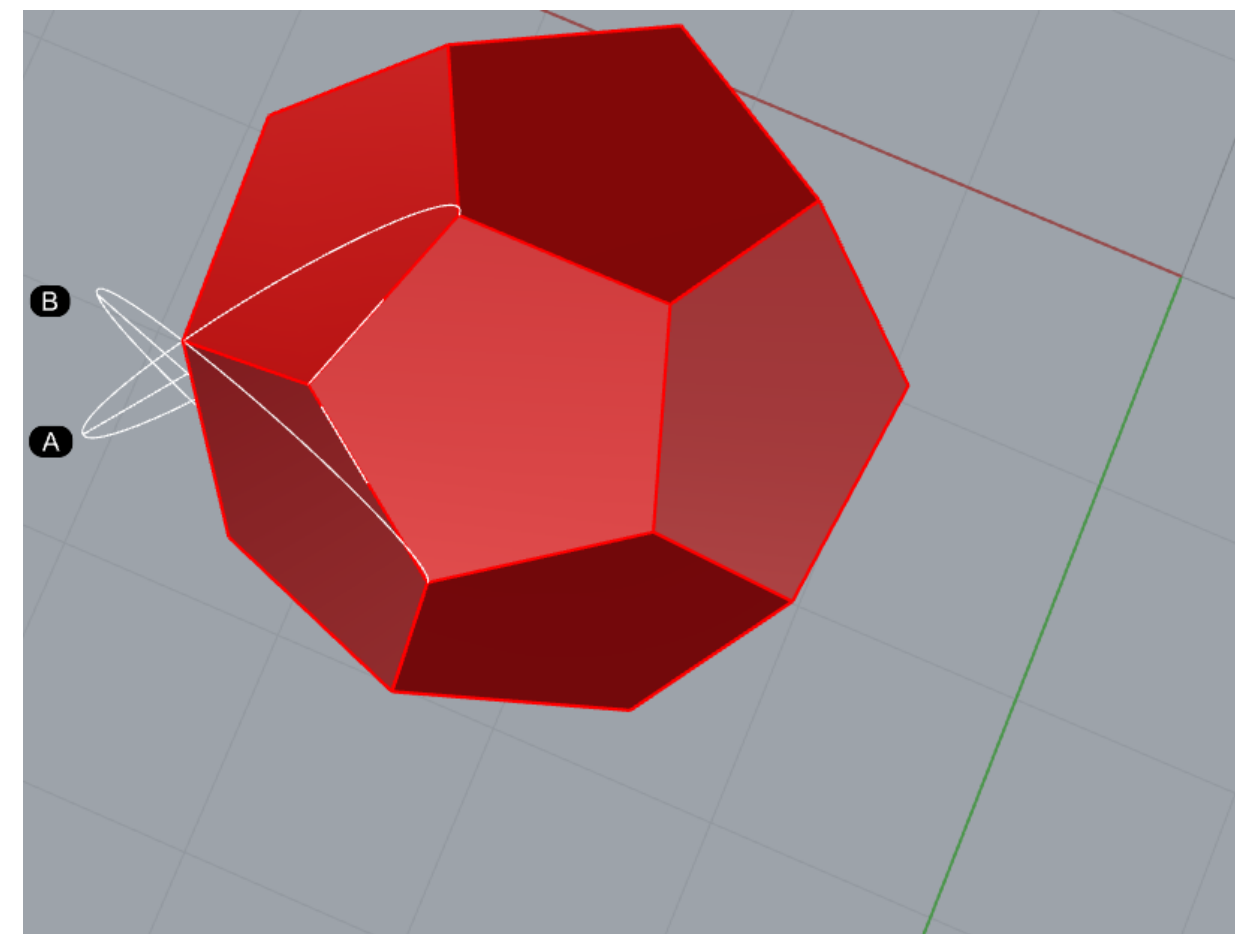
Criámos um pentágono

Demos Copy e fizemos mais pentágonos a envolver o primeiro

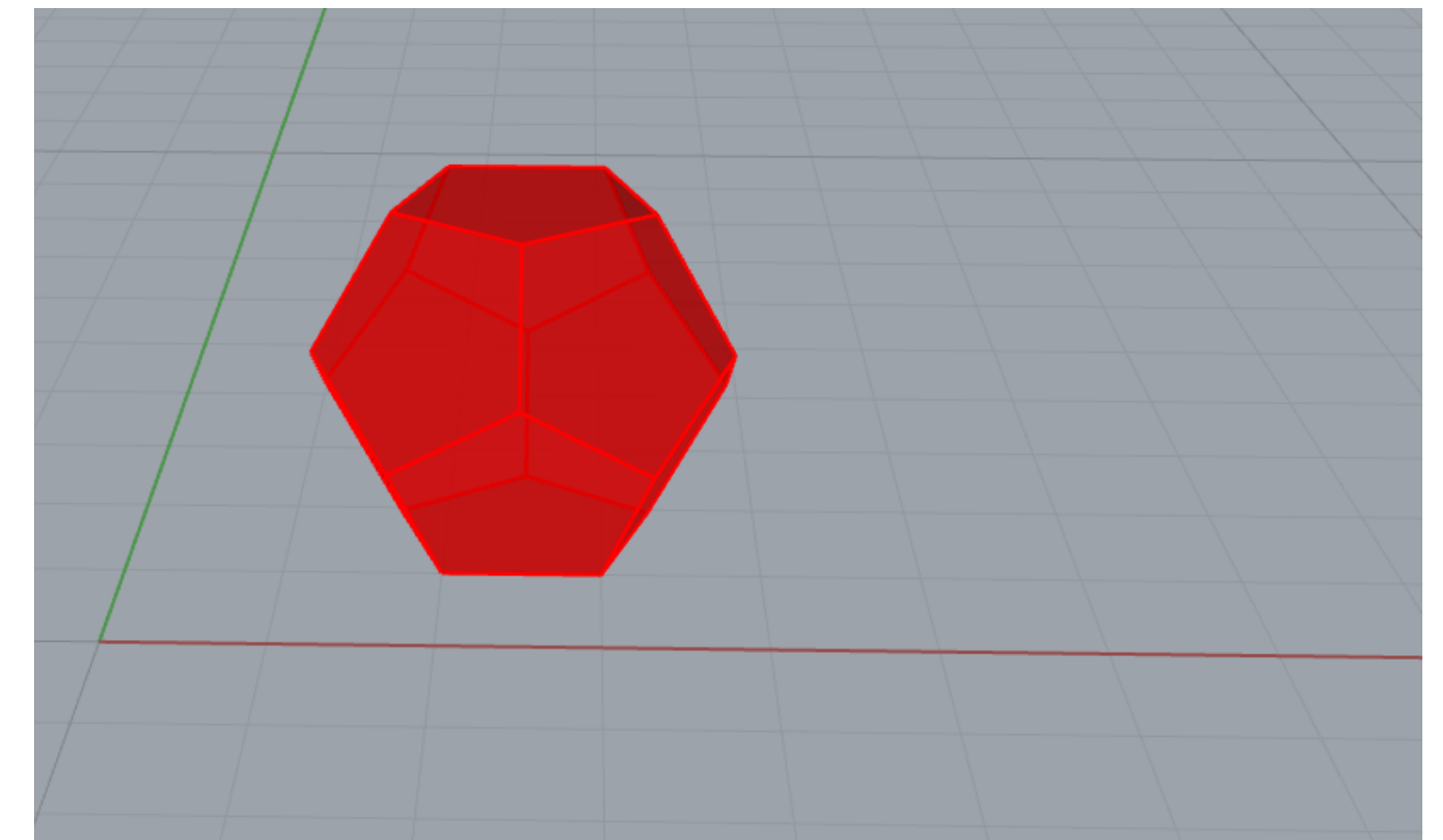
Definimos os eixos das duas circunferência verticais que se vão intersetar



Utilizámos o Rotate3D para rodar o pentágono até o vértice tocar na interseção das circunferências

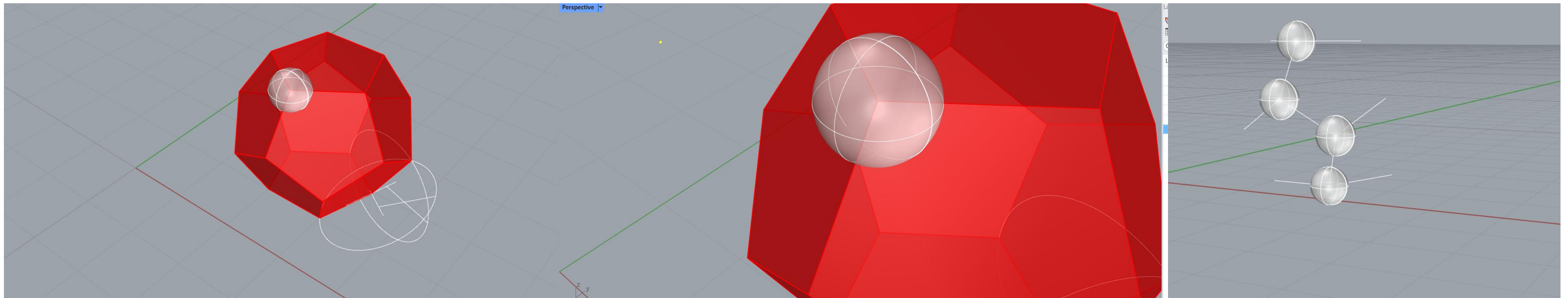


Repetimos o processo e fizémos um Copy e um Rotate 3D para as duas metades encaixarem



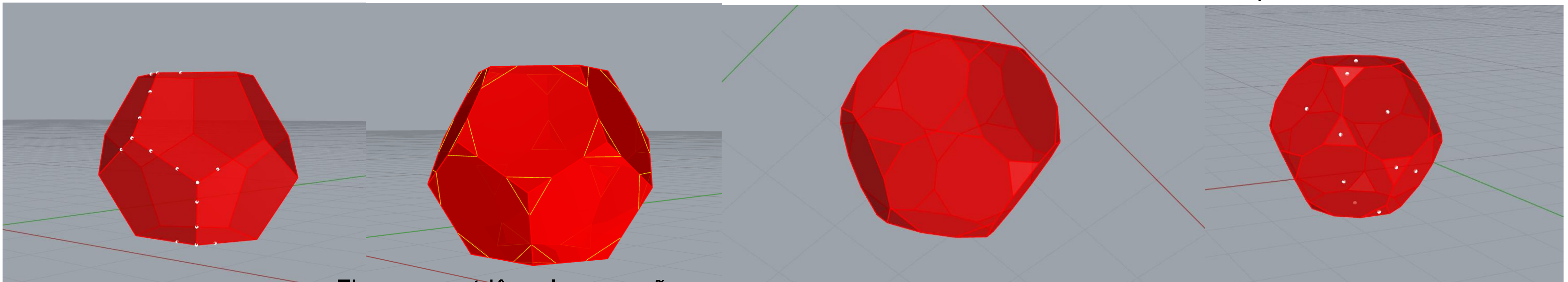
Dodecaedro finalizado

Aula 4- Dodecaedro, Dodecaedro truncado e Dual



Colocámos uma esfera de 3cm de raio num dos vértices

Fizemos o mesmo a mais quatro vértices e com a Line marcámos as arestas que as intercetavam



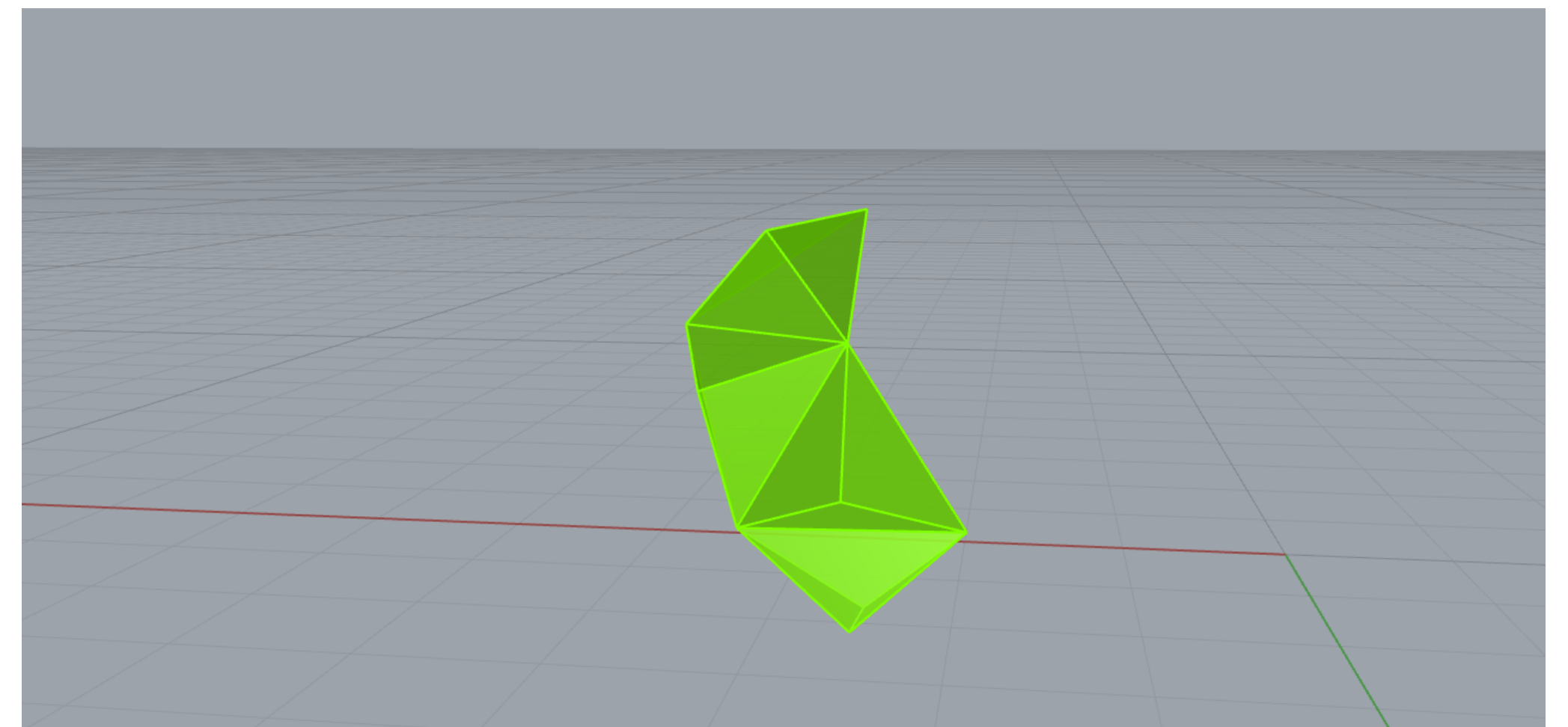
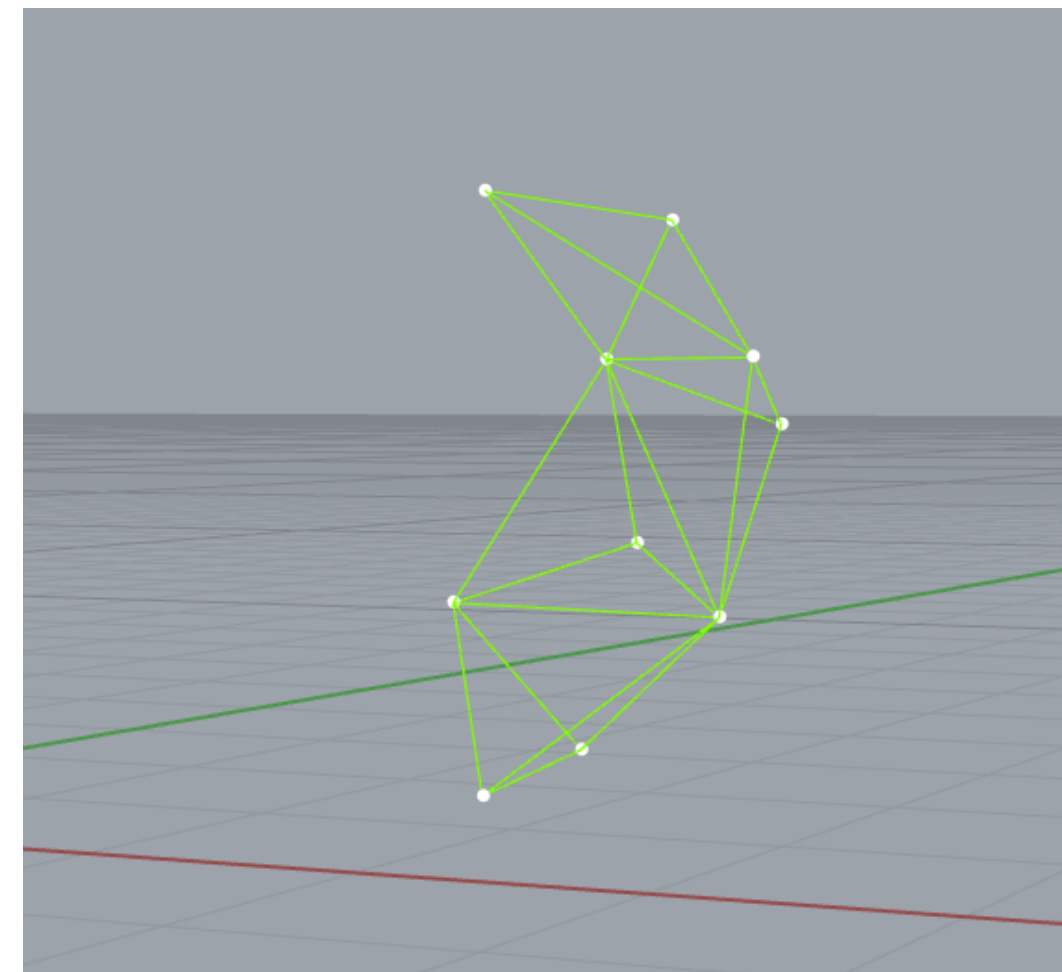
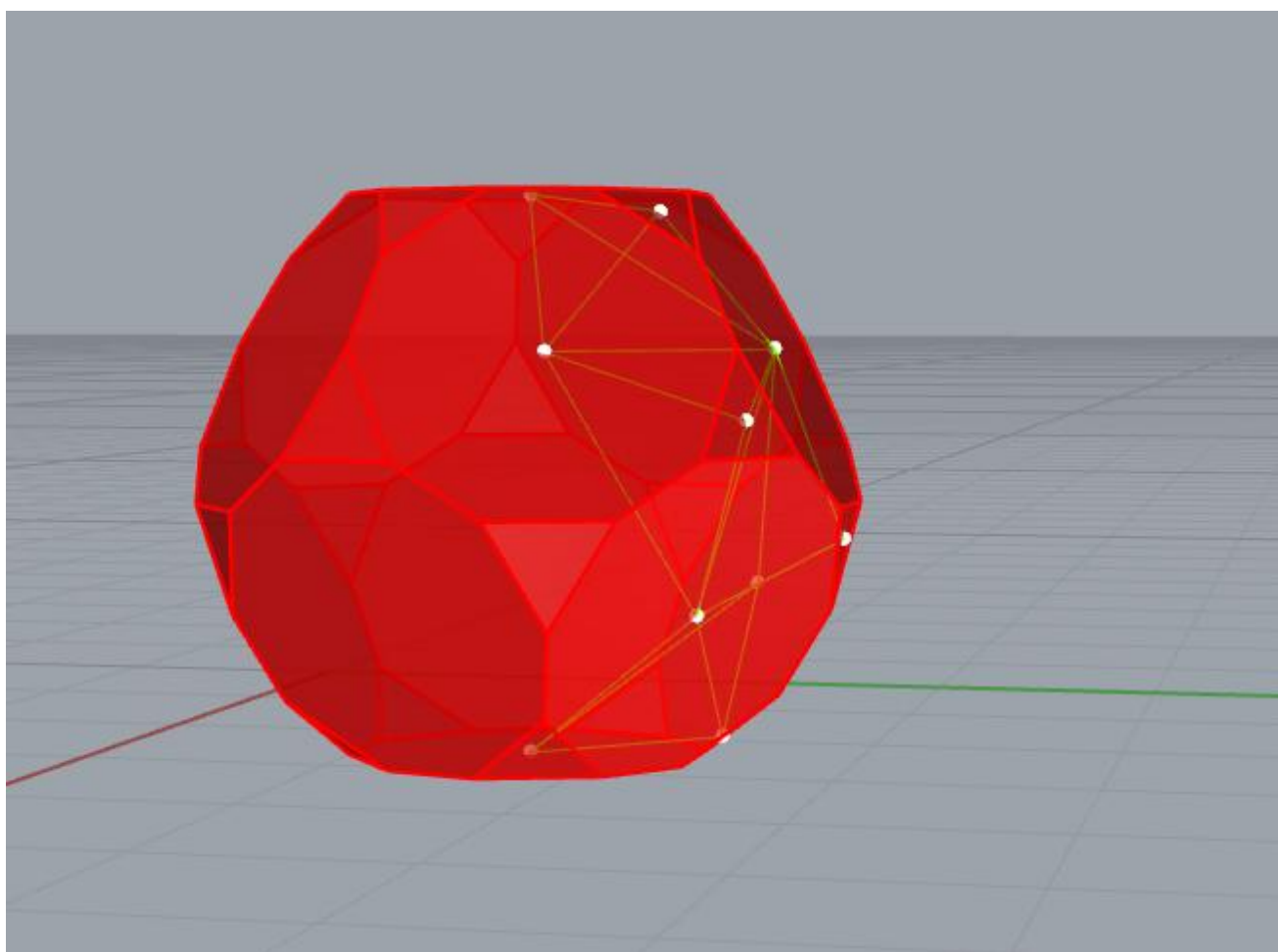
Marcámos os pontos de interceção

Fizemos os triângulos que vão ser cortados a partir dos pontos e usámos o ArrayPolar para colocar em todas as arestas

Com o uso do WireCut finalizámos o dodecaedro truncado

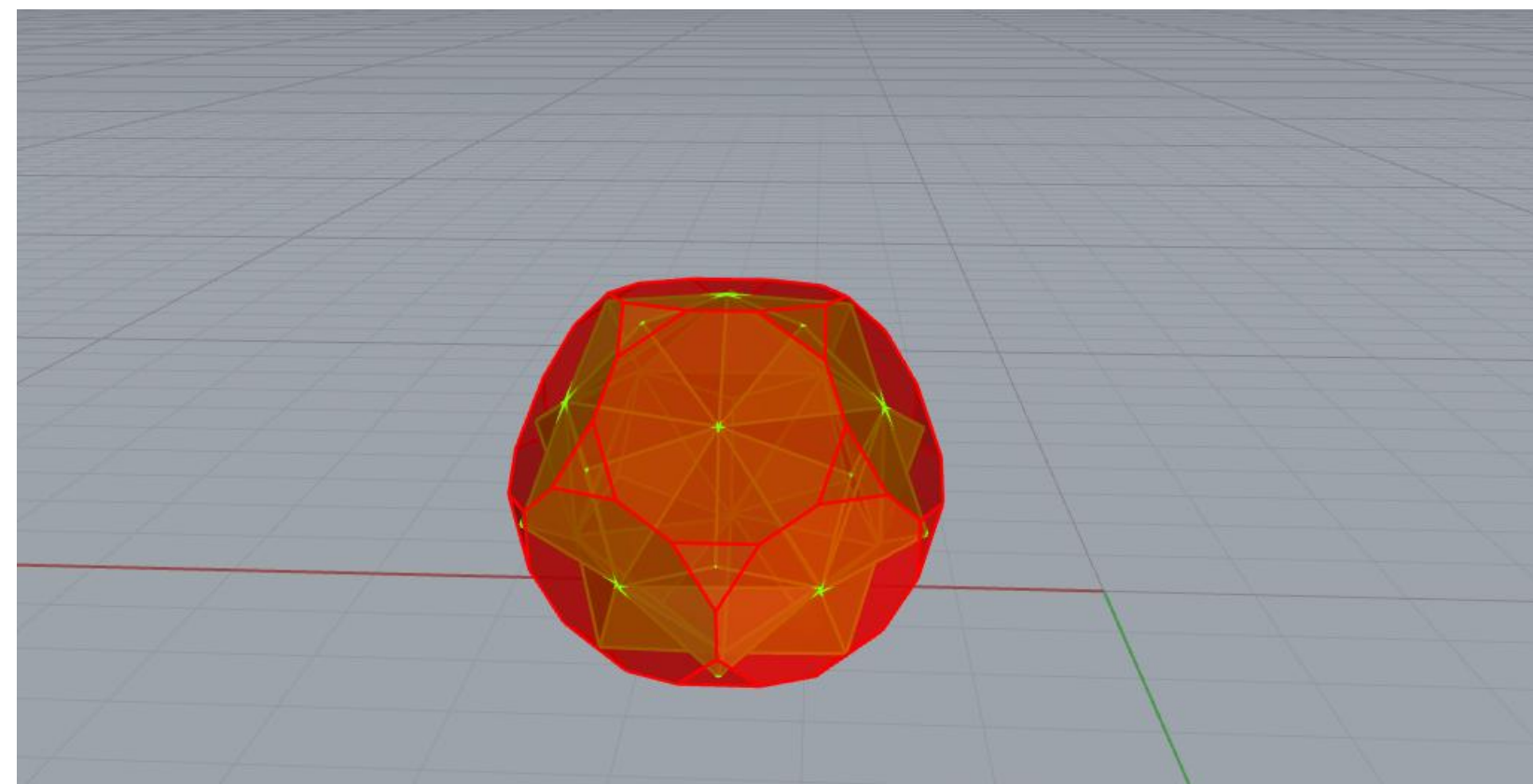
Colocámos pontos nos centros das faces

Aula 4- Dodecaedro, Dodecaedro truncado e Dual

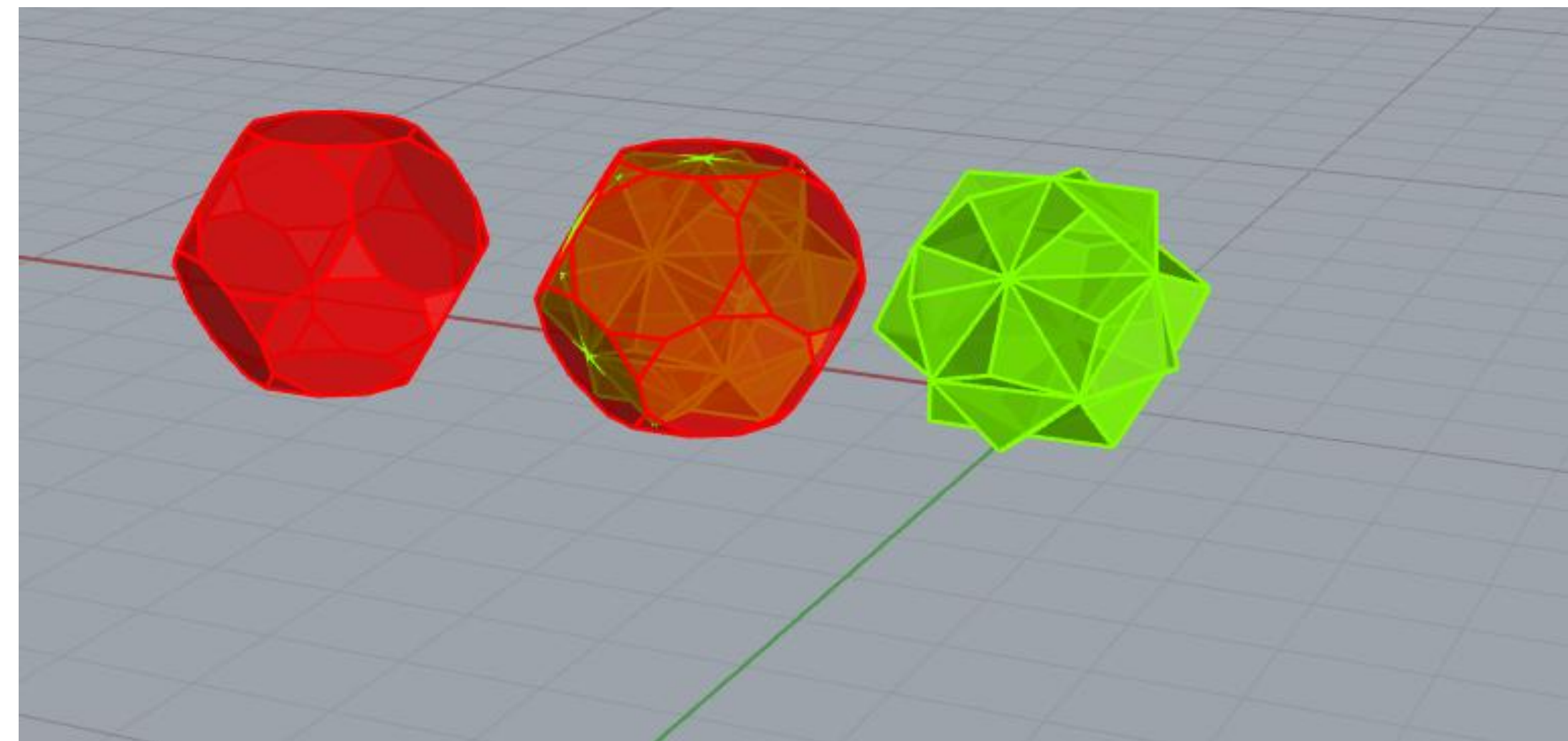


Unimos os pontos criando as arestas de uma parte do dual com a PolyLine

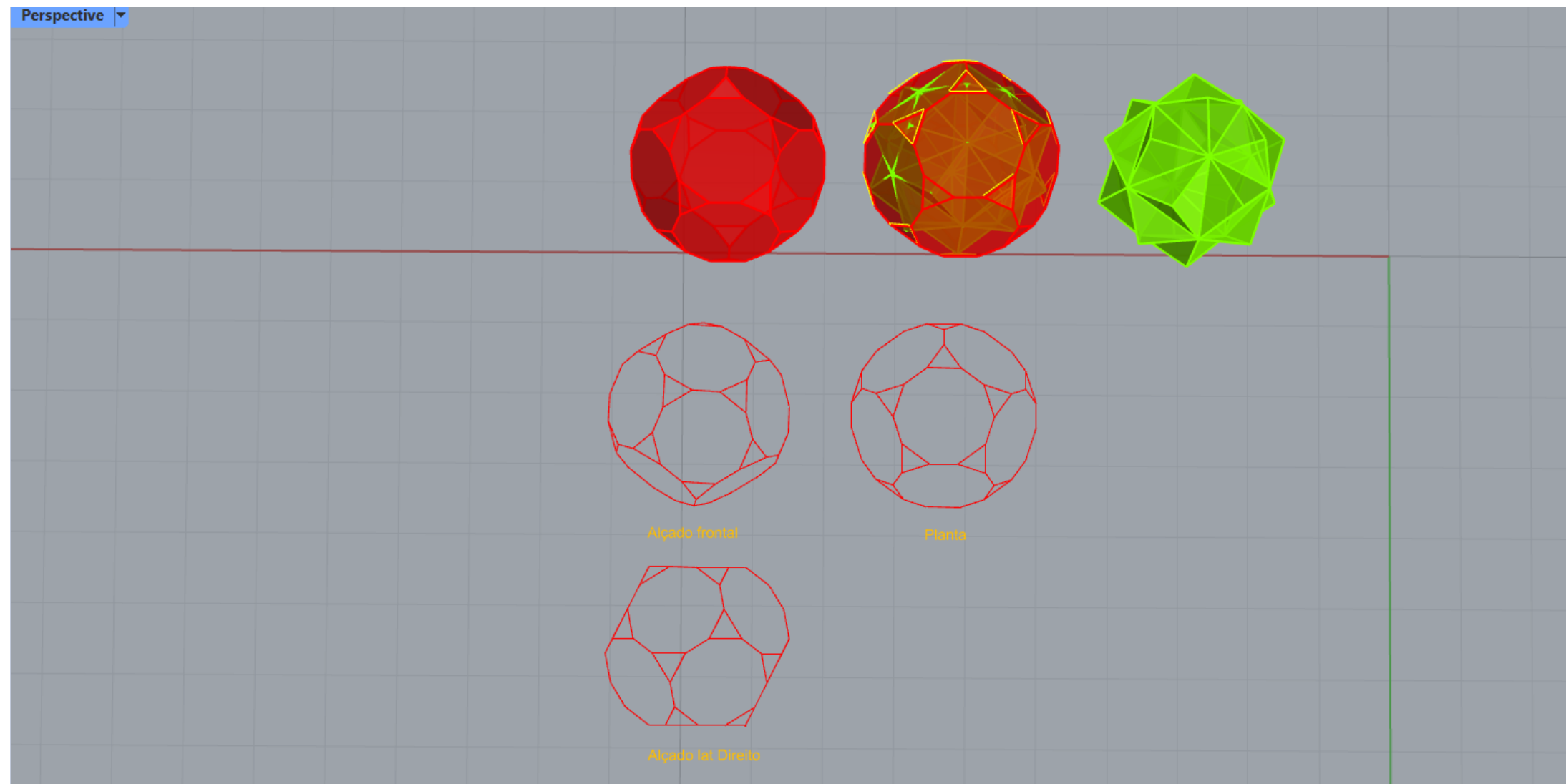
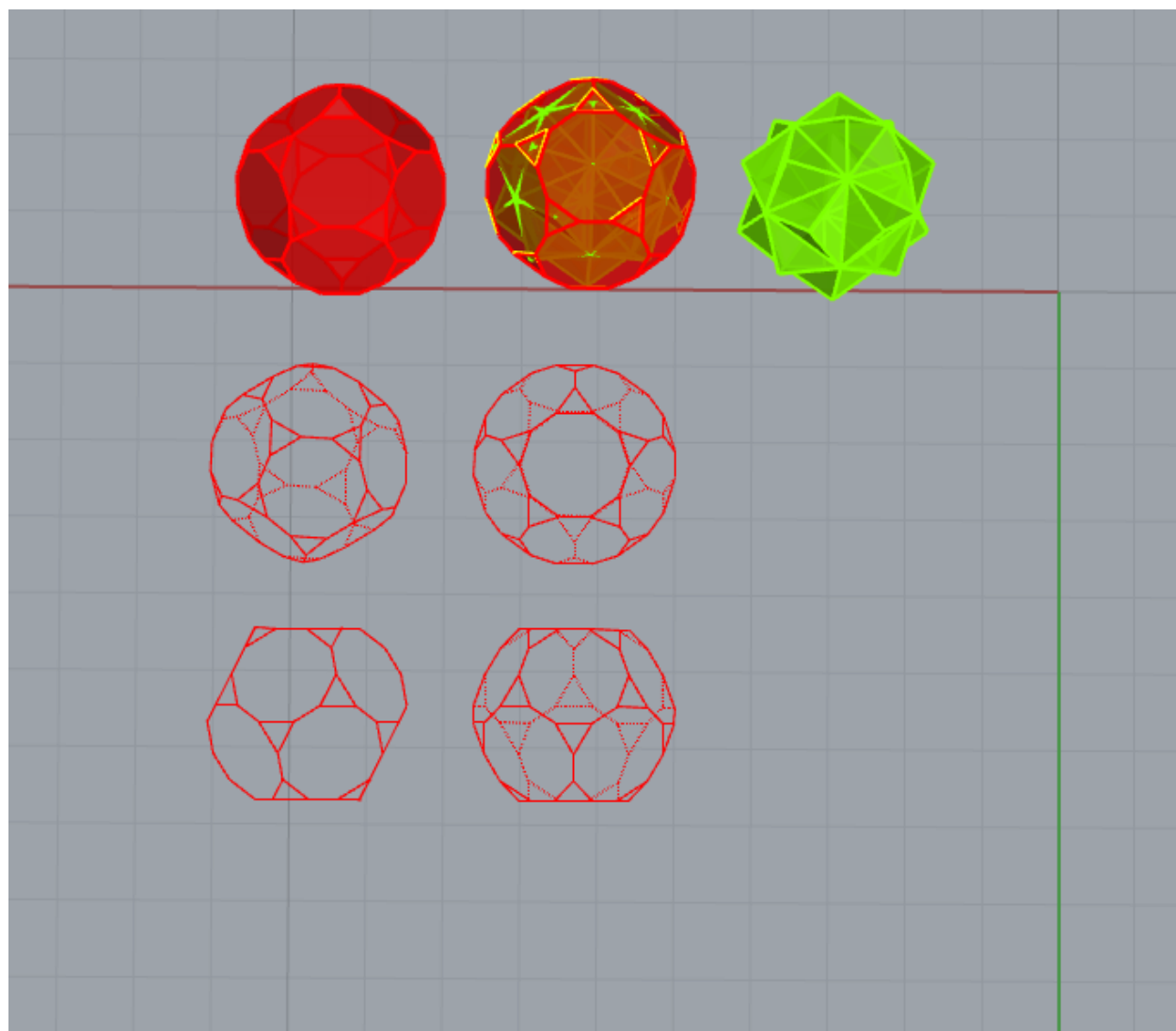
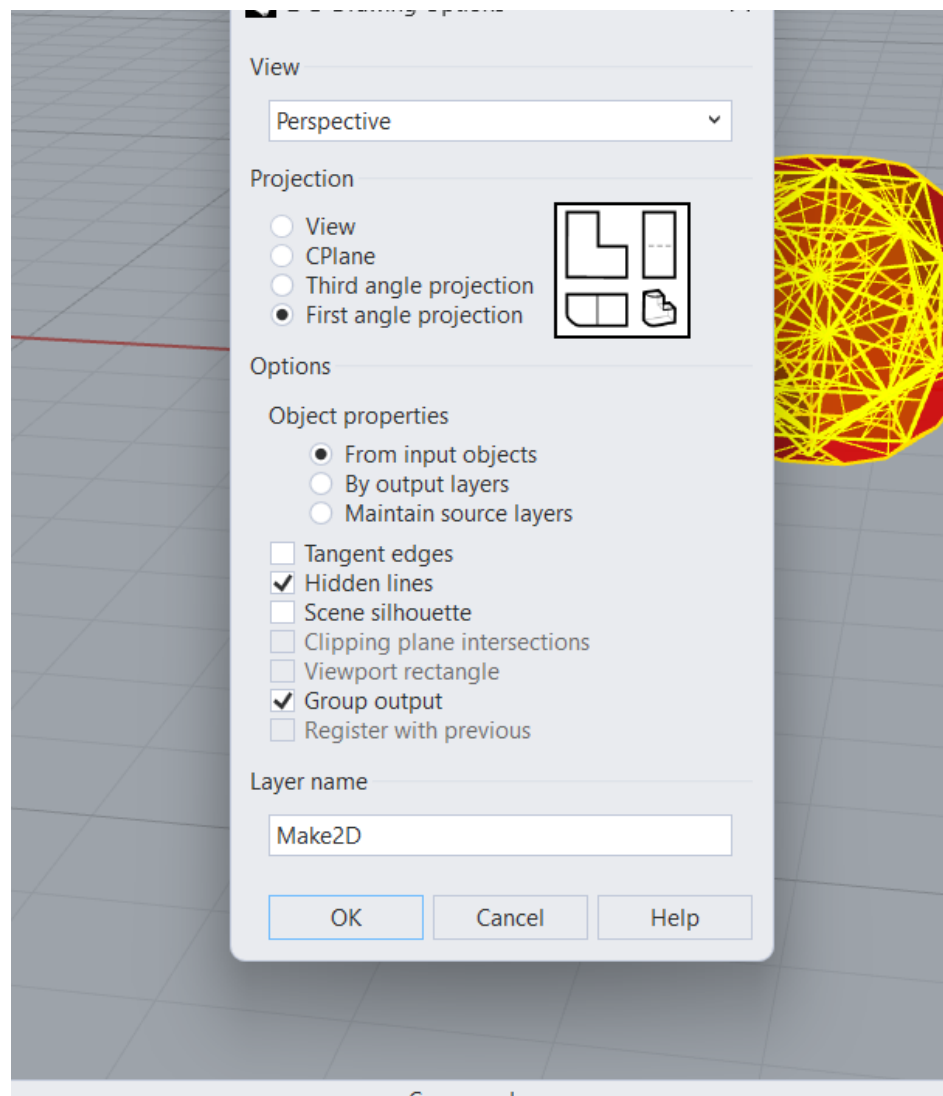
Usámos o Surface para fazer as faces



Com o ArrayPolar finalizámos o dual

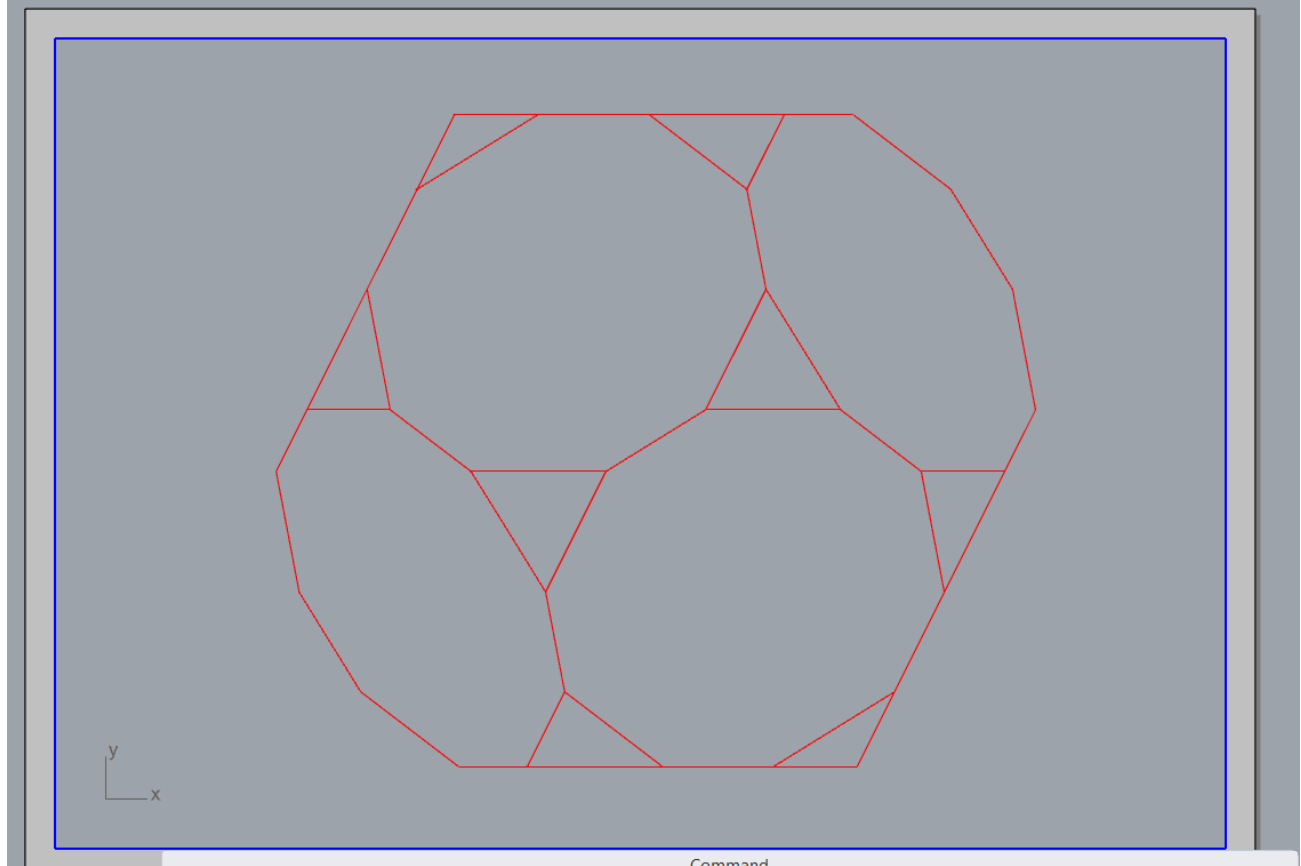
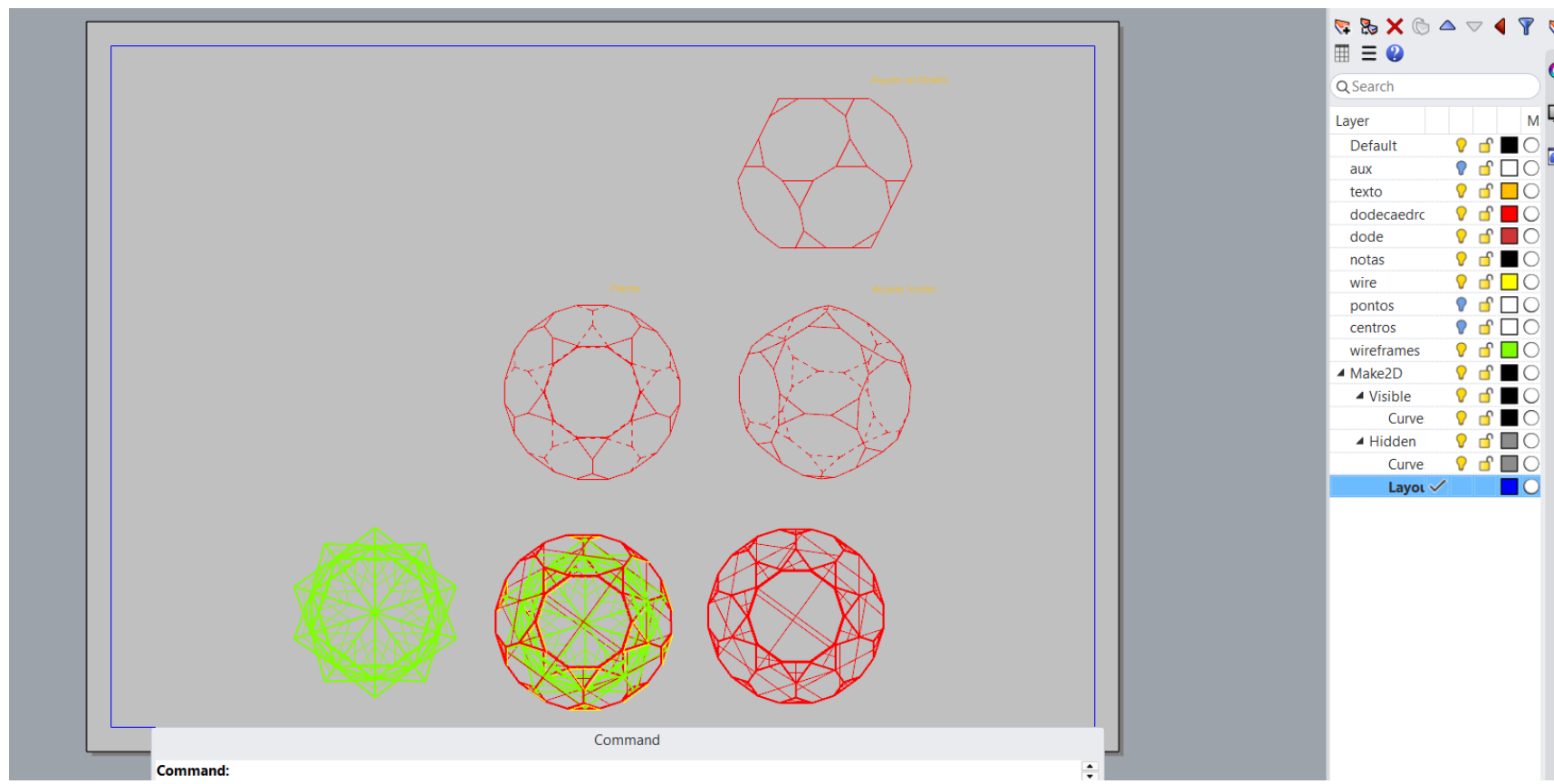
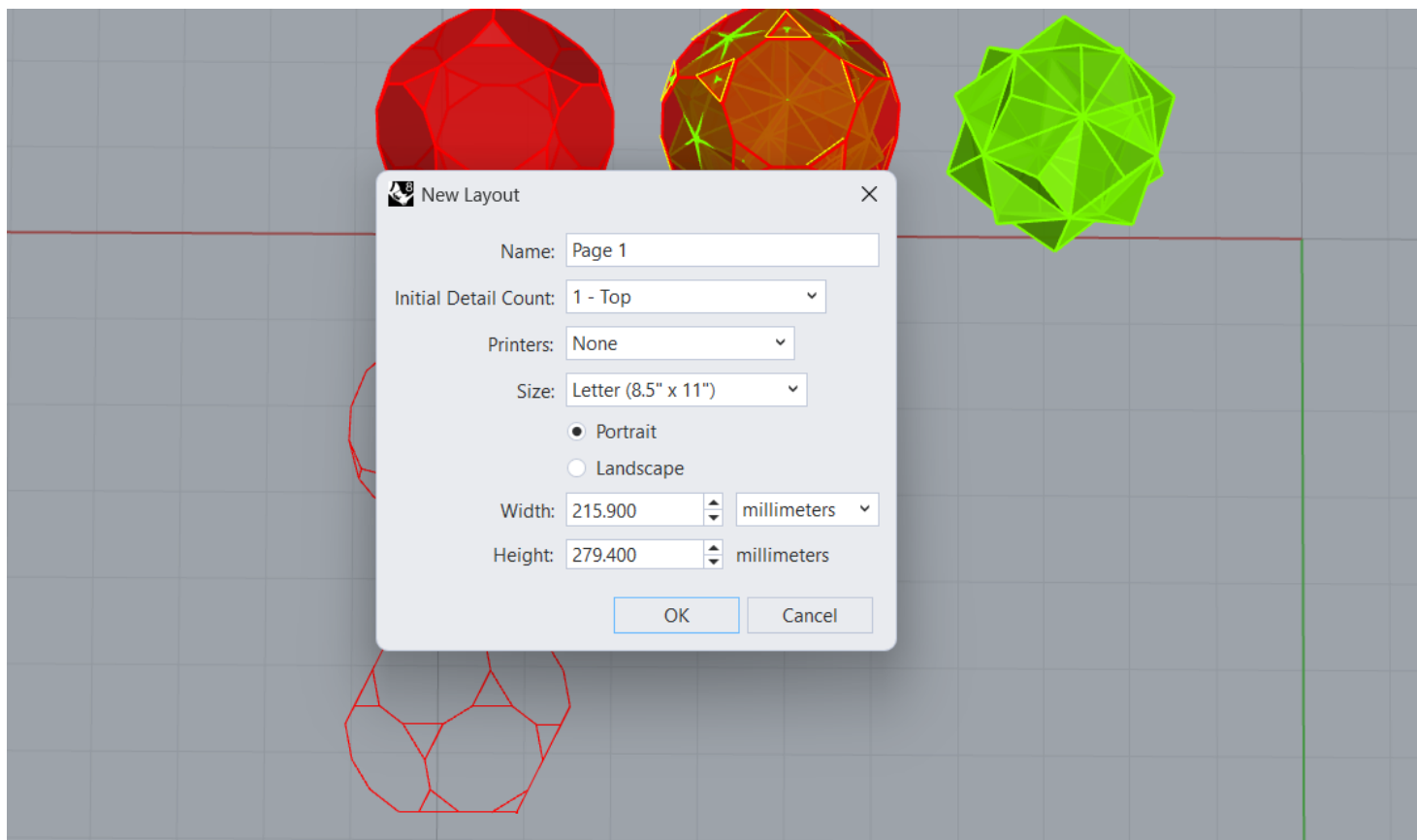


Aula 4- Dodecaedro, Dodecaedro truncado e Dual



Utilização do comando Make2d

Diferentes vistas do dodecaedro 2d

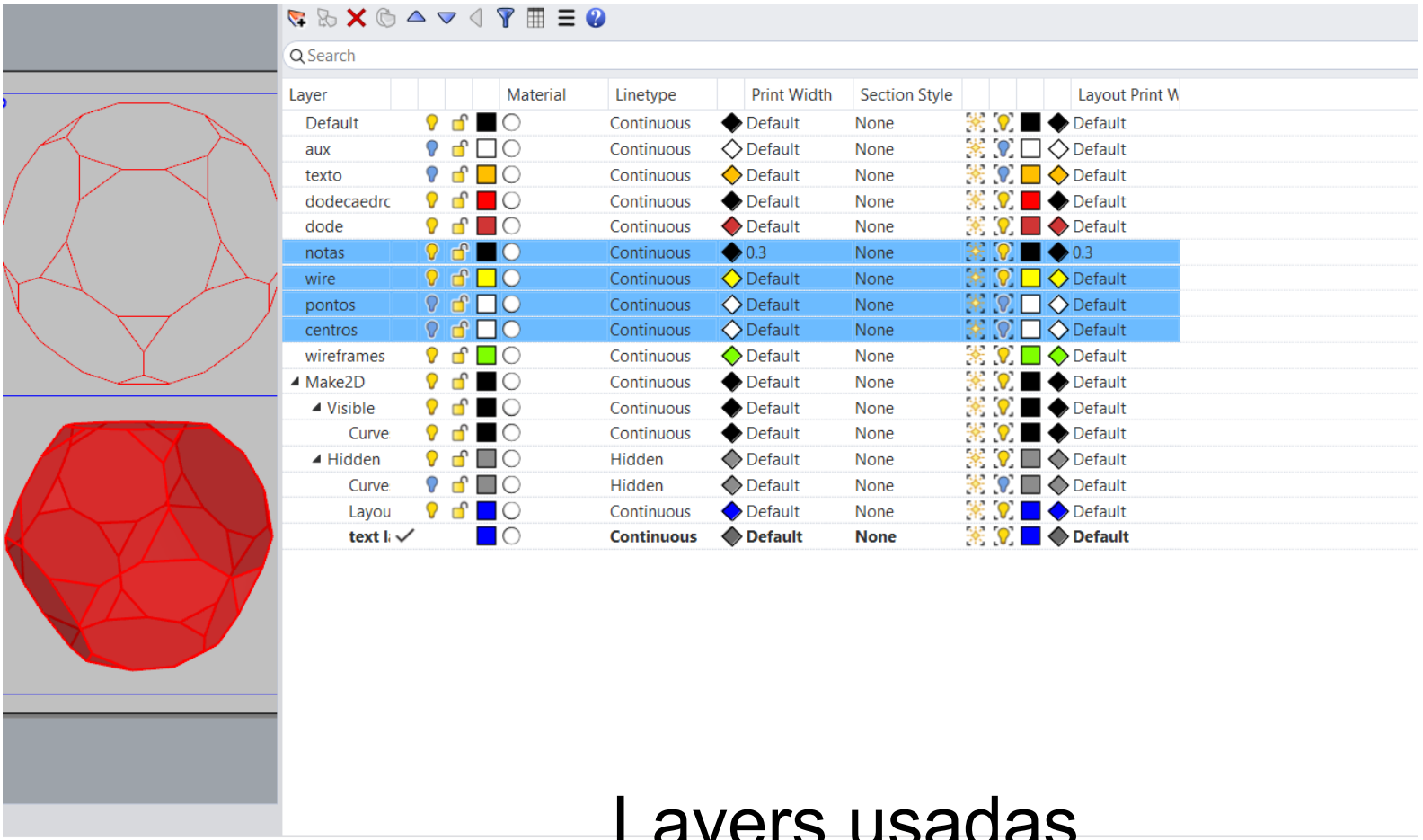
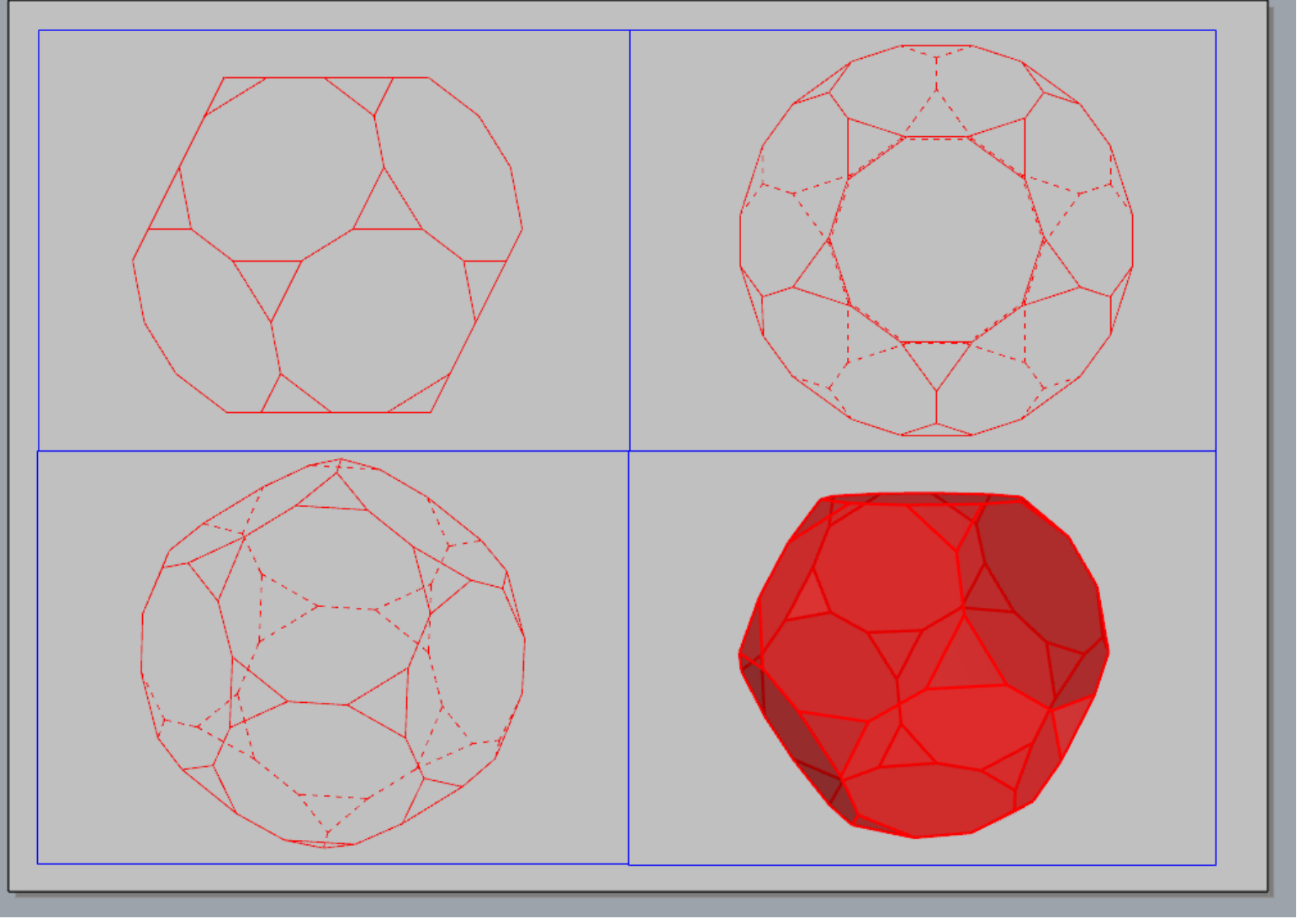
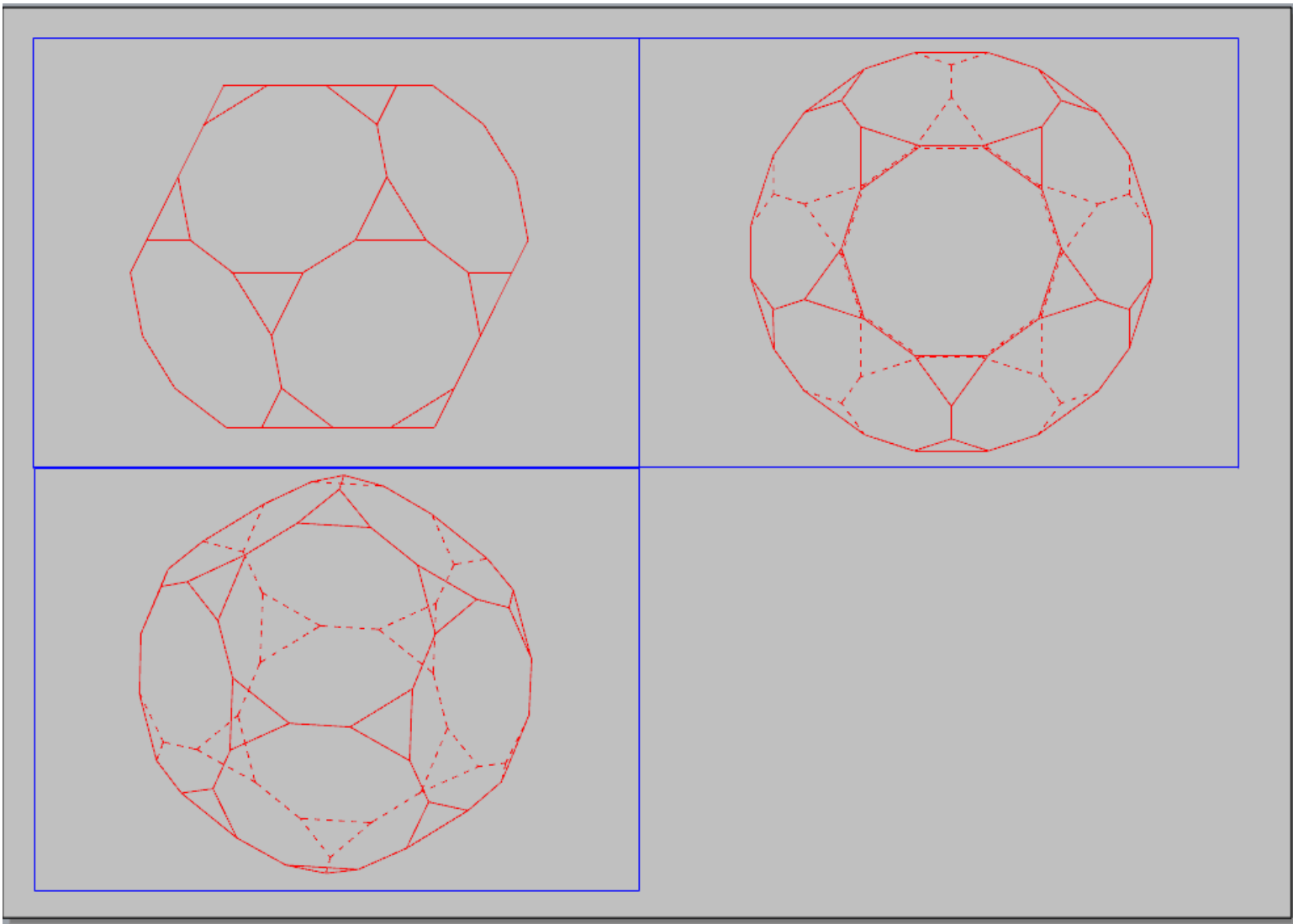


Janela para formatar o layout

Página do layout

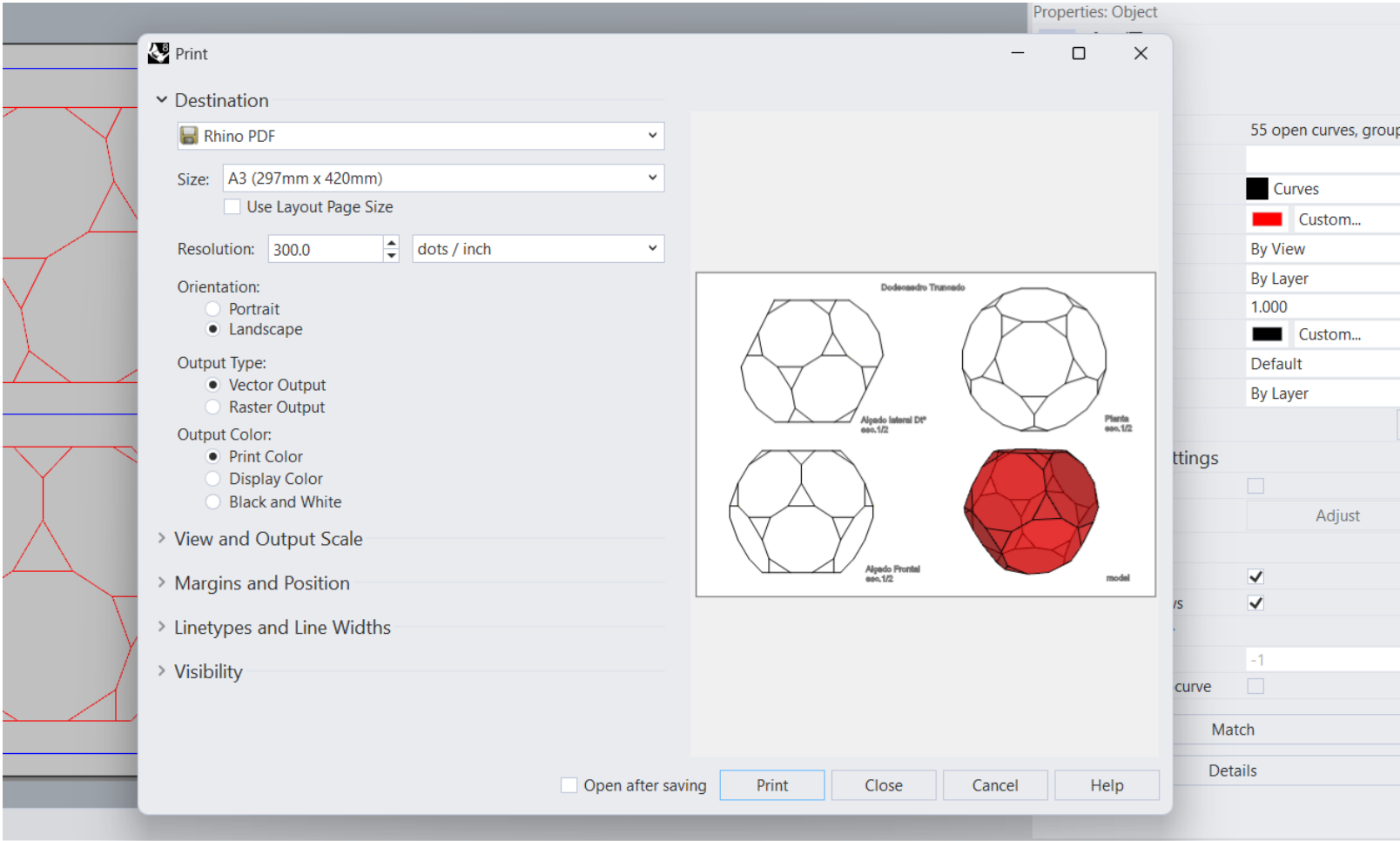
Acerto da escala para 1/2

Aula 5- Layouts no Rhino

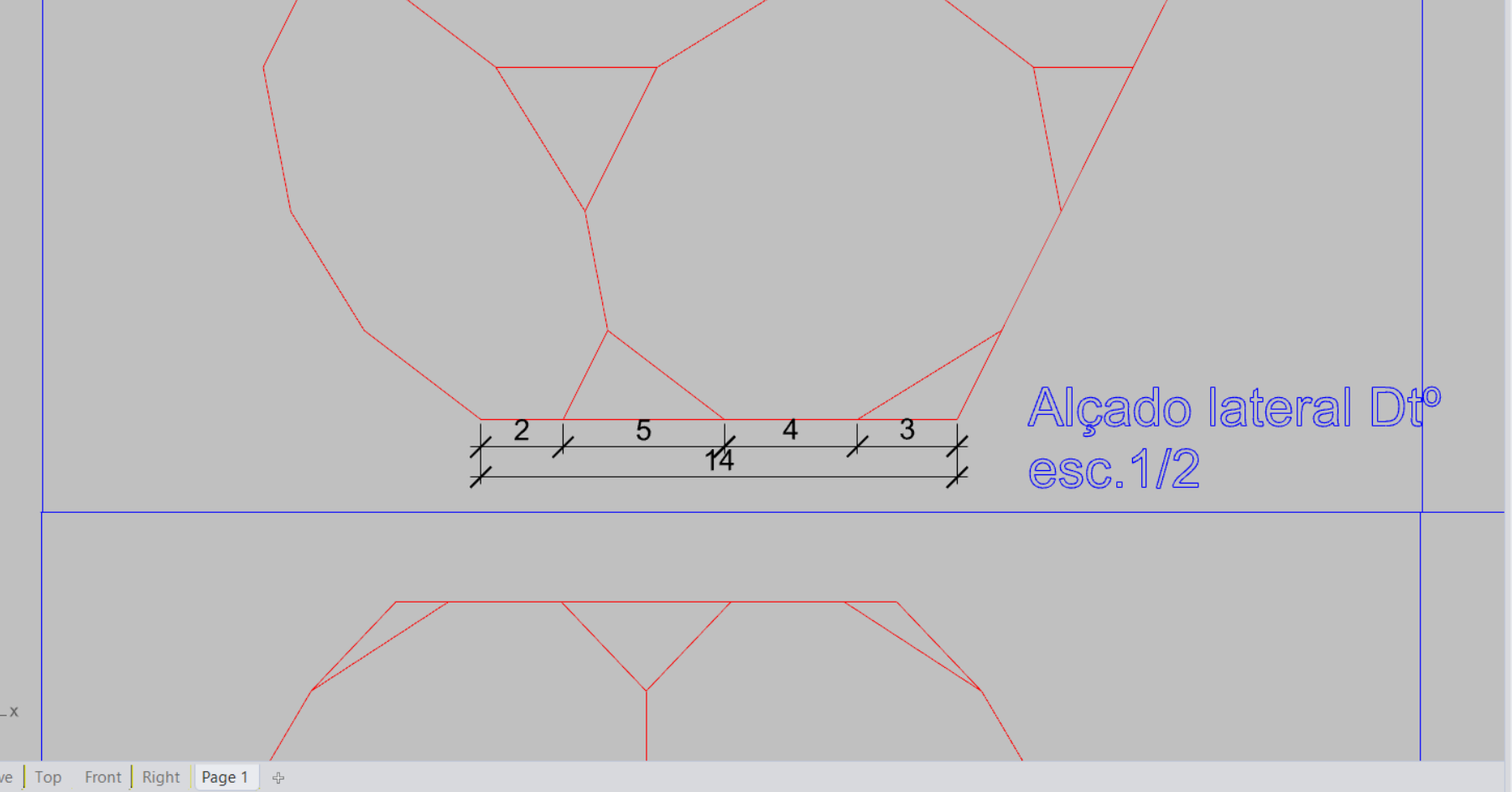


Layers usadas

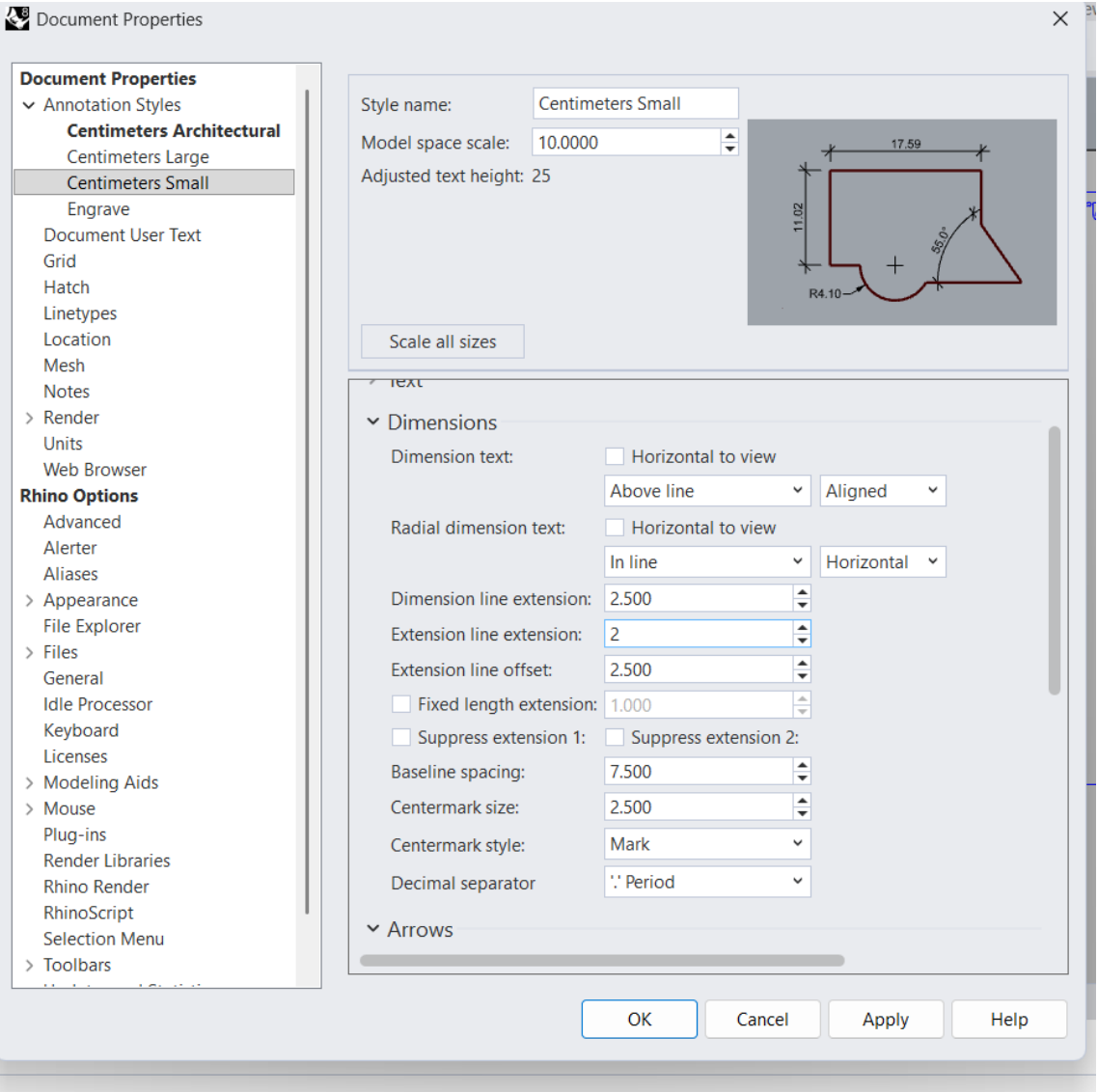
Criação de janelas com Detail



Fomos a Print para editar a página para imprimir



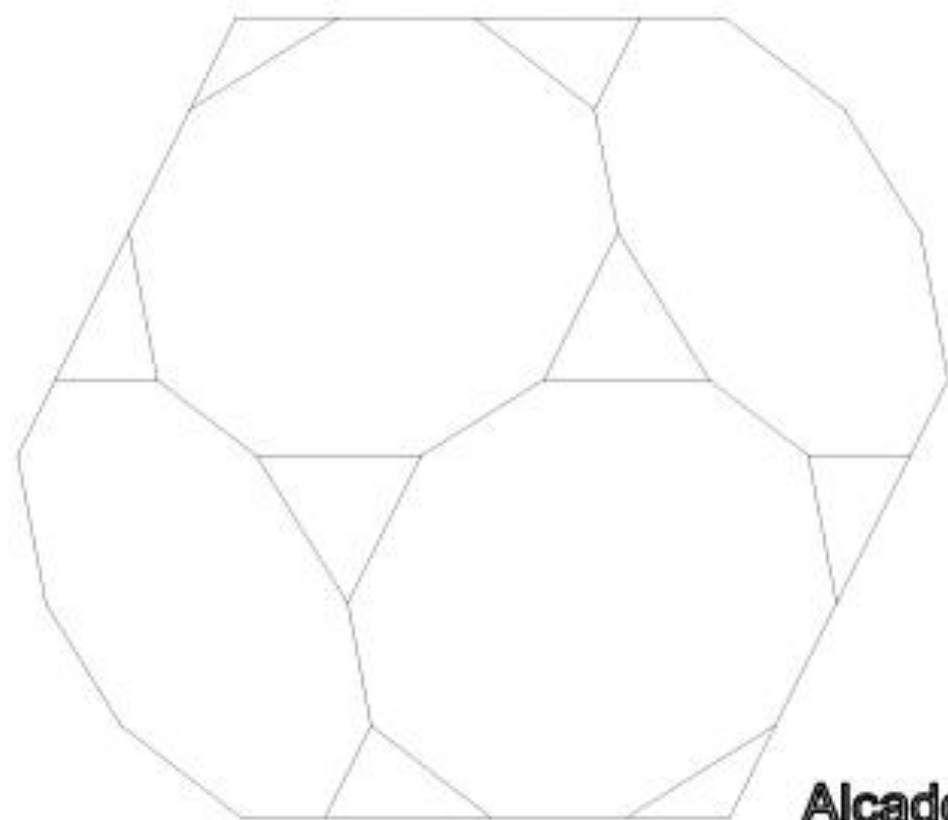
Cotas



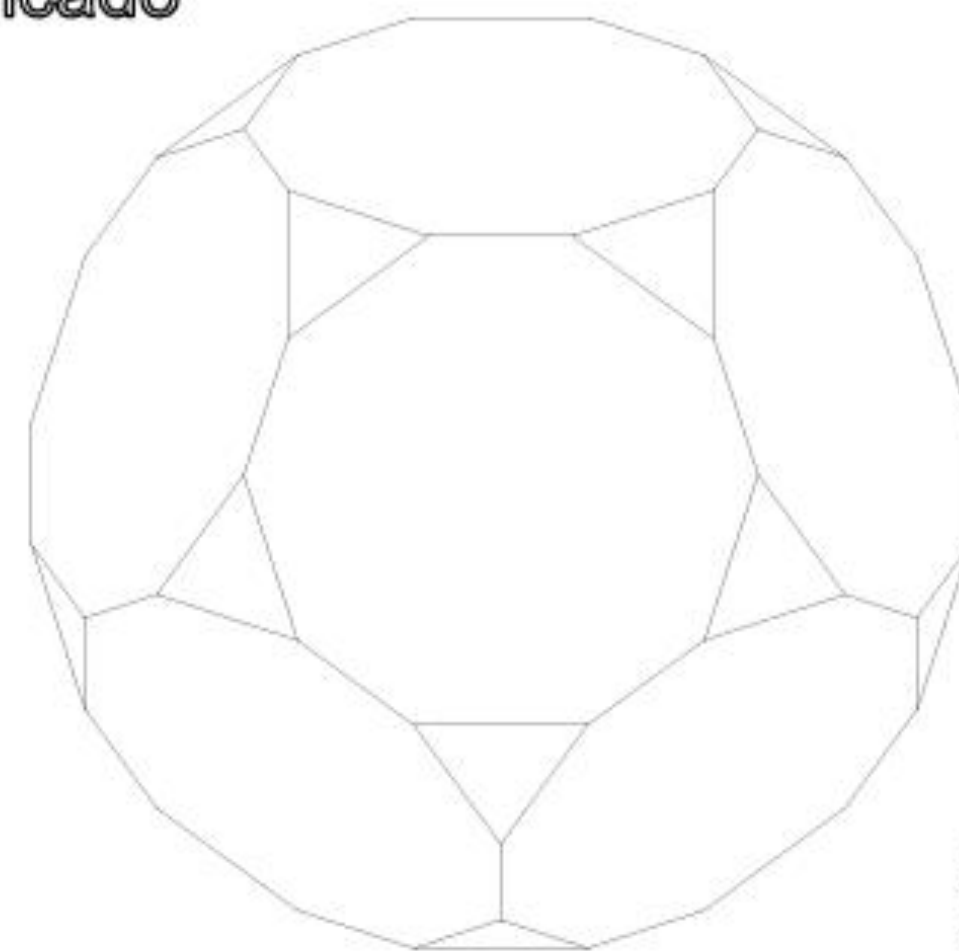
Edição da representação das cotas

Aula 5- Layouts no Rhino

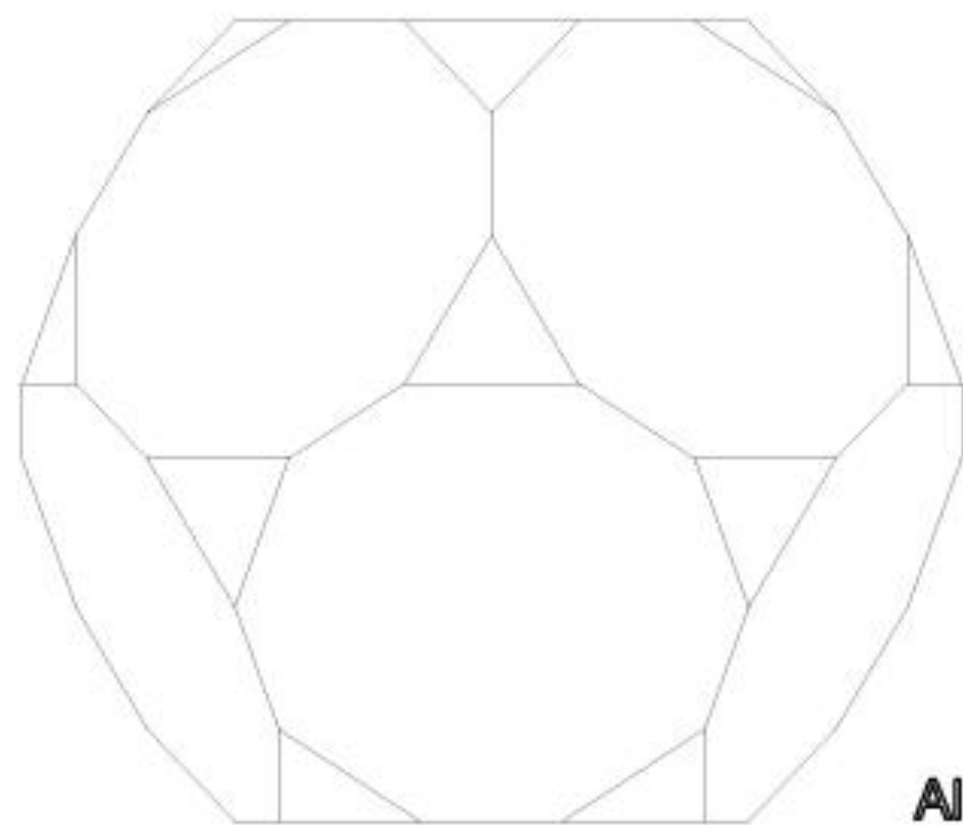
Dodecaedro Truncado



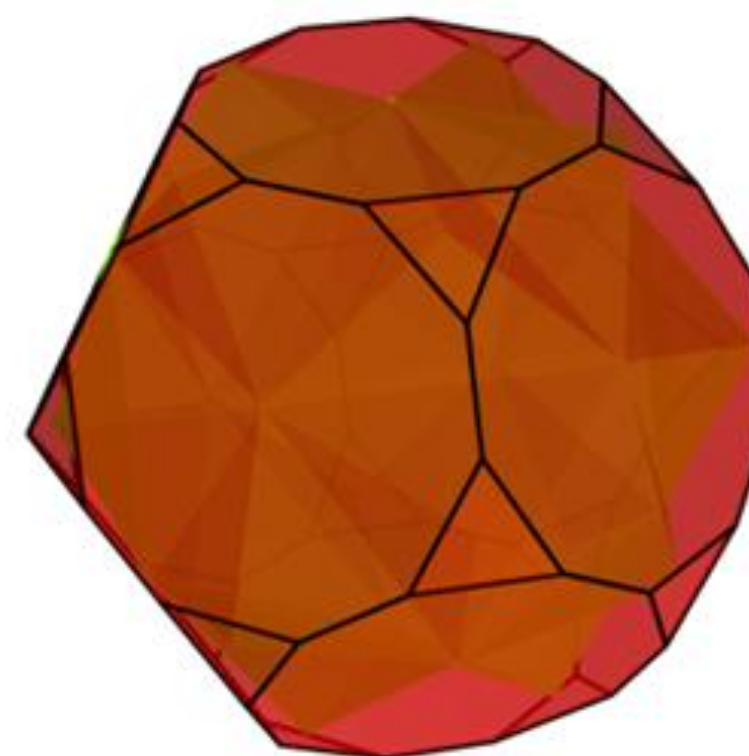
Alçado lateral Dtº
esc.1/2



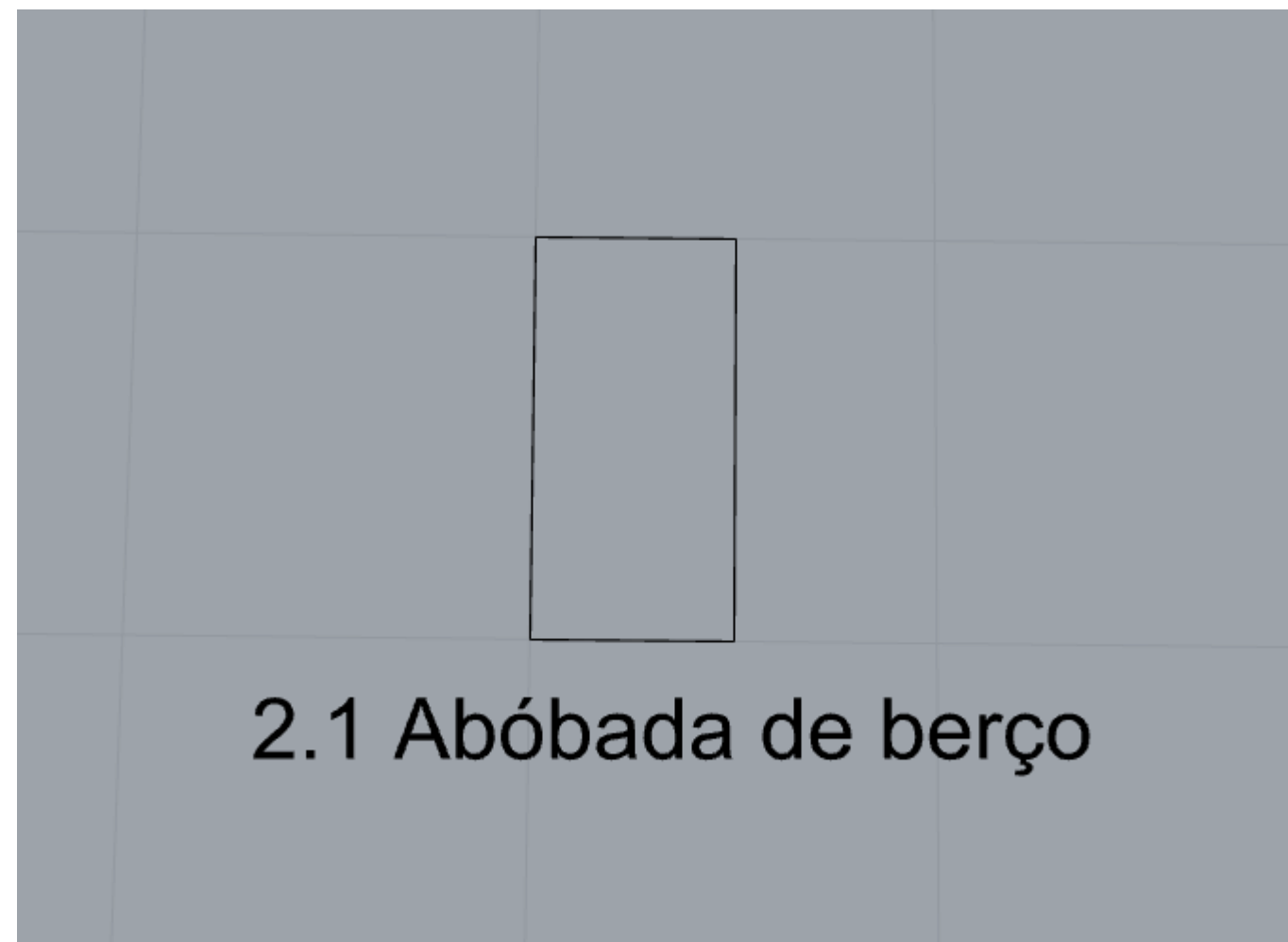
Planta
esc.1/2



Alçado Frontal
esc.1/2

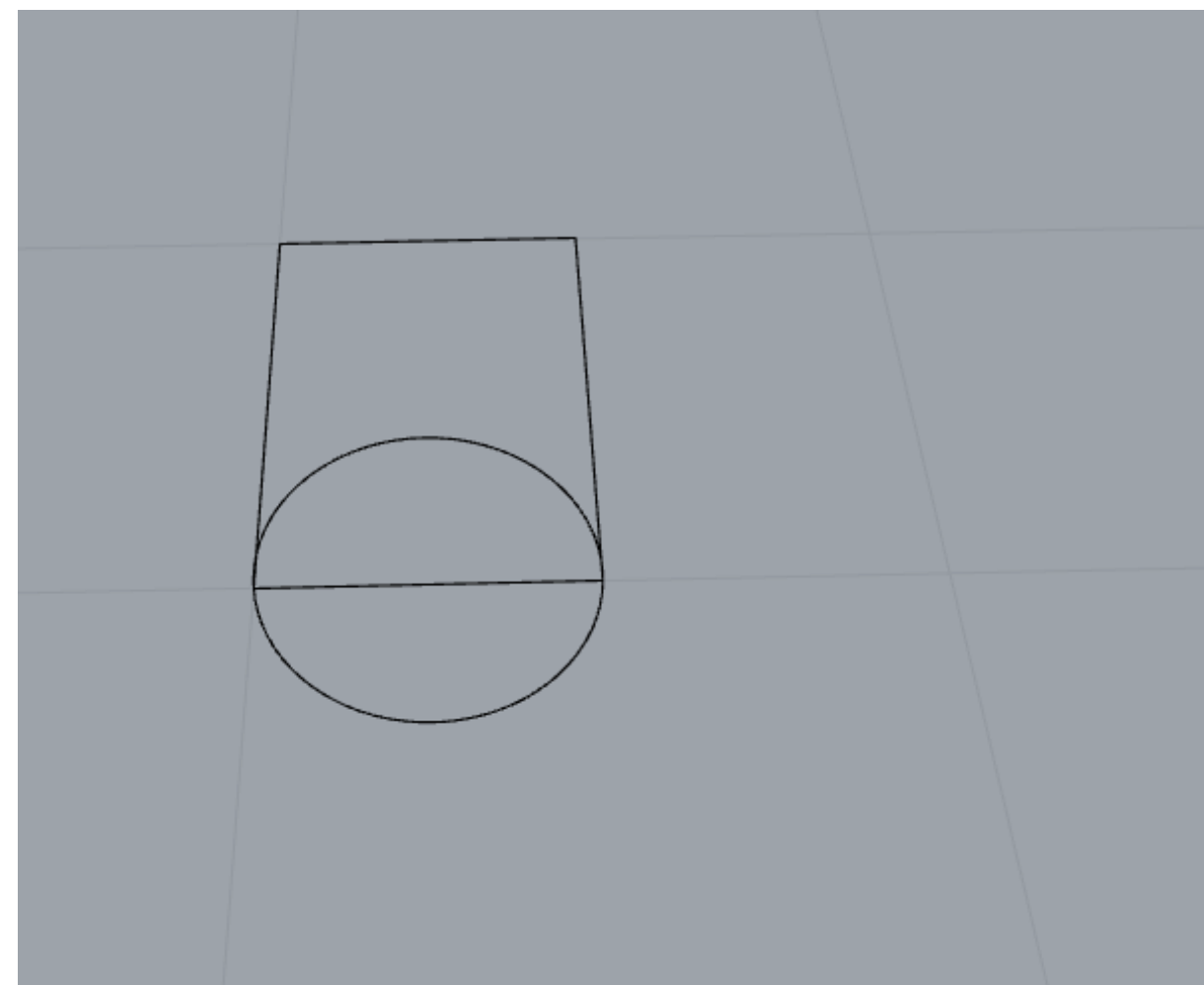


model

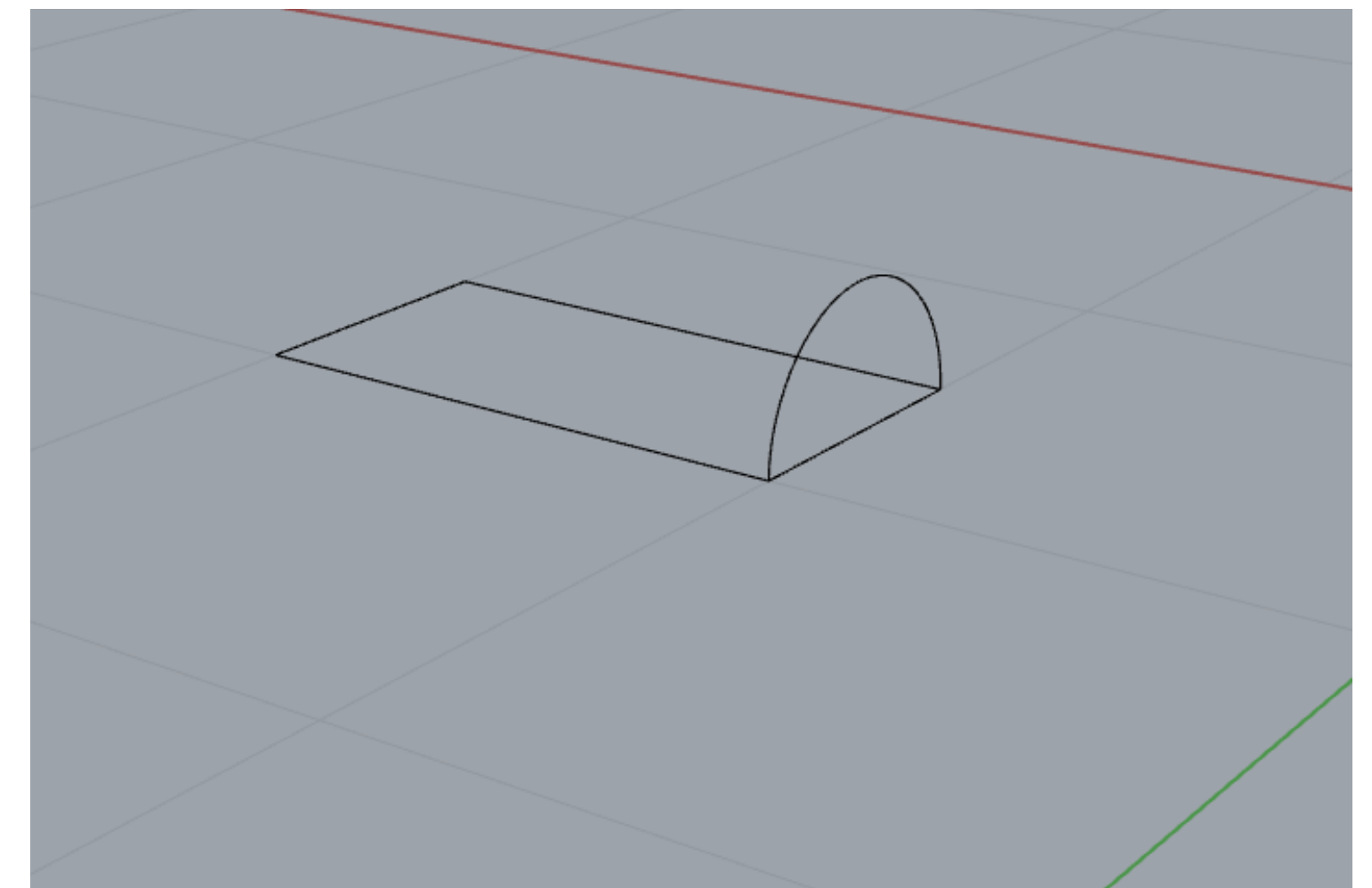


2.1 Abóbada de berço

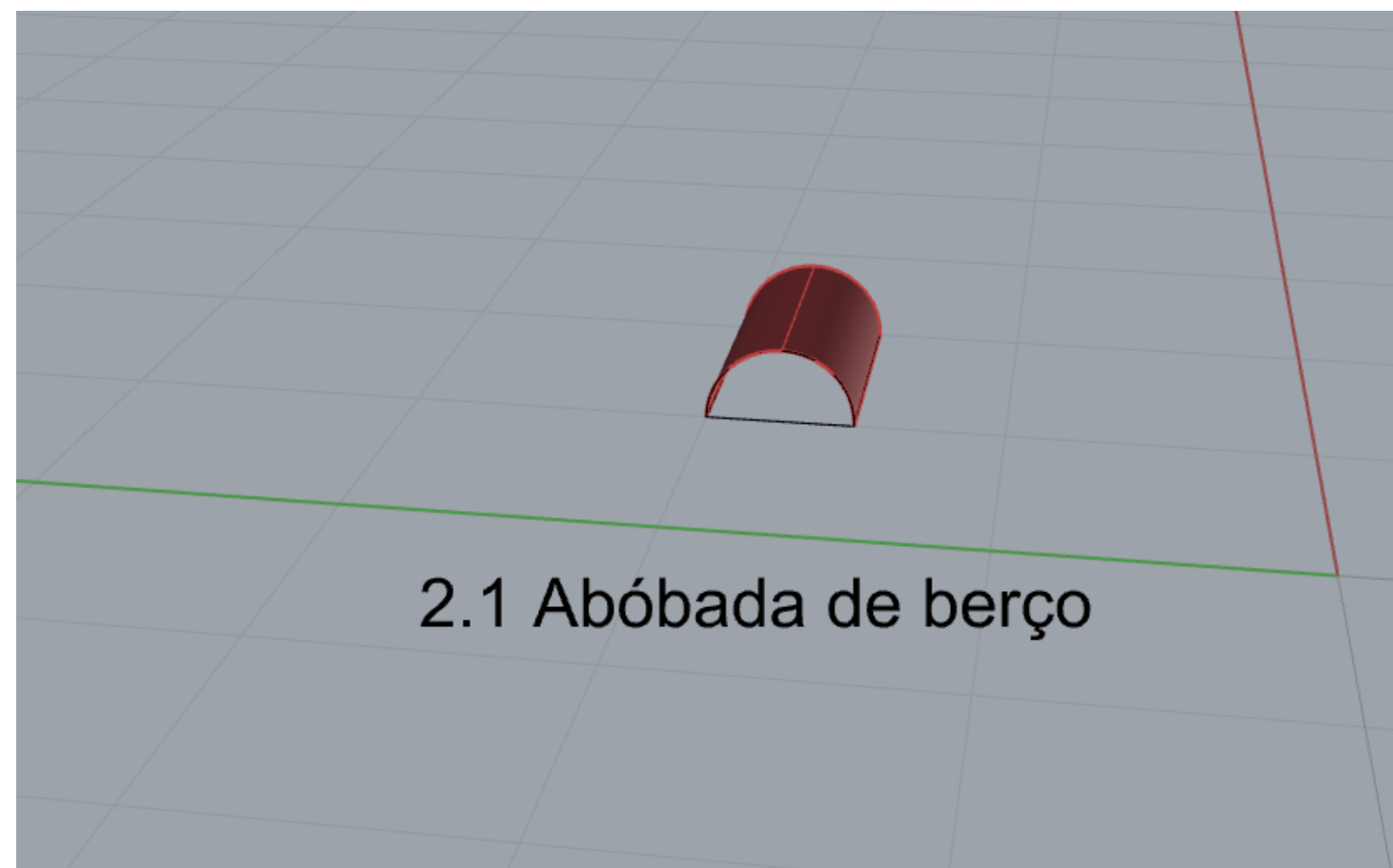
Comando Rectangle



Circunferência de 2 pontos o diâmetro é a aresta

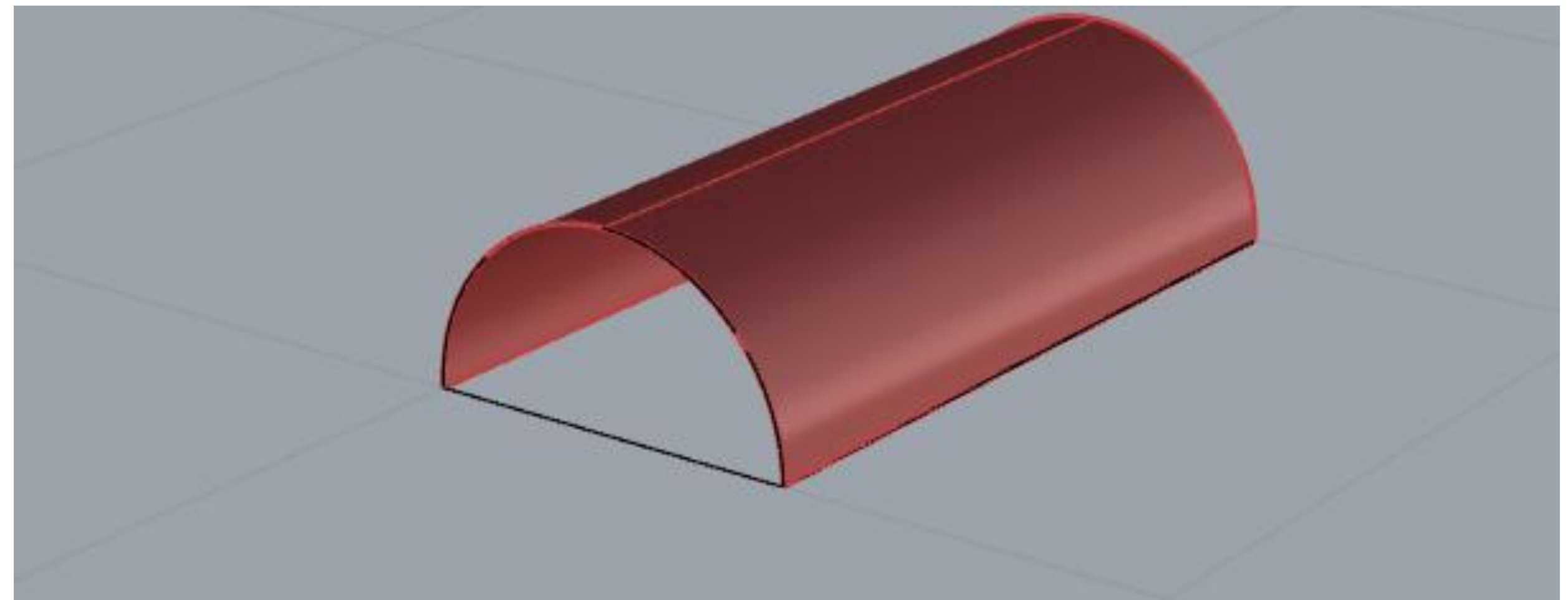


Usei o Trim para ter só meia circunferência



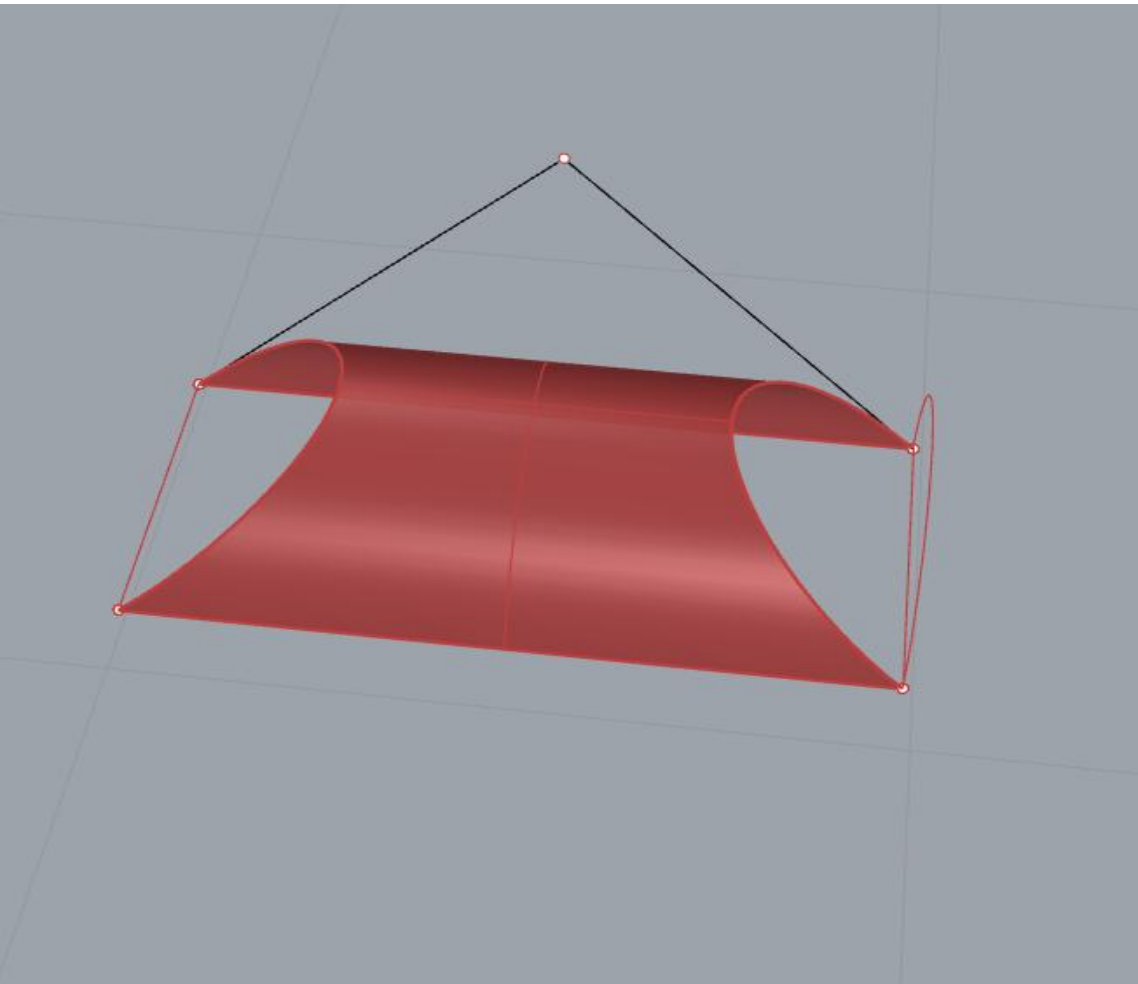
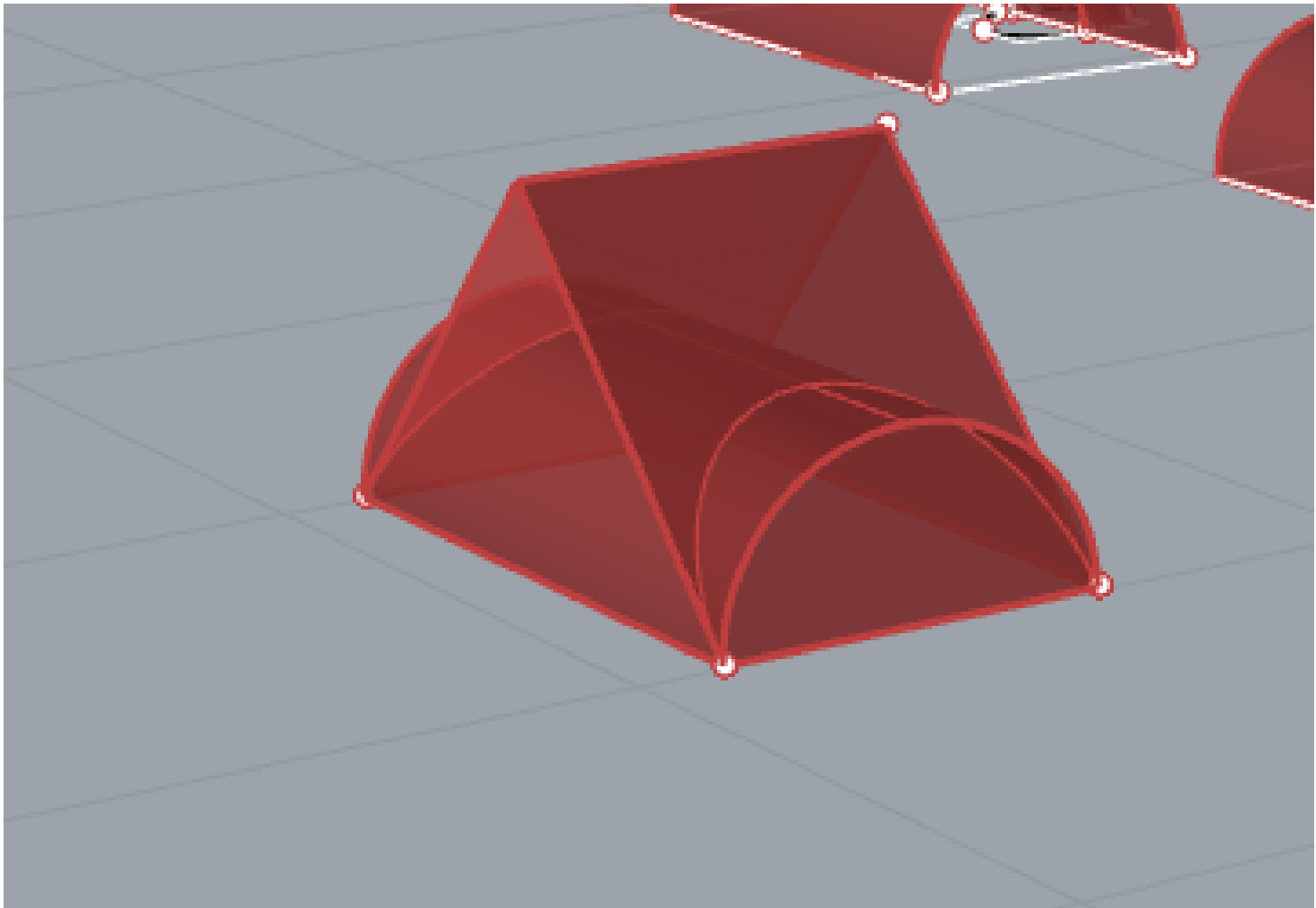
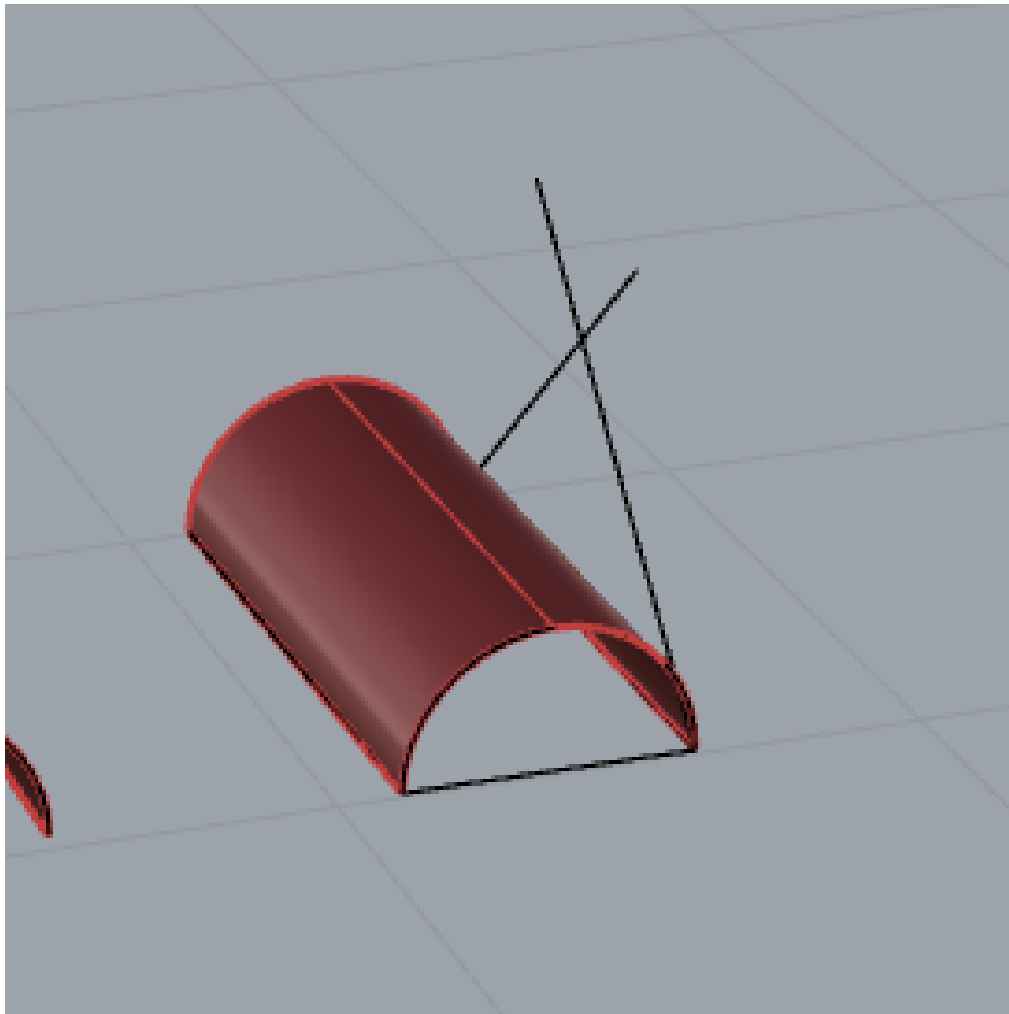
2.1 Abóbada de berço

Extrude



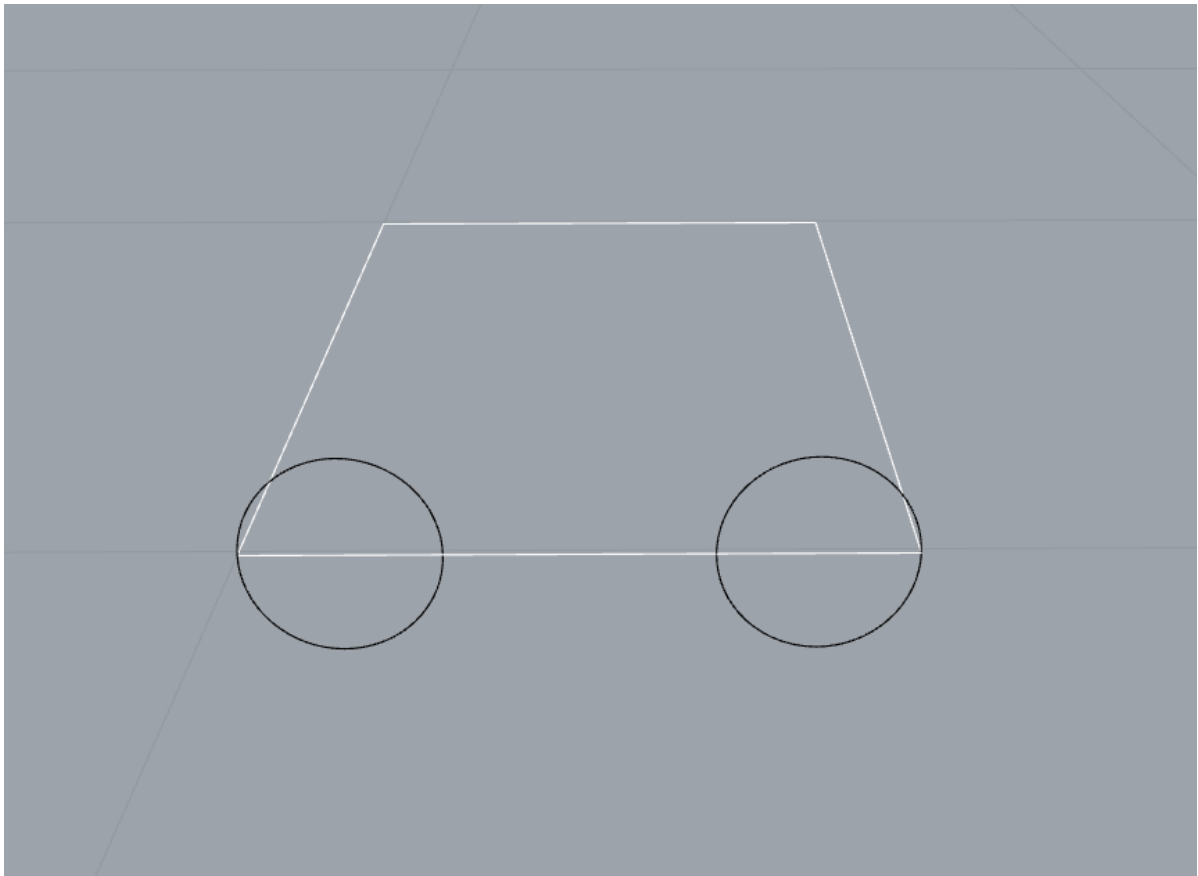
Aula 6- Construção de Abóbadas

Abóbada de Cisterna

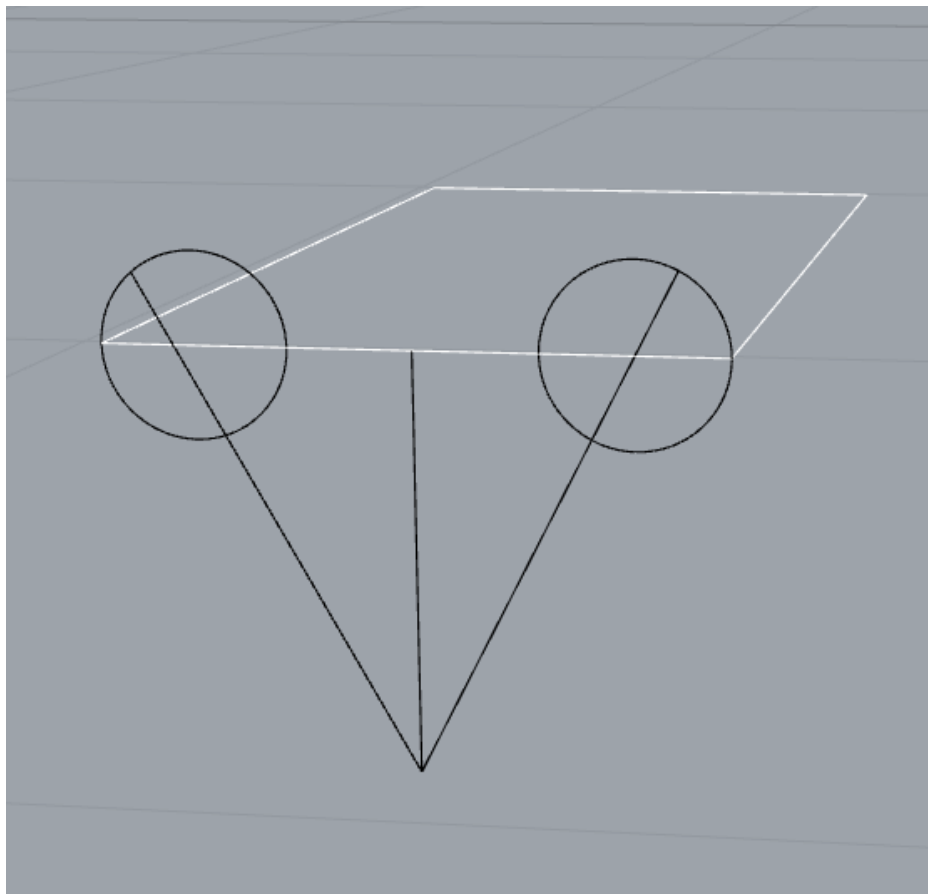


Copy da abóbada de berço e duas Lines a 45° Dar Copy nas linhas e fazer do outro lado e dar Extrude Trim das partes em excesso

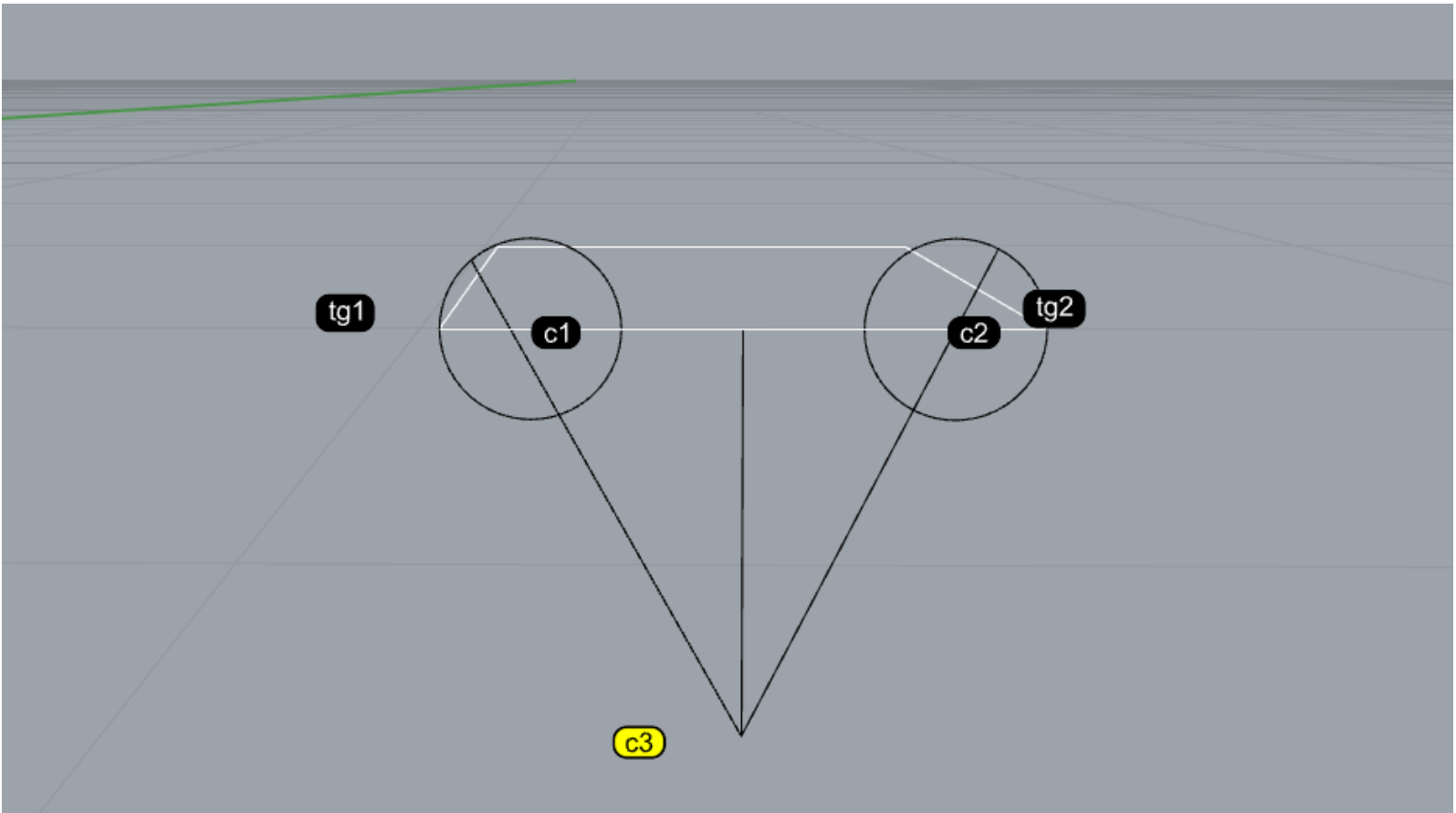
Abóbada Abatida



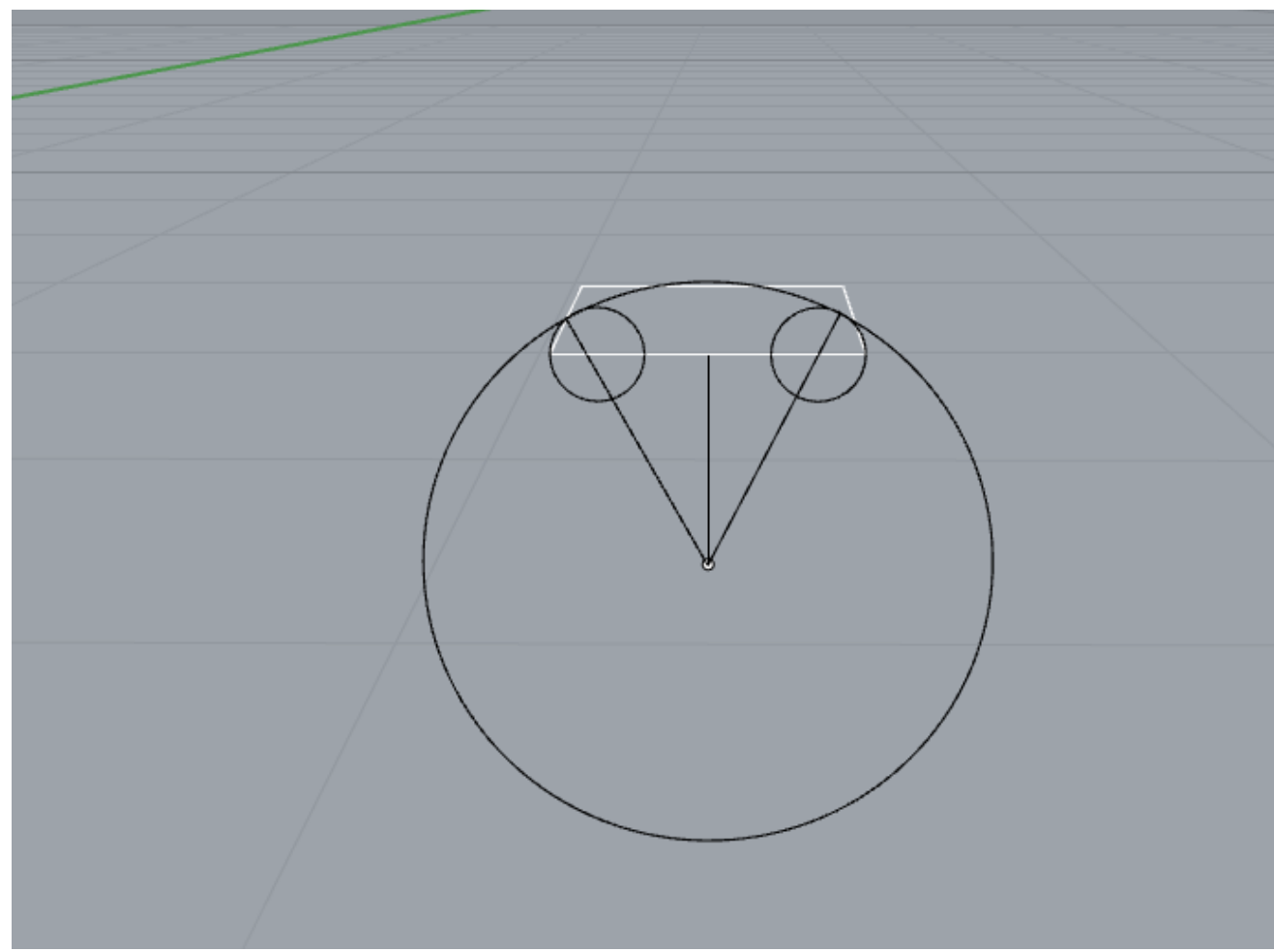
Rectangle e dois círculos nos vértices



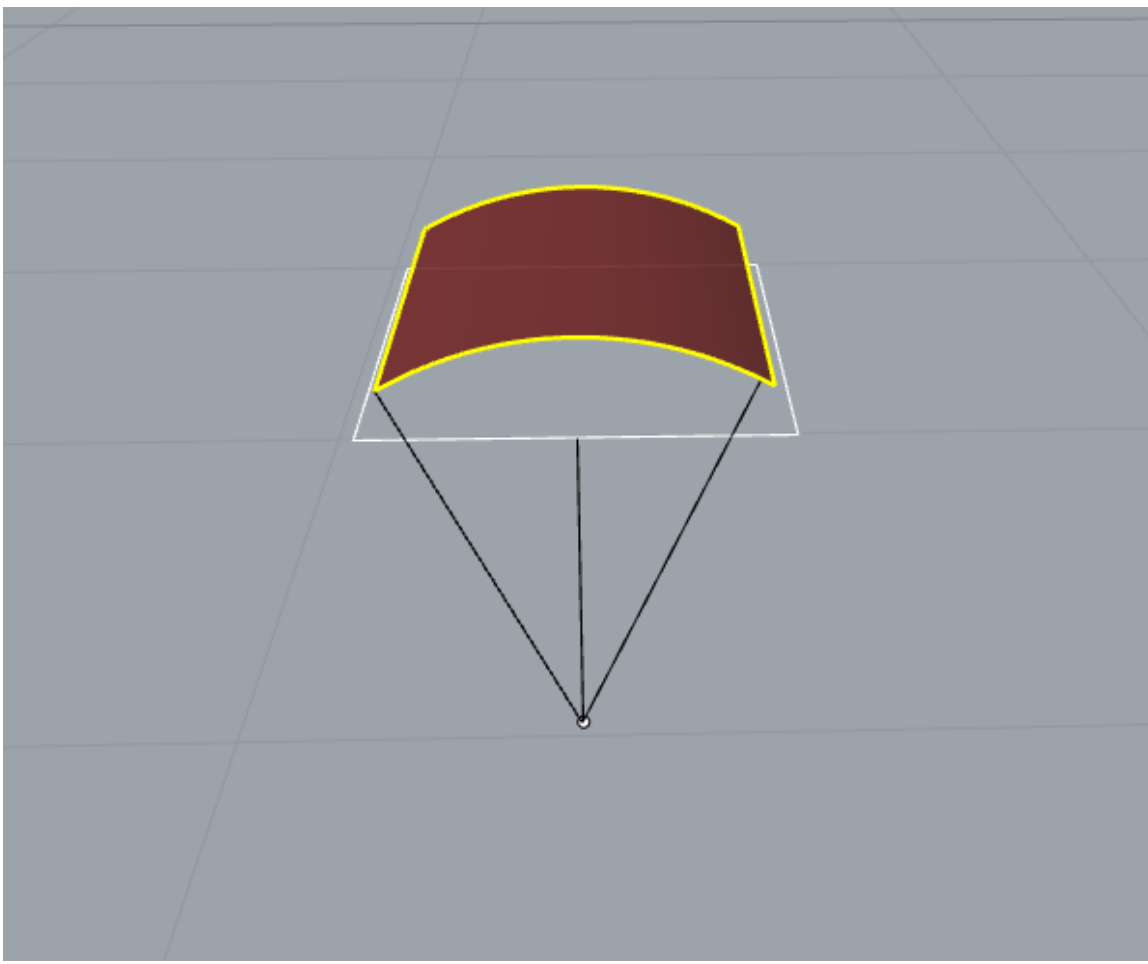
Duas Lines a vir dos círculos a formar um triângulo e uma a passar pelo meio do triângulo



Aula 6- Construção de Abóbadas

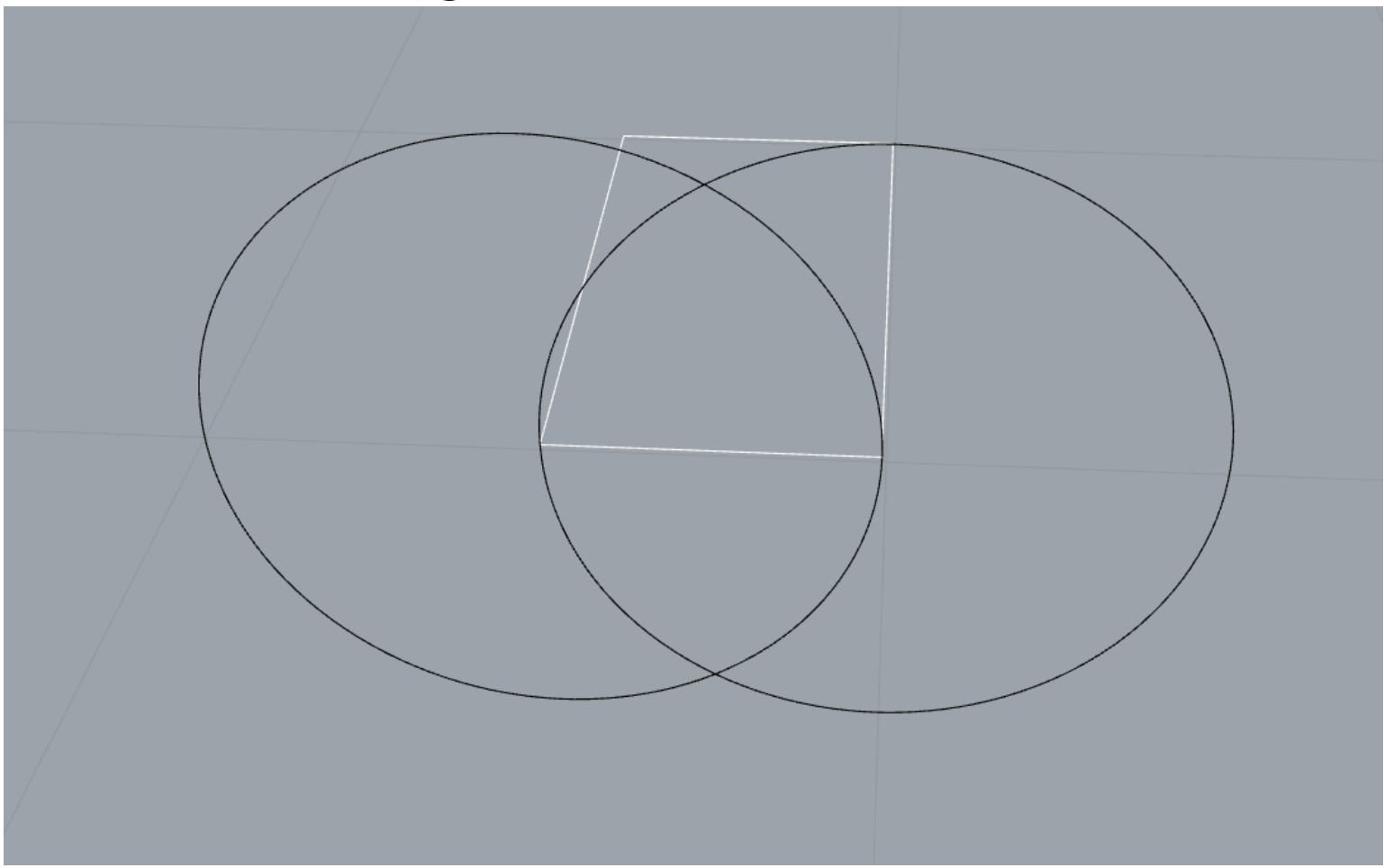


Outro círculo com centro no vértice do triângulo

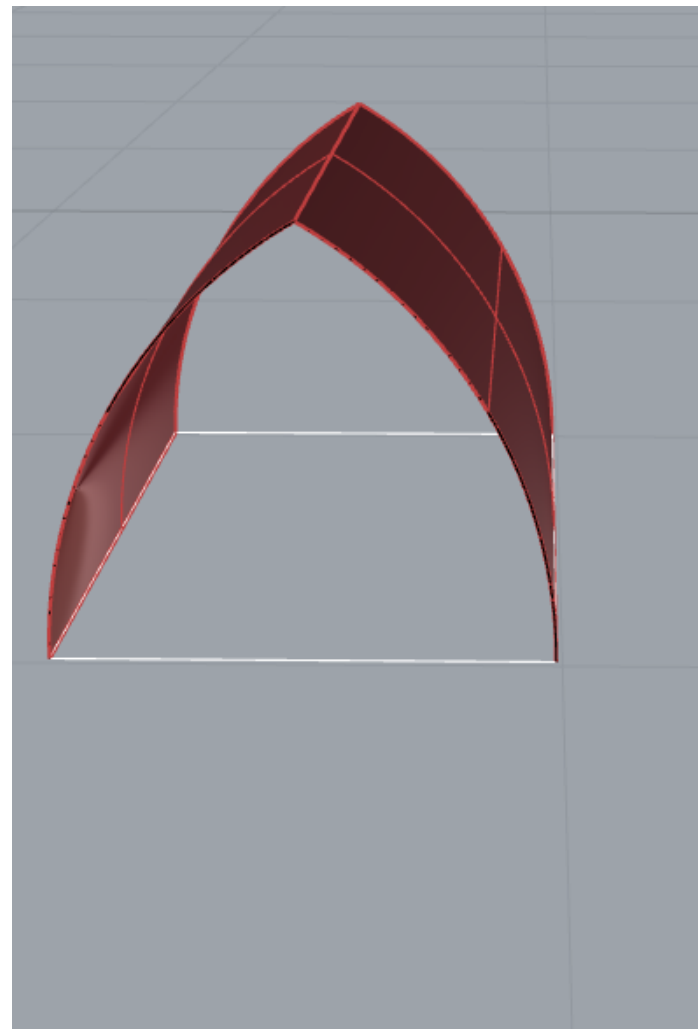


Trim e Extrude

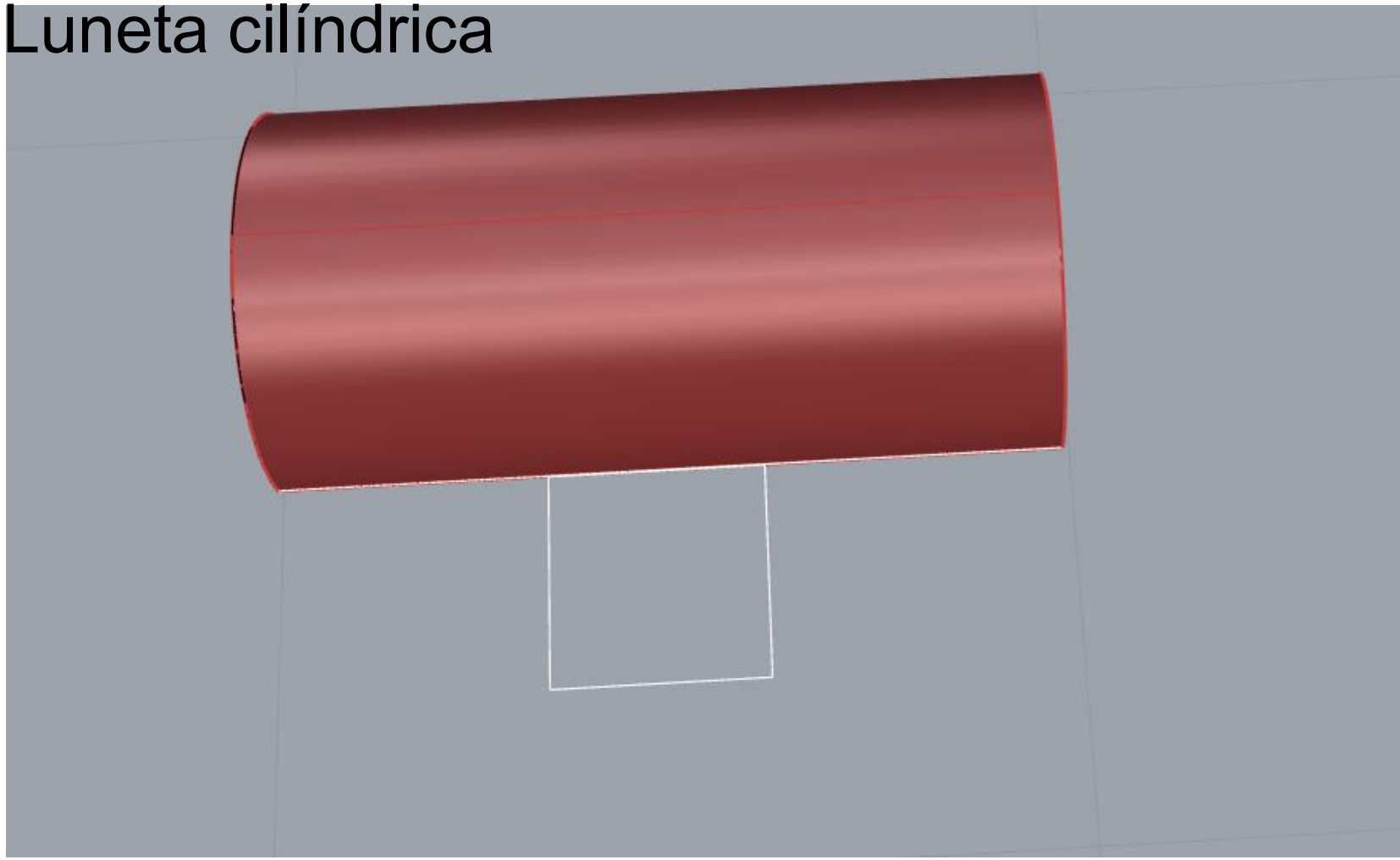
Abóbada de ogivas



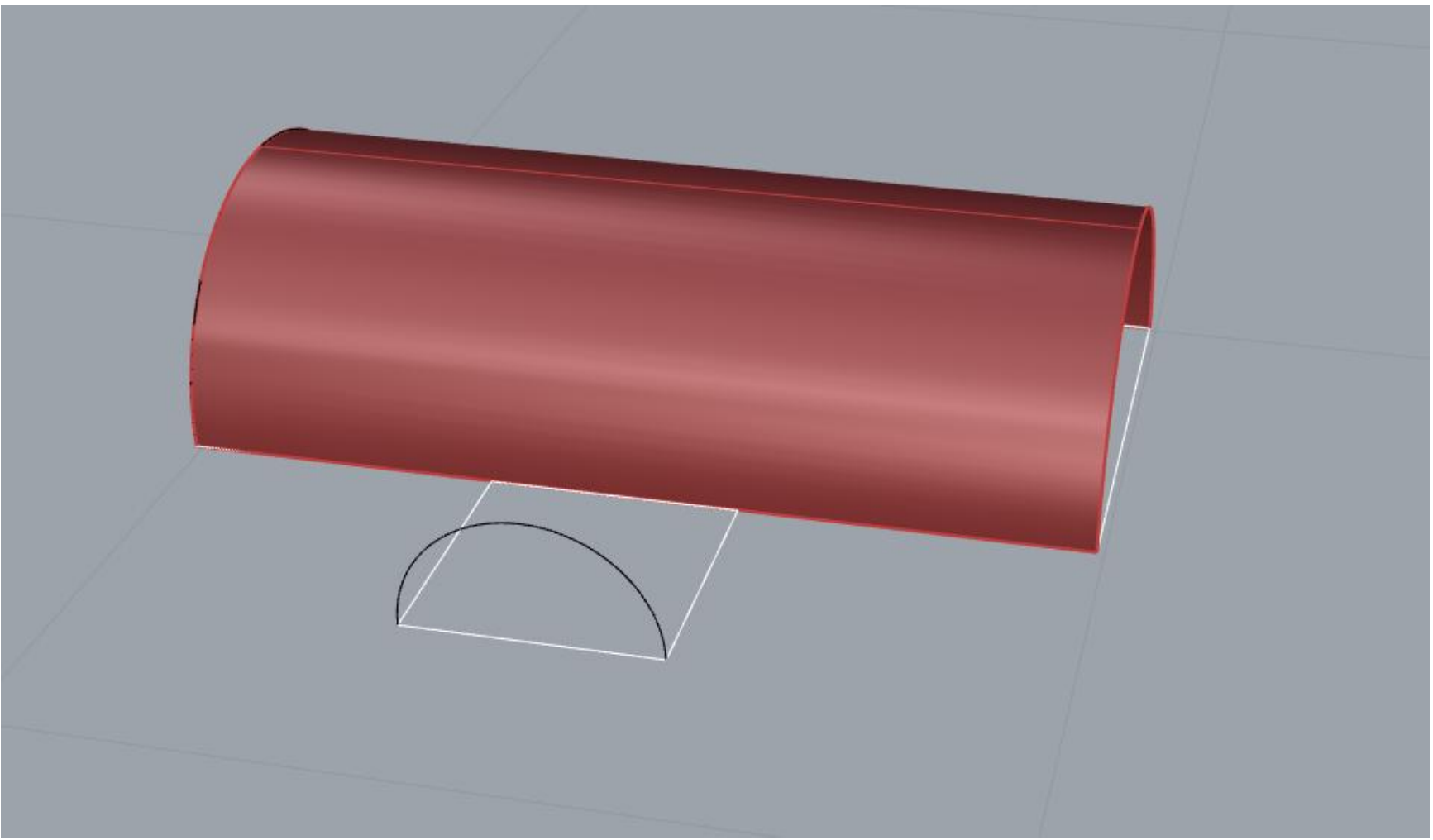
Rectangle com dois círculos iguais a intercetarem



Trim e Extrude

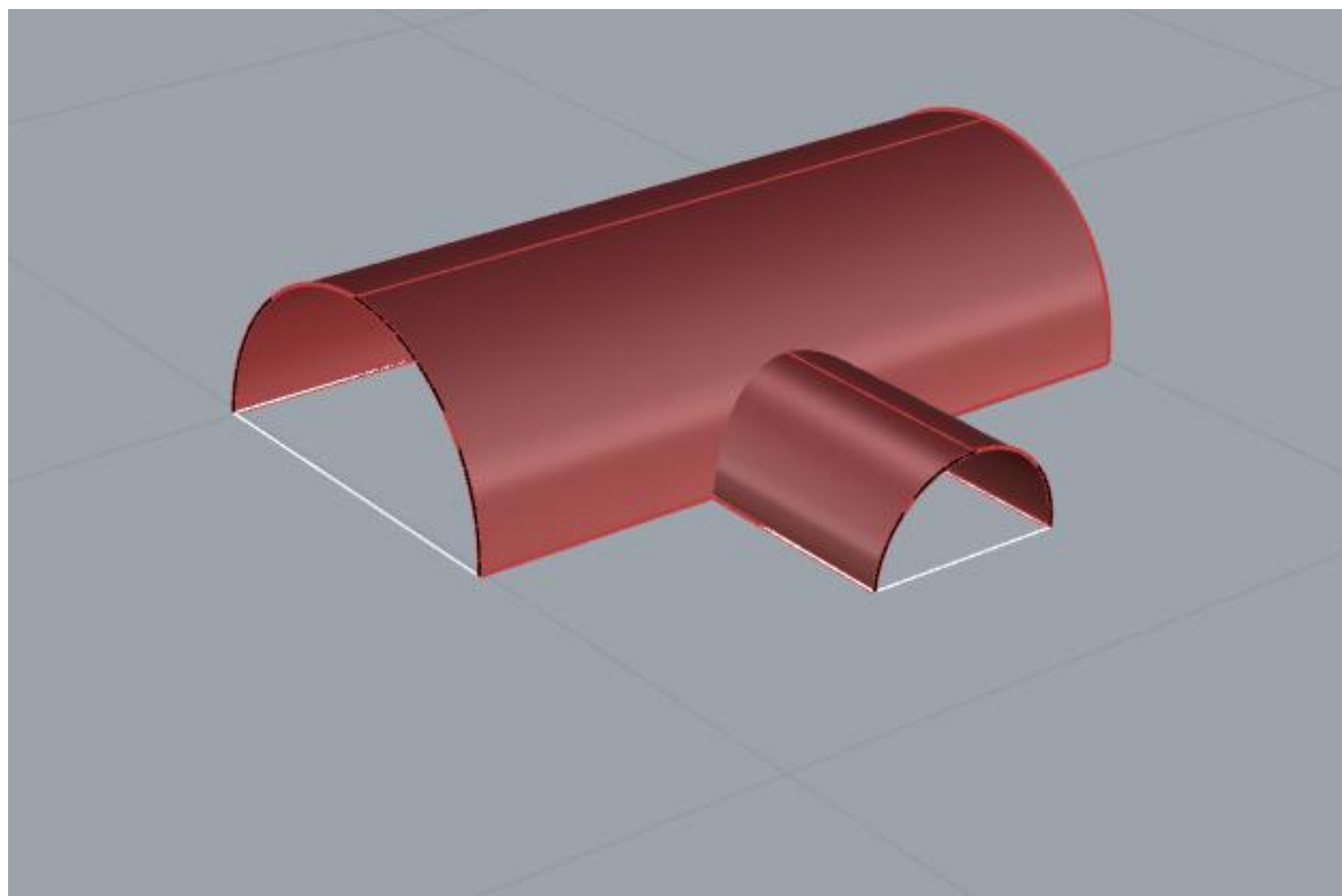


Quadrado junto da abóbada de berço



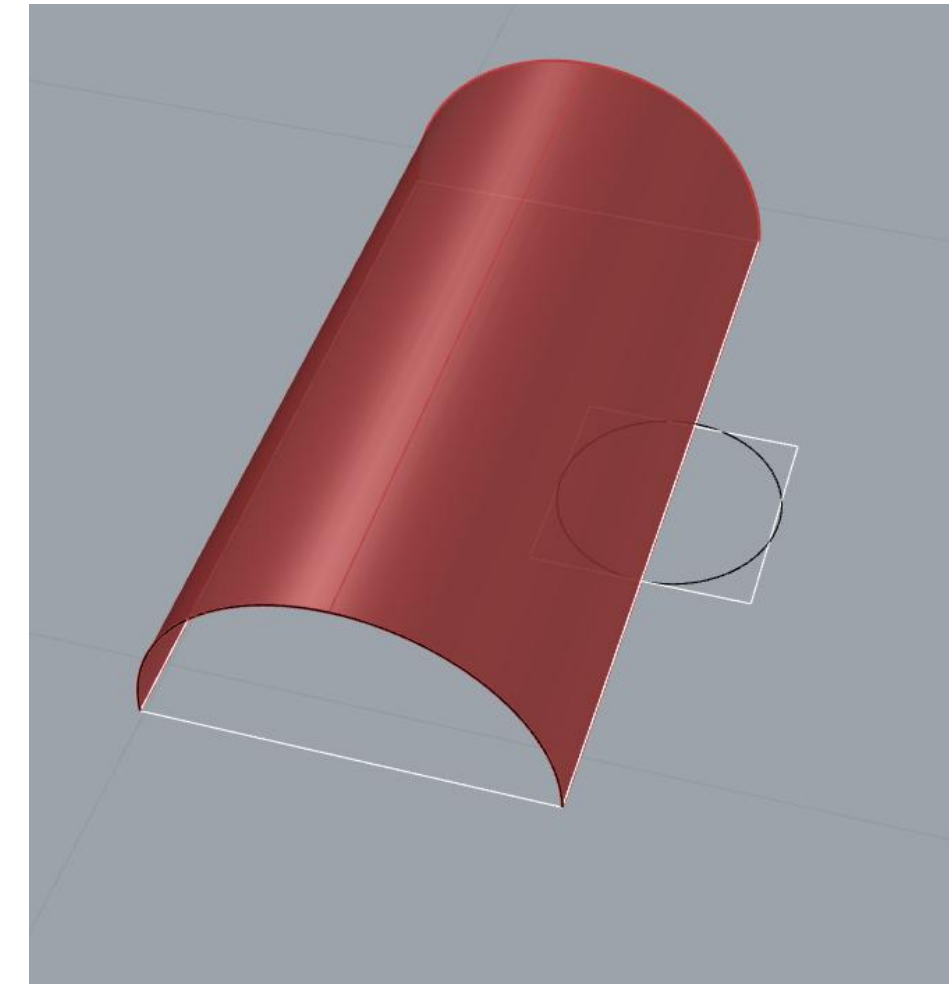
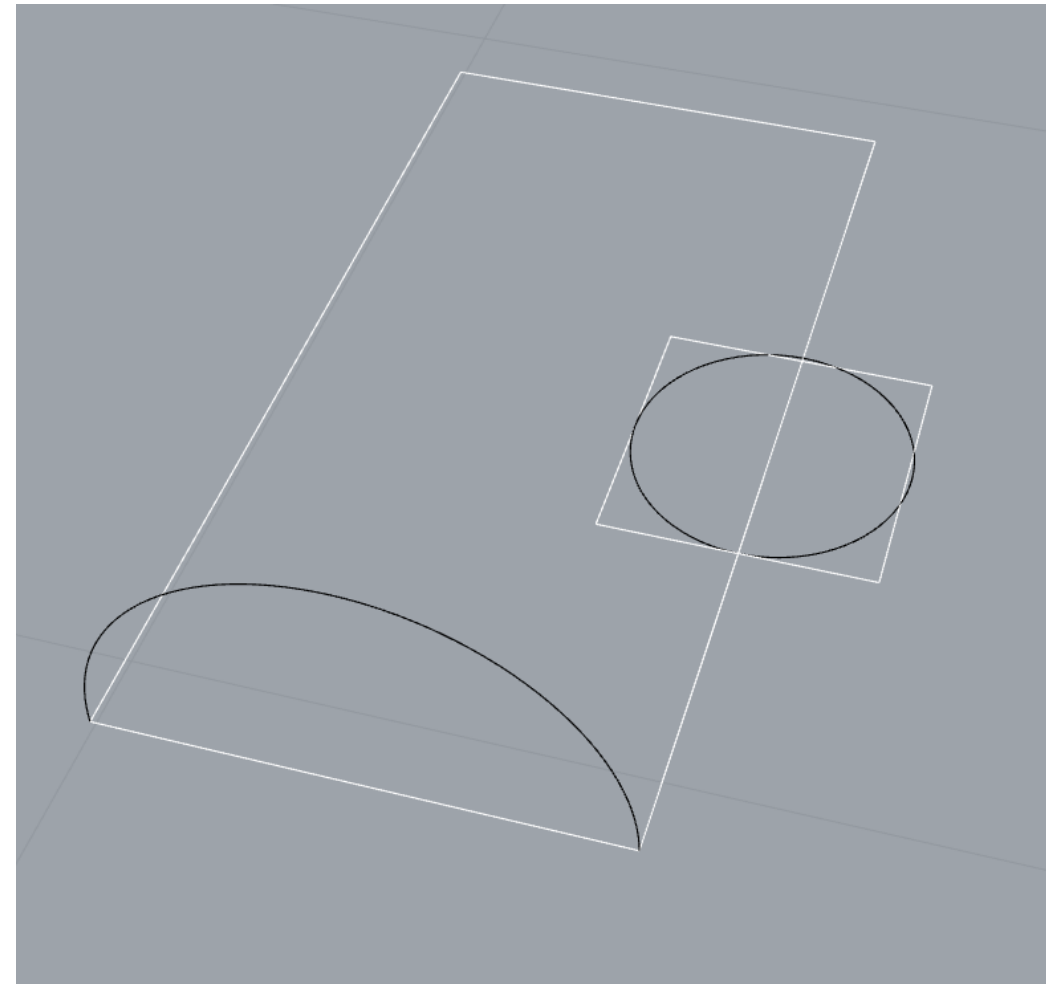
Meia circunferência feita por um círculo e o Trim

Aula 6- Construção de Abóbadas

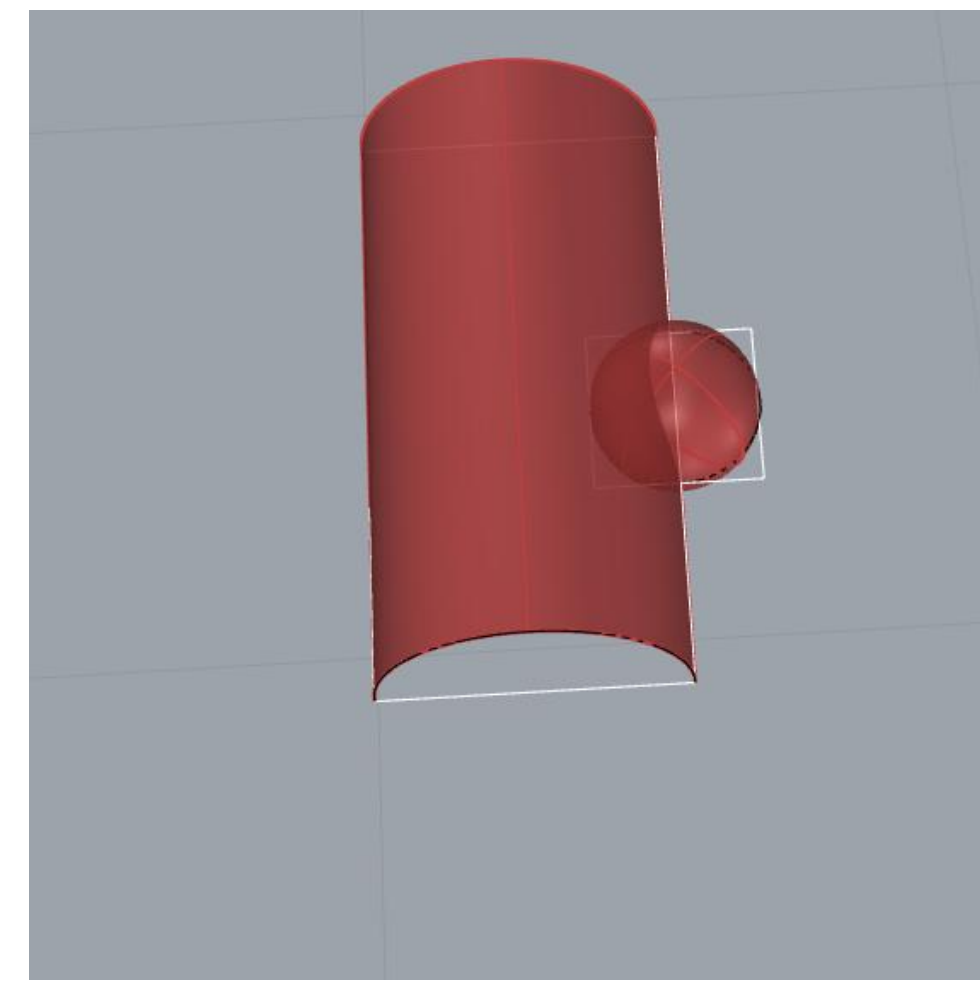


Extrude

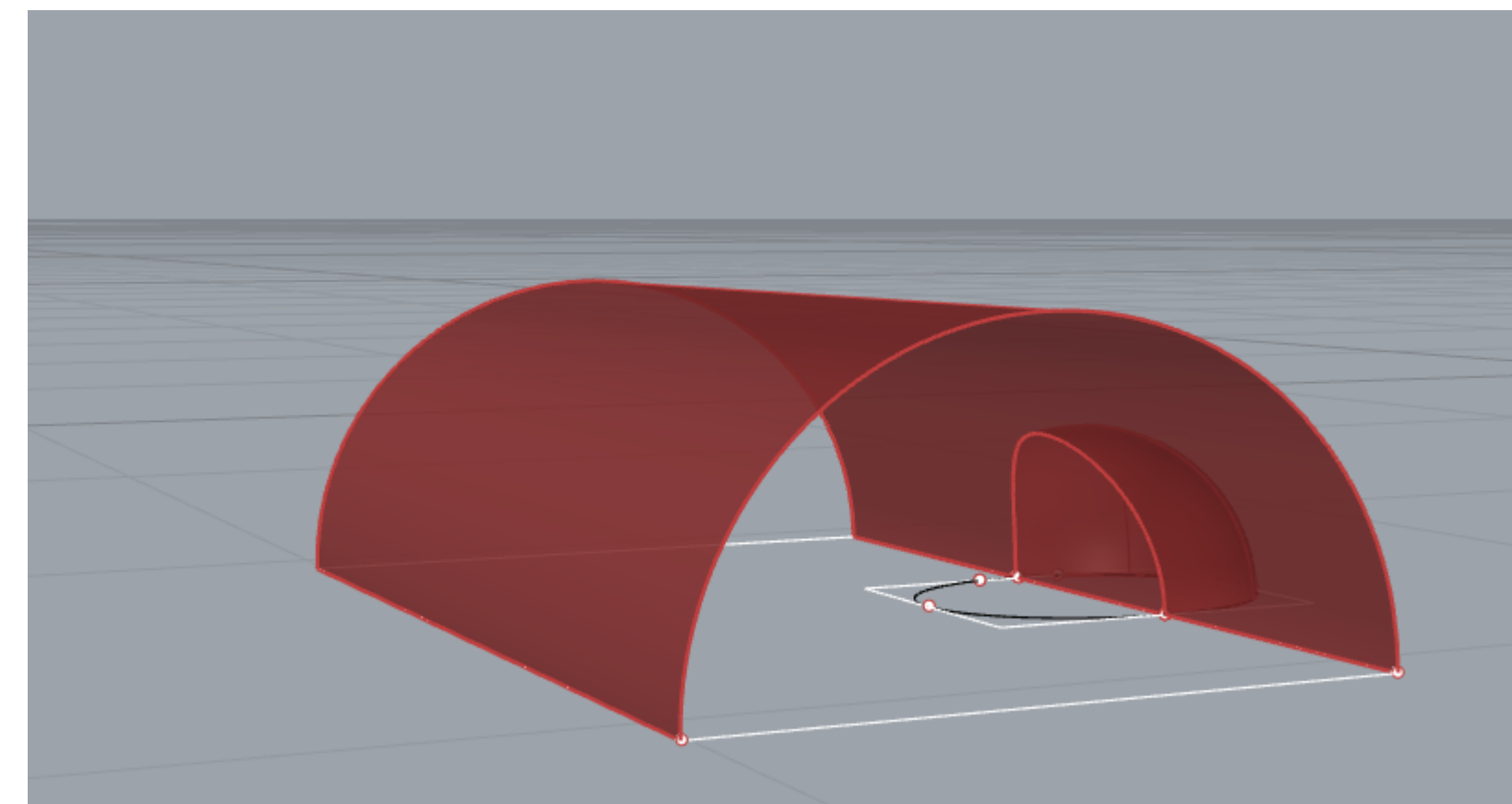
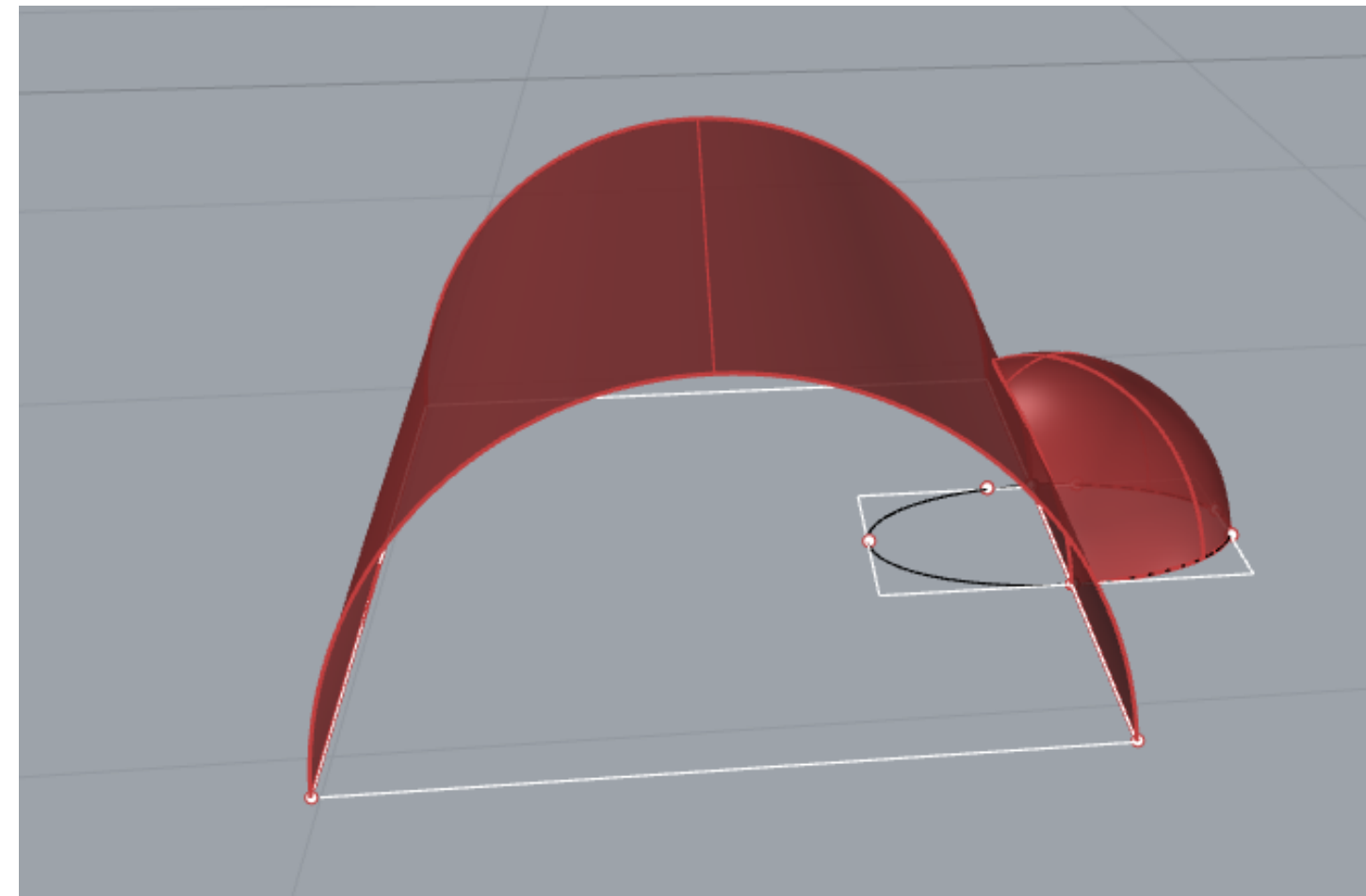
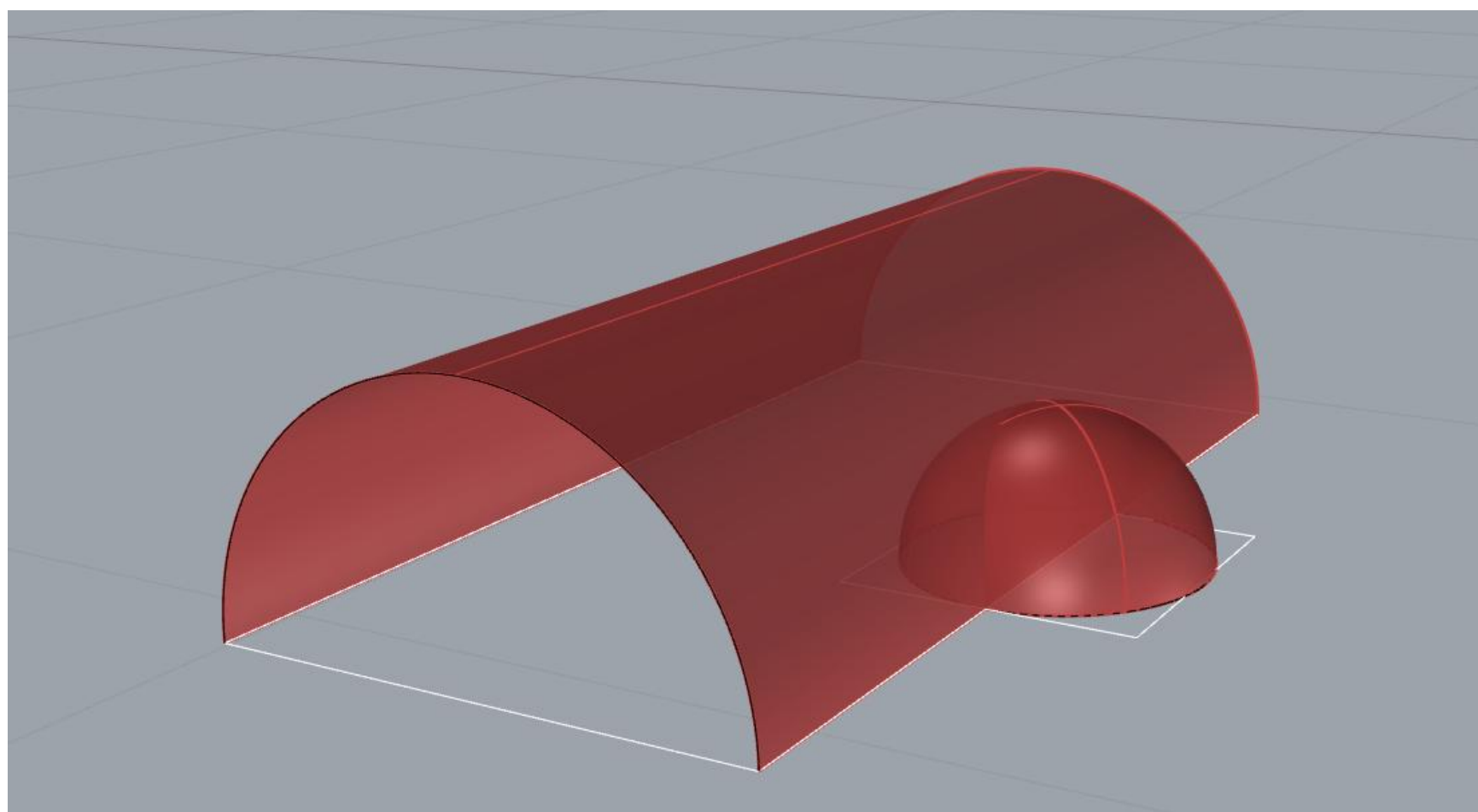
Luneta esférica



Sphere e Trim

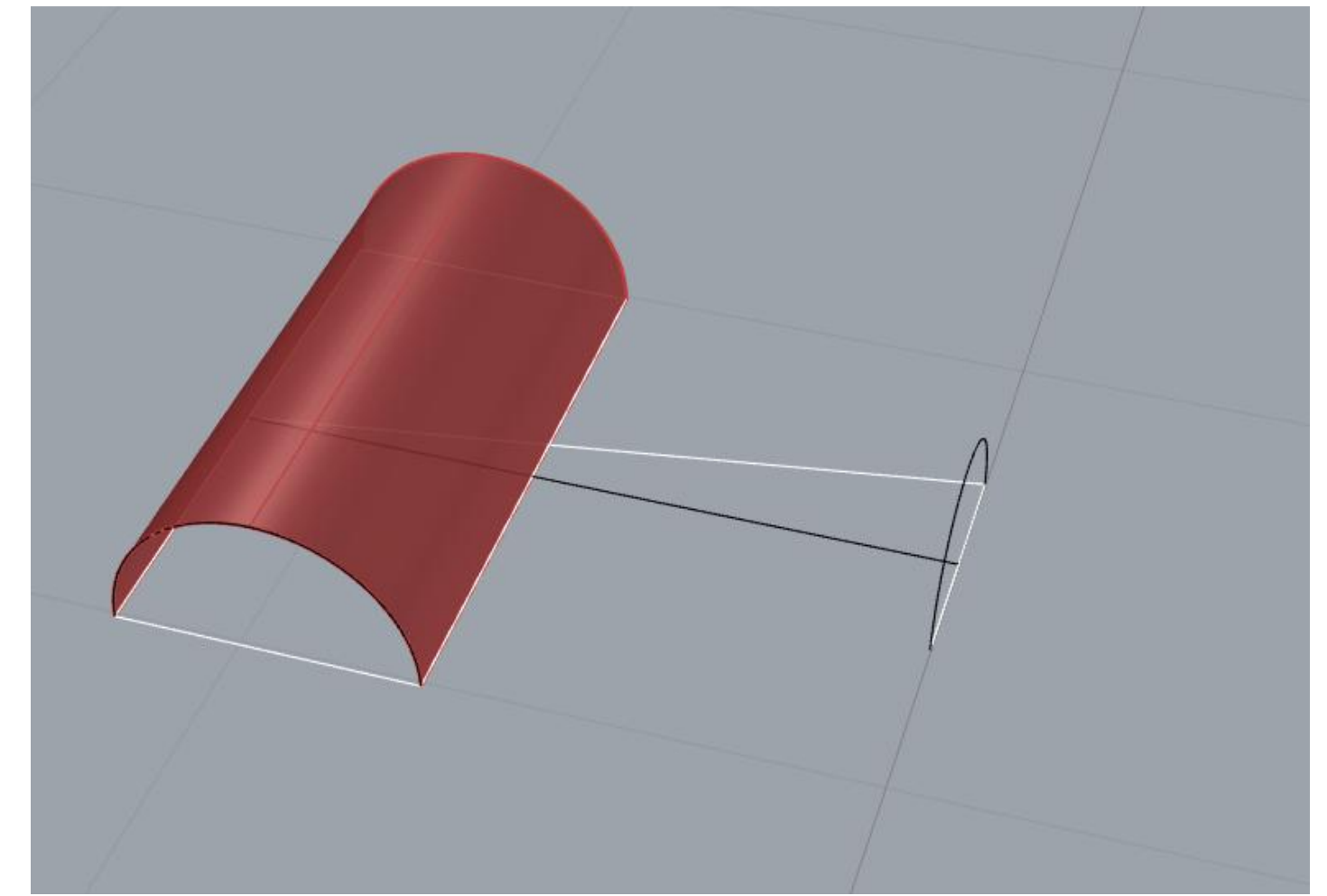
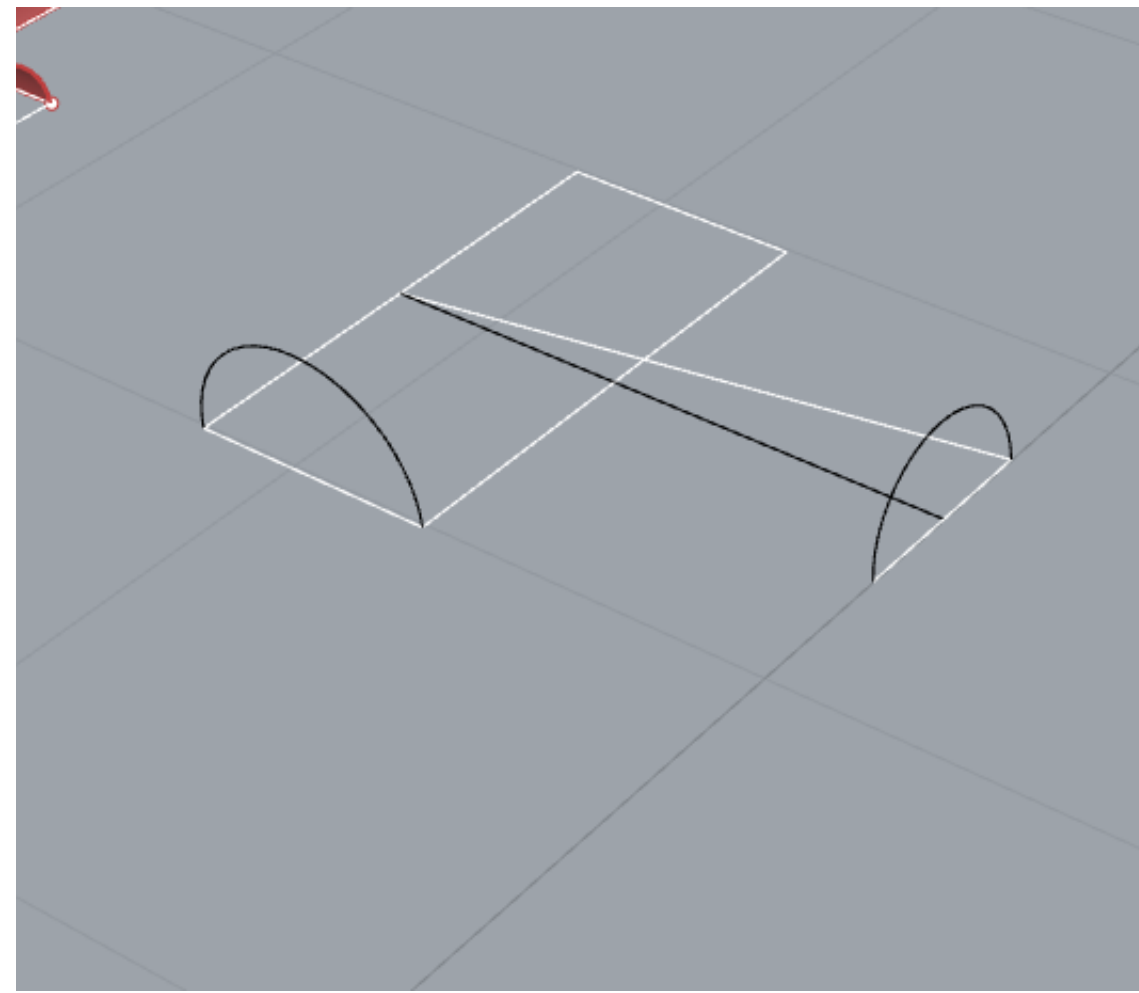
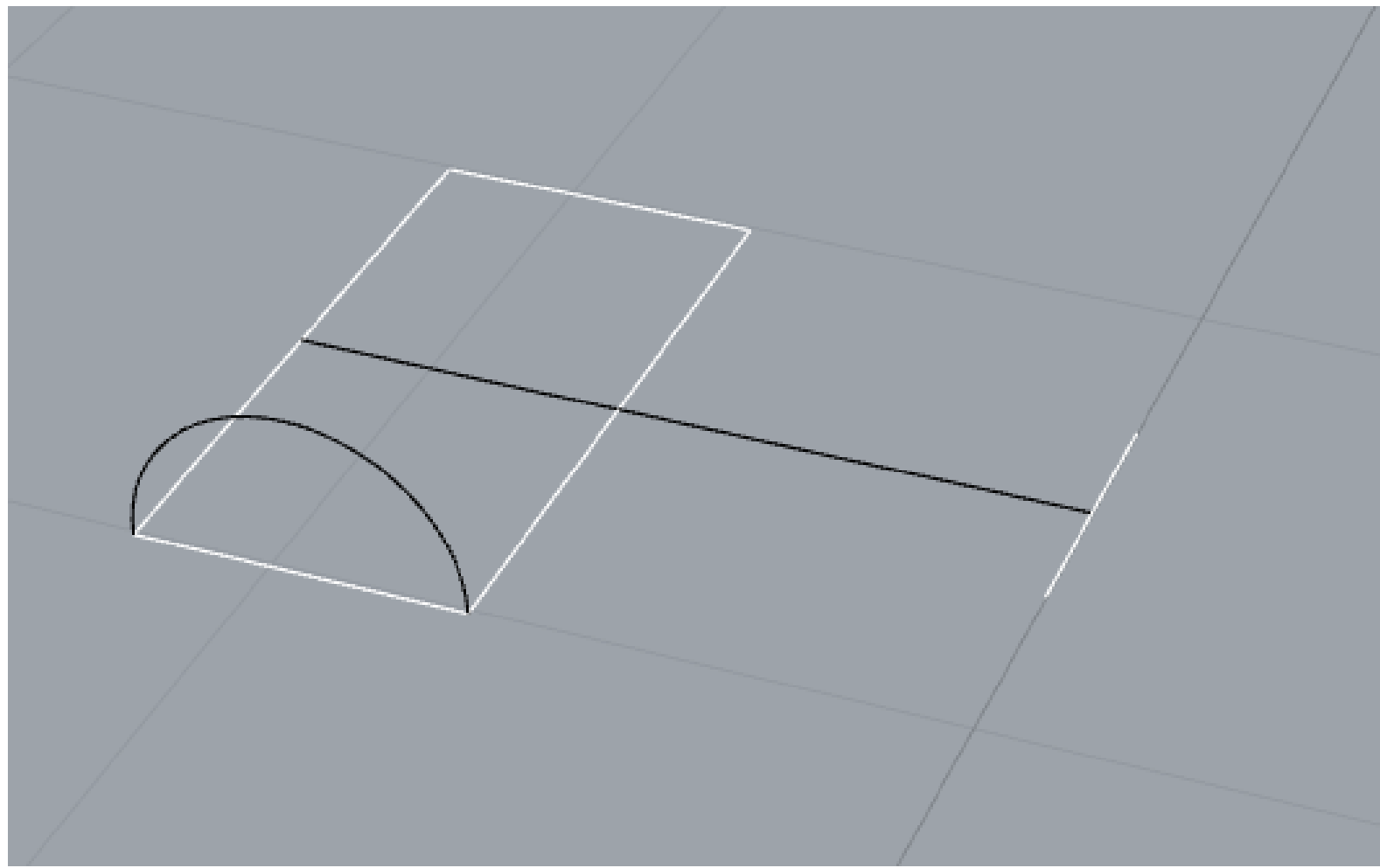


Quadrado metade dentro metade fora da abóbada com circulo inscrito



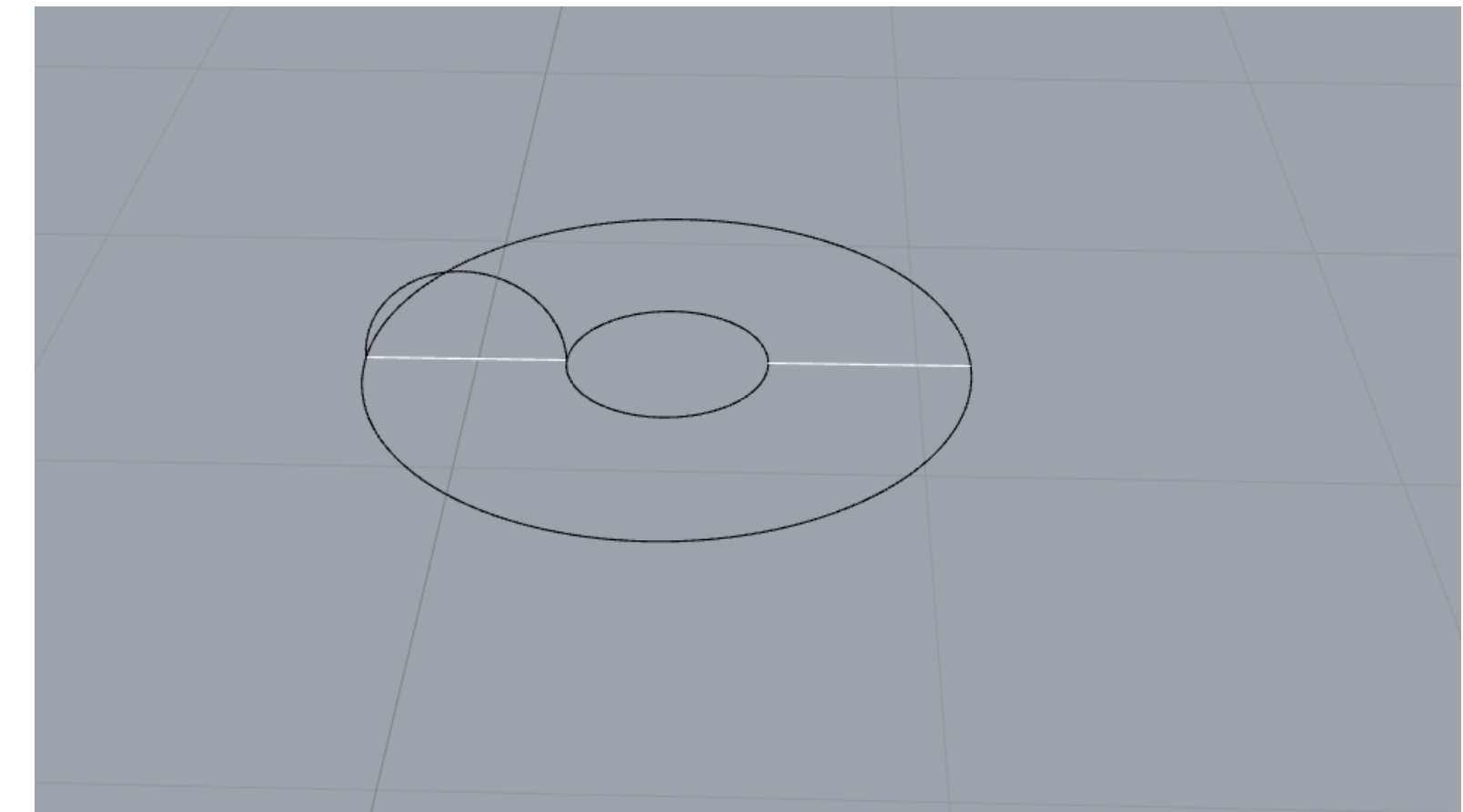
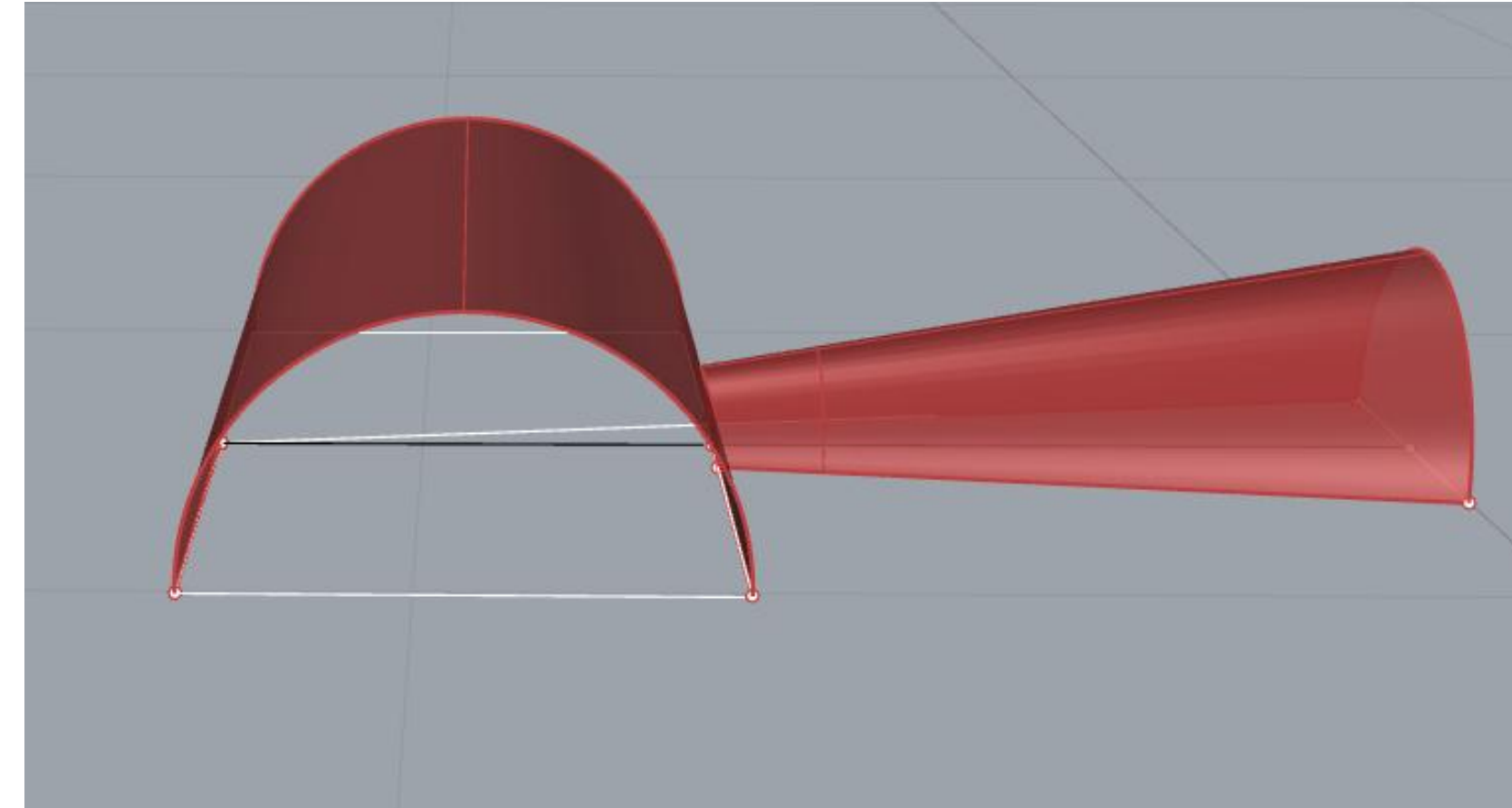
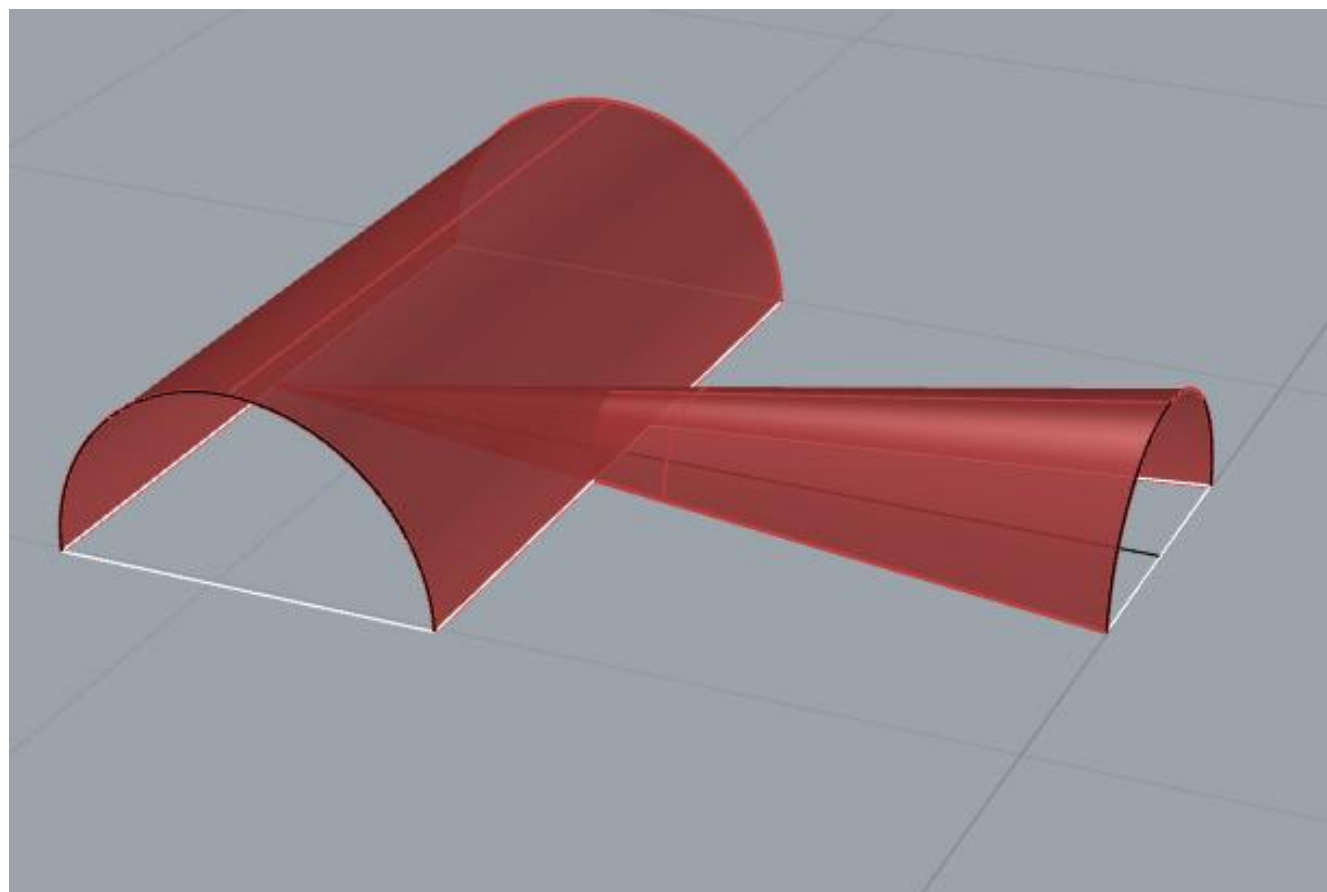
Aula 6- Construção de Abóbadas

Luneta Cônica



Line a meio do retângulo da abóbada e Line perp.

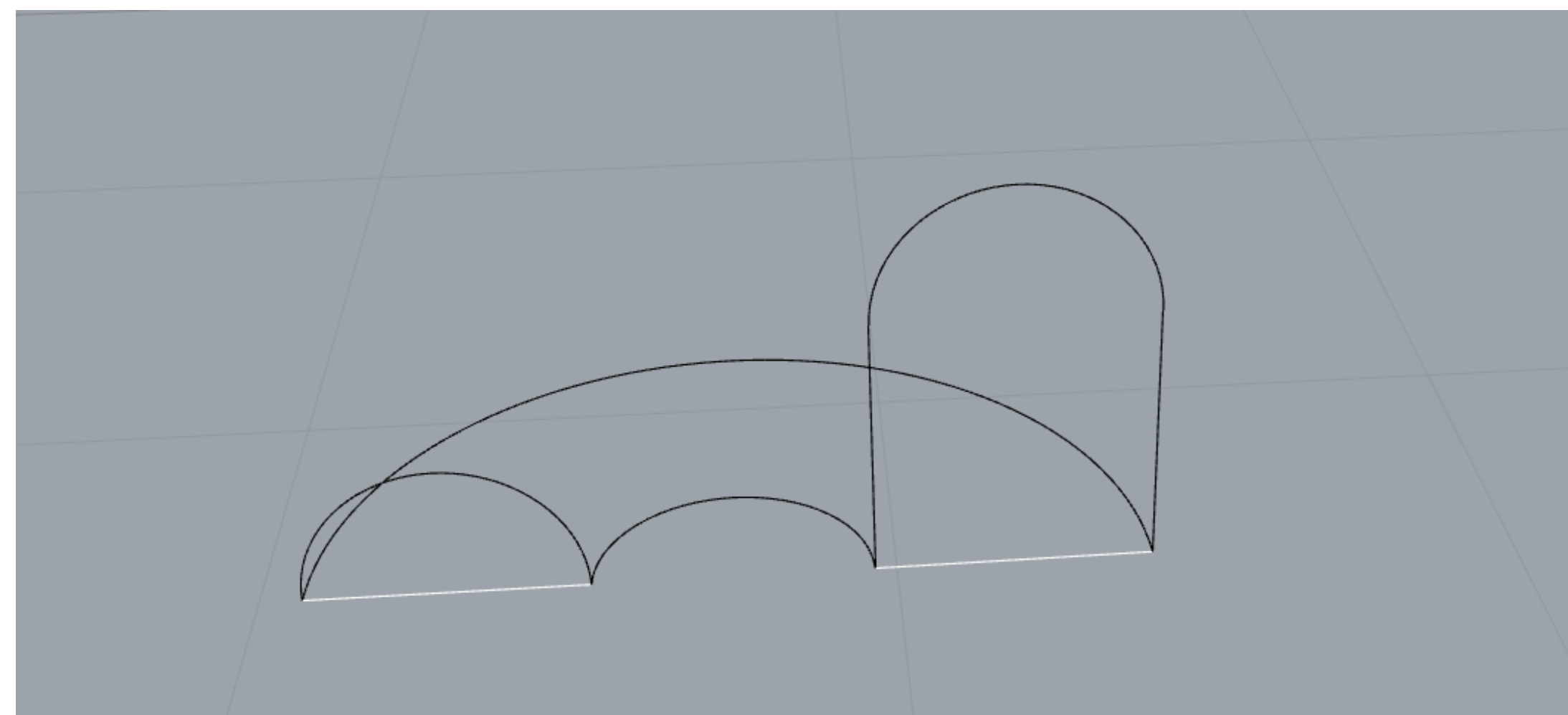
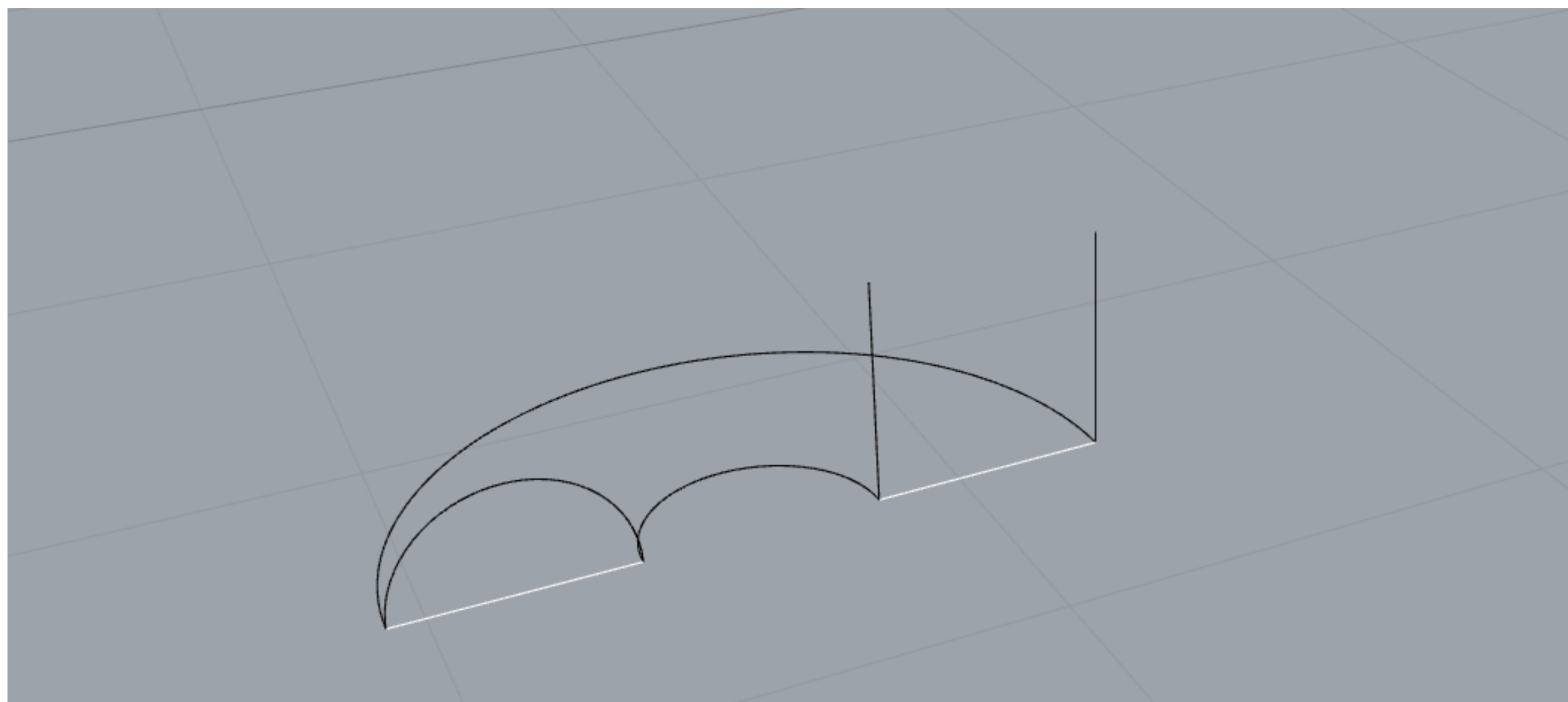
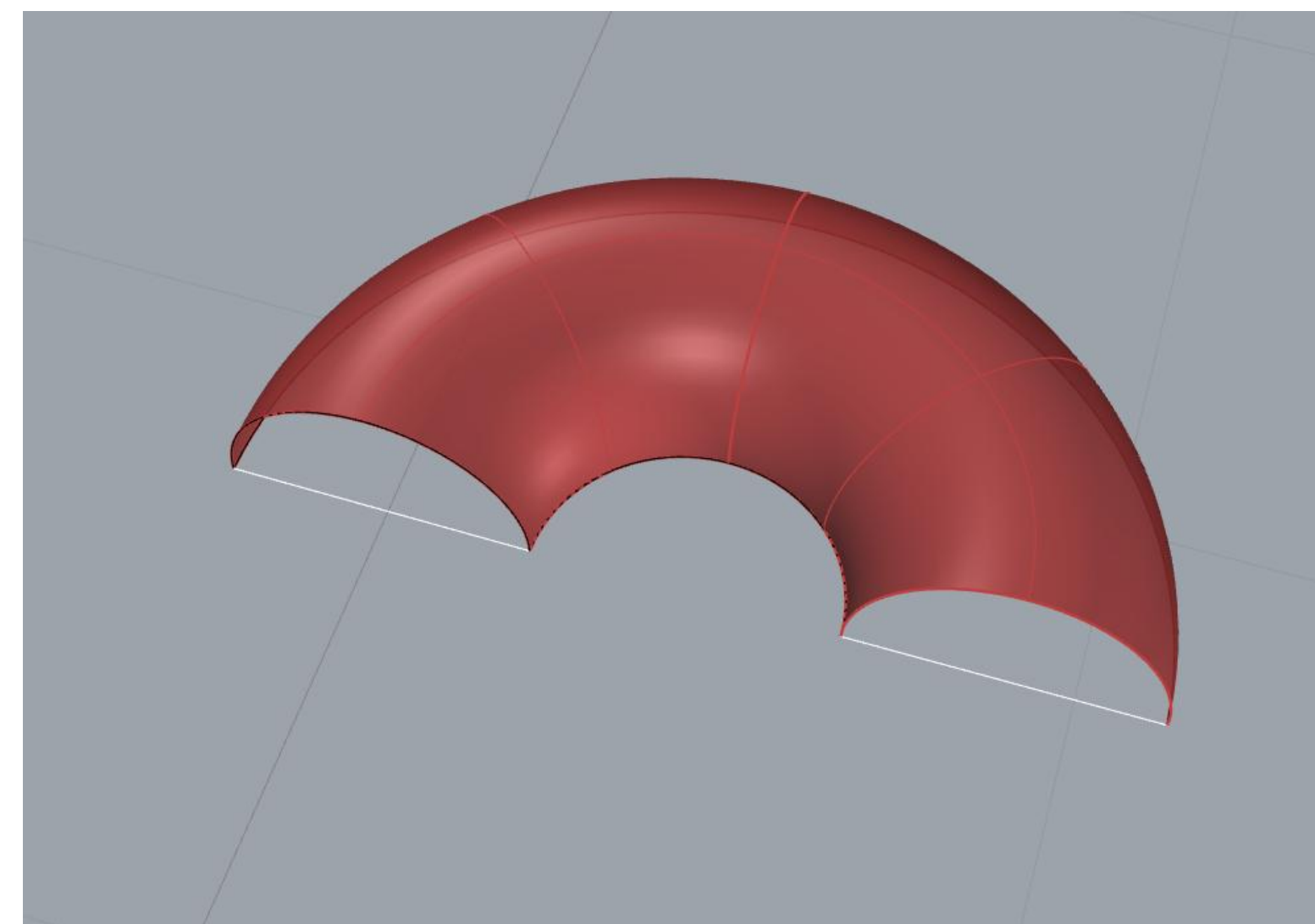
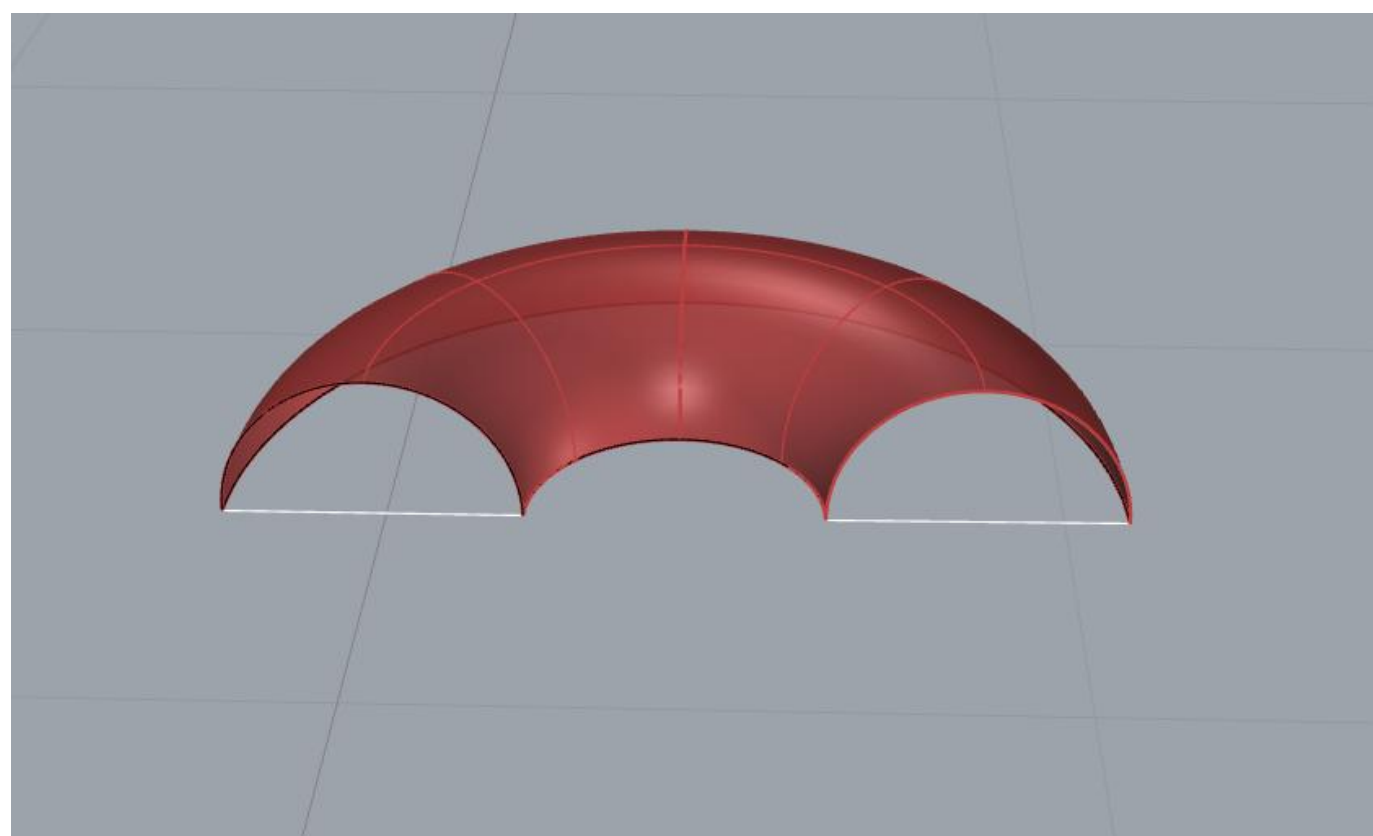
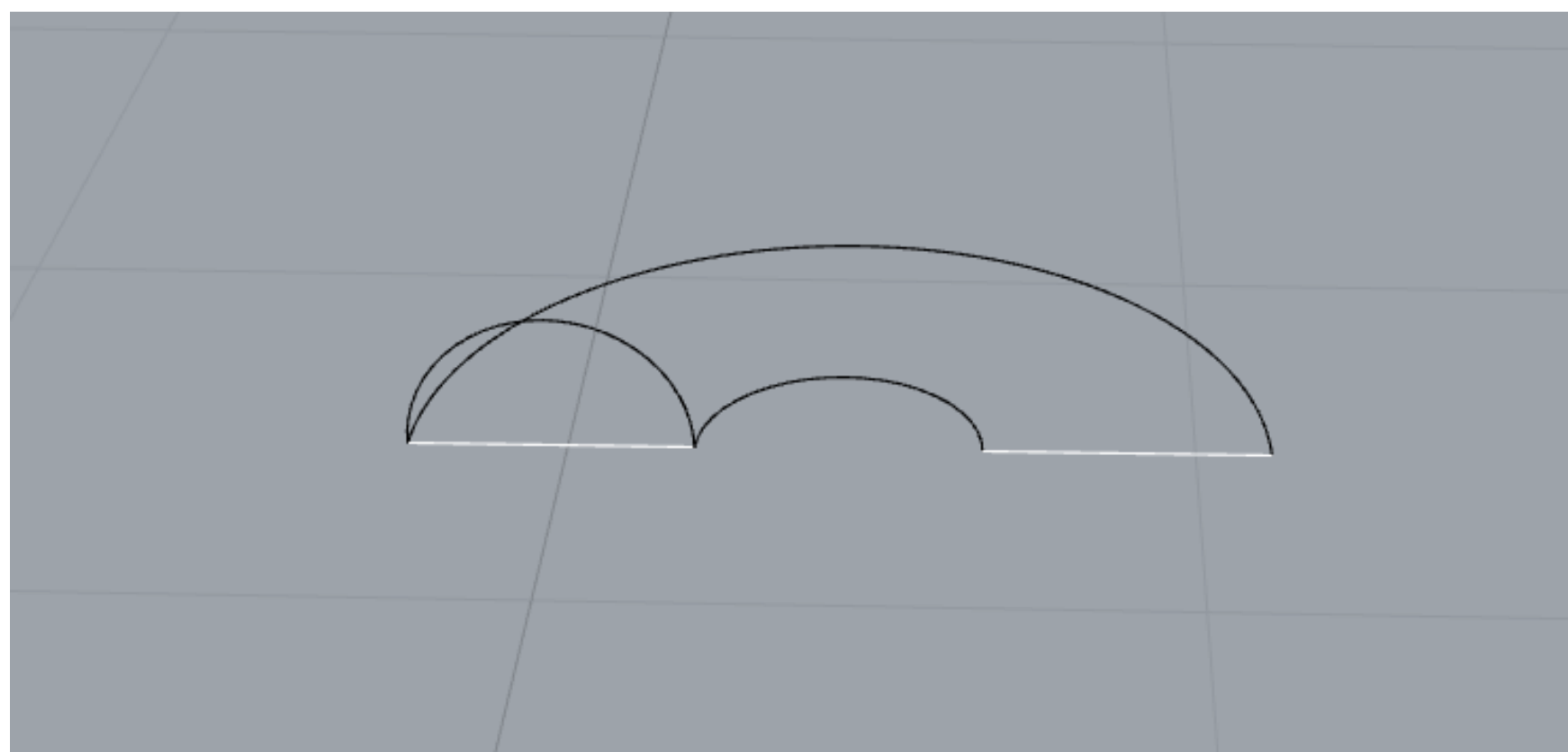
Meio círculo e Line de uma aresta do meio círculo ate à origem da reta



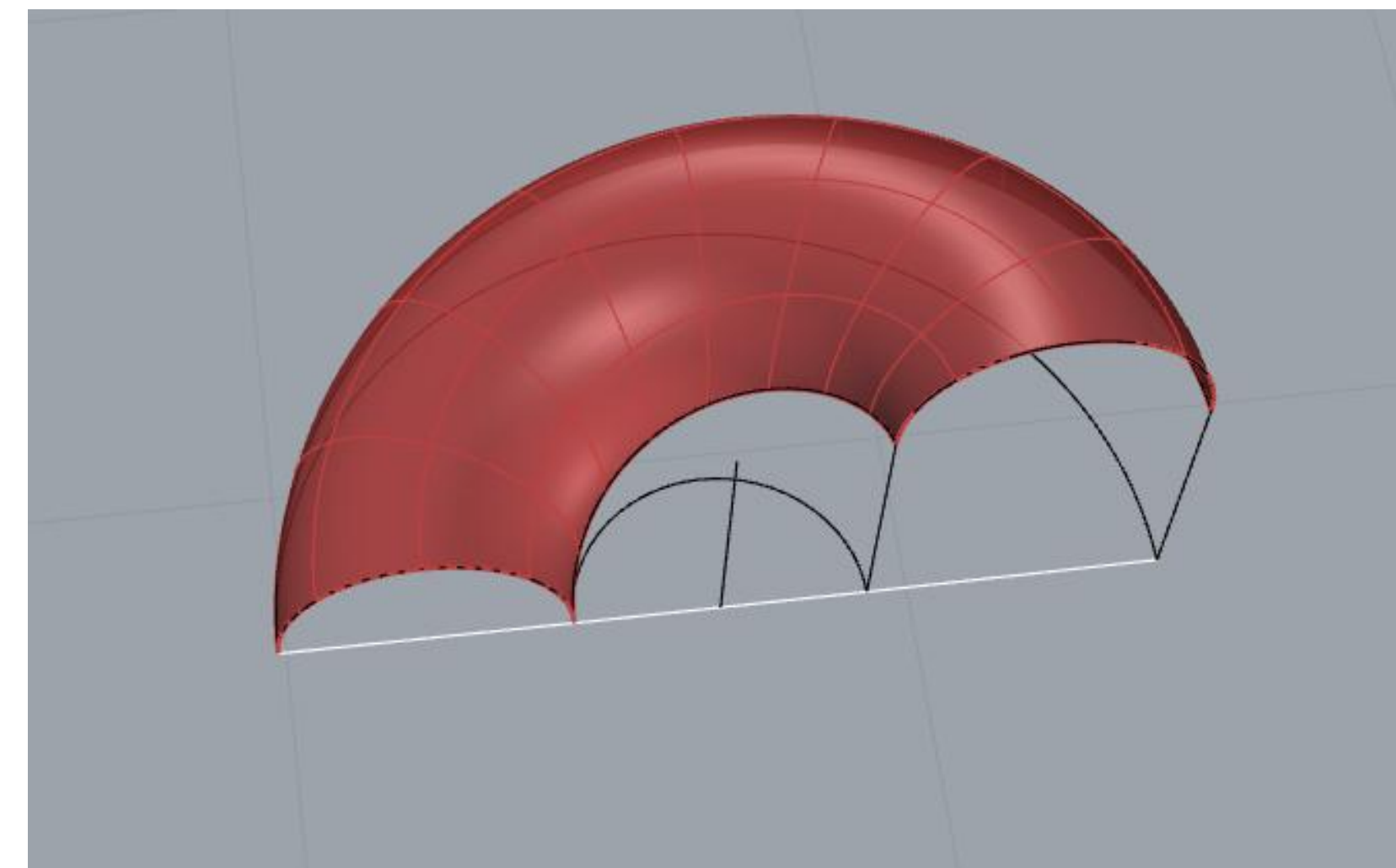
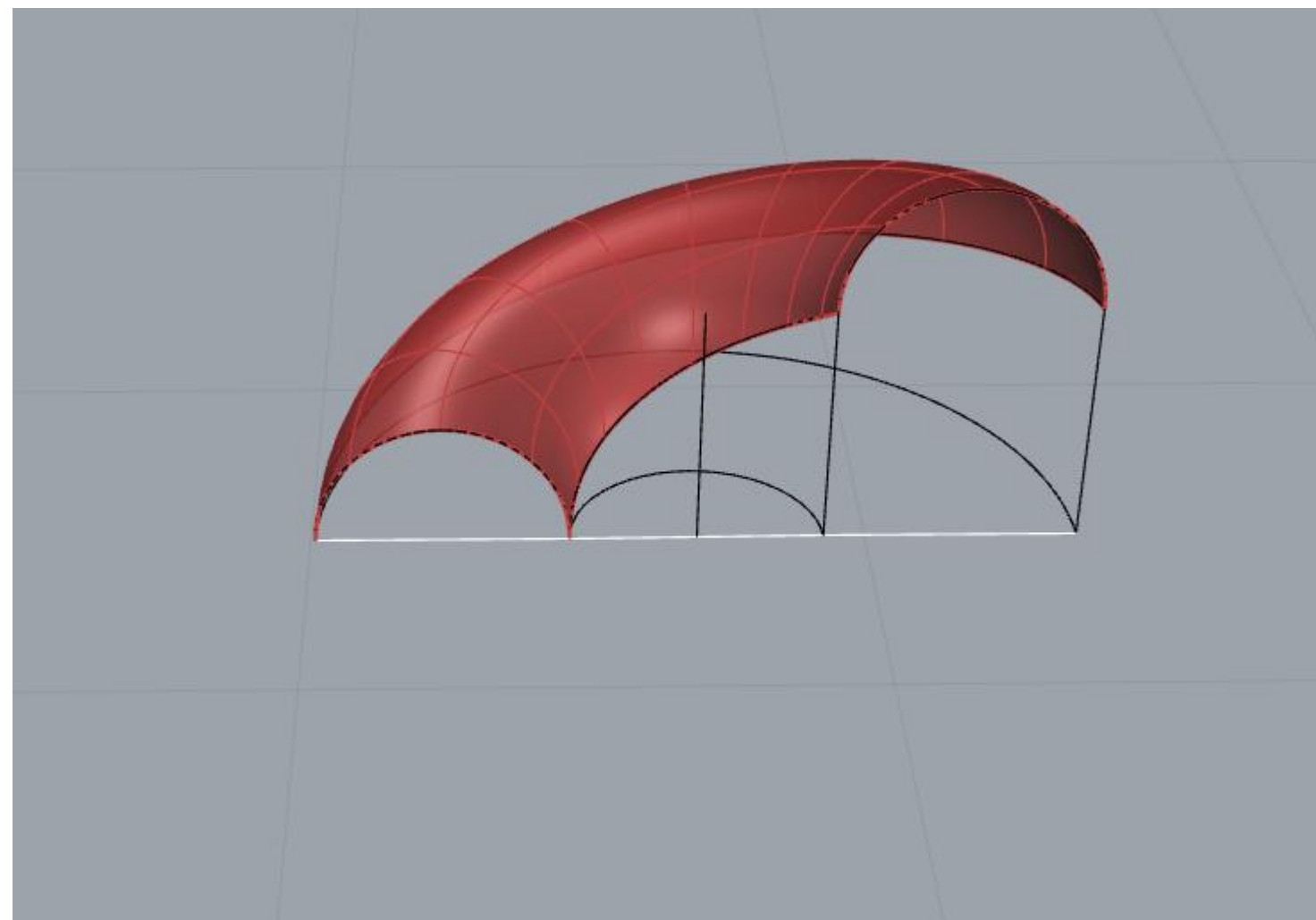
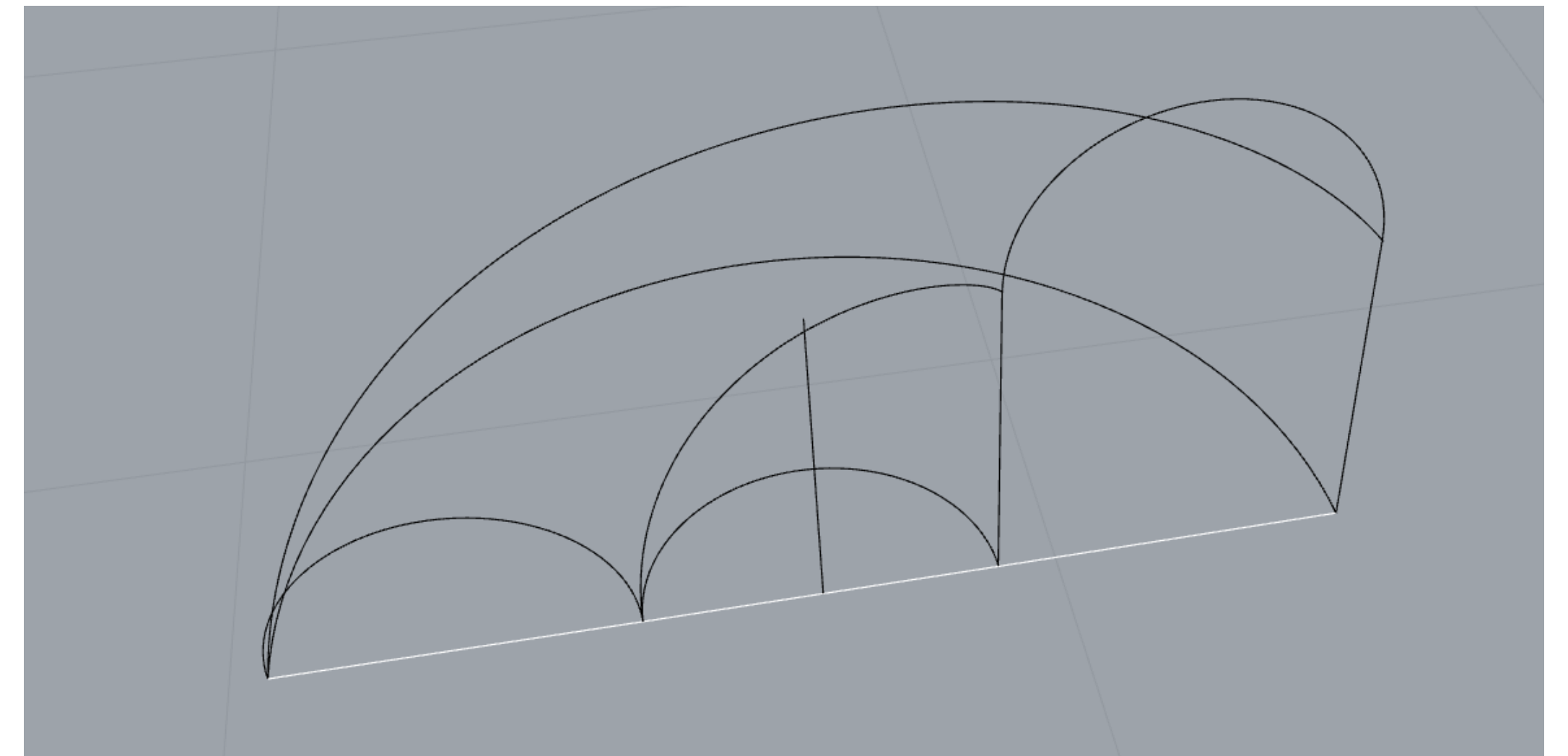
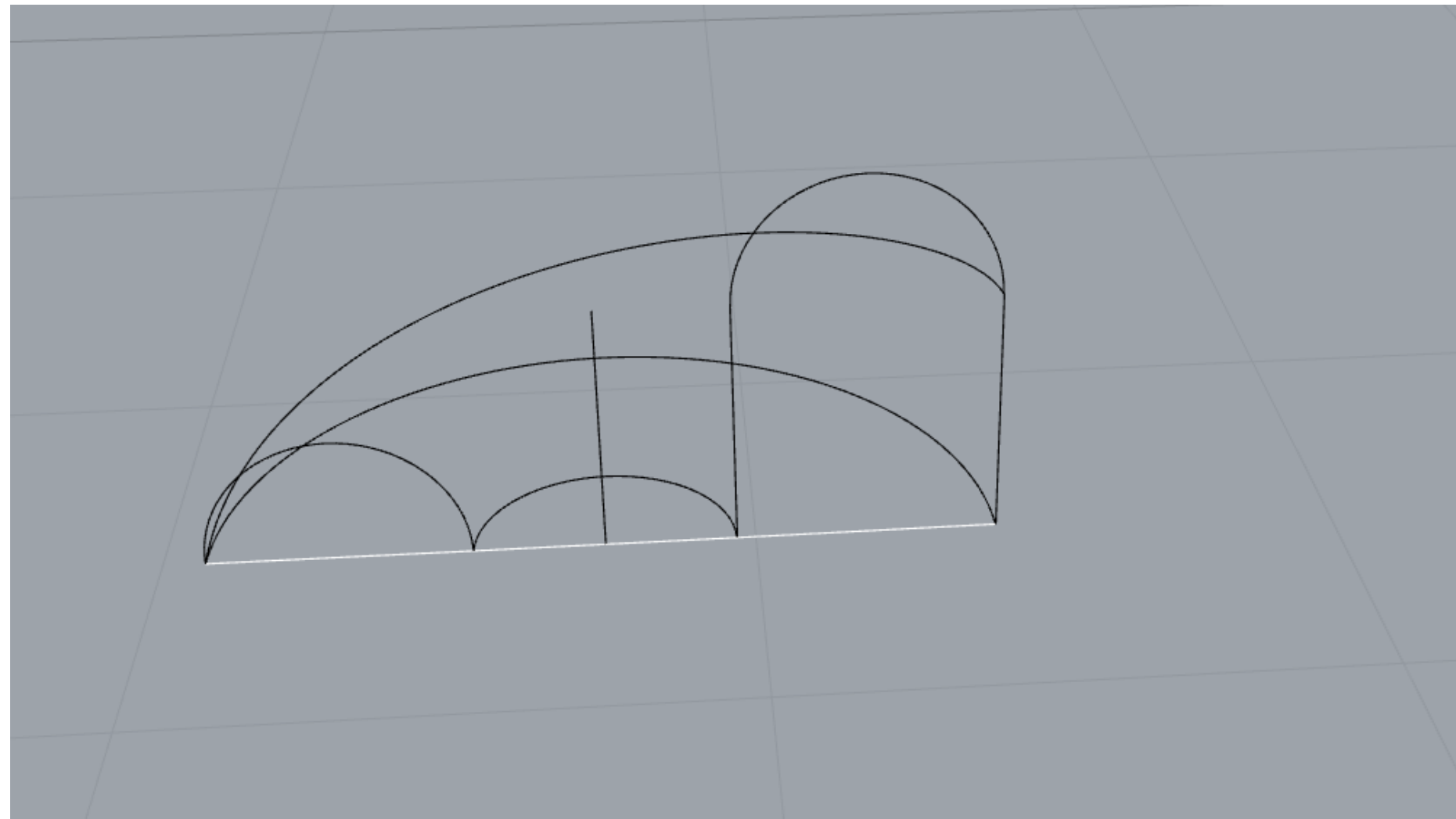
Extrude

Planimetria do tórus com arco vertical com a suas espessura de diâmetro

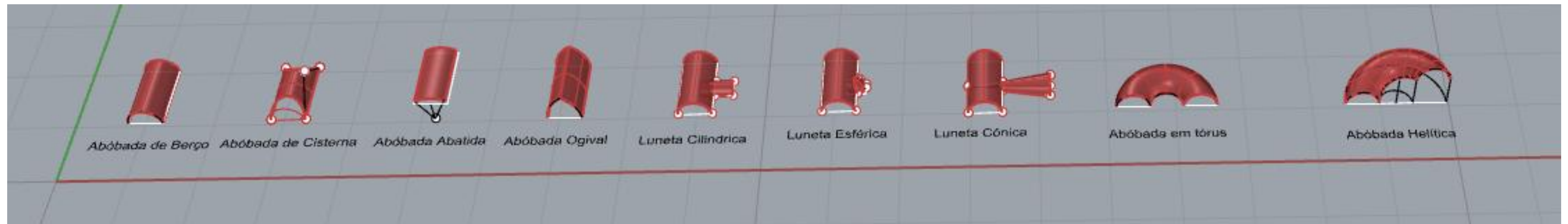
Aula 6- Construção de Abóbadas



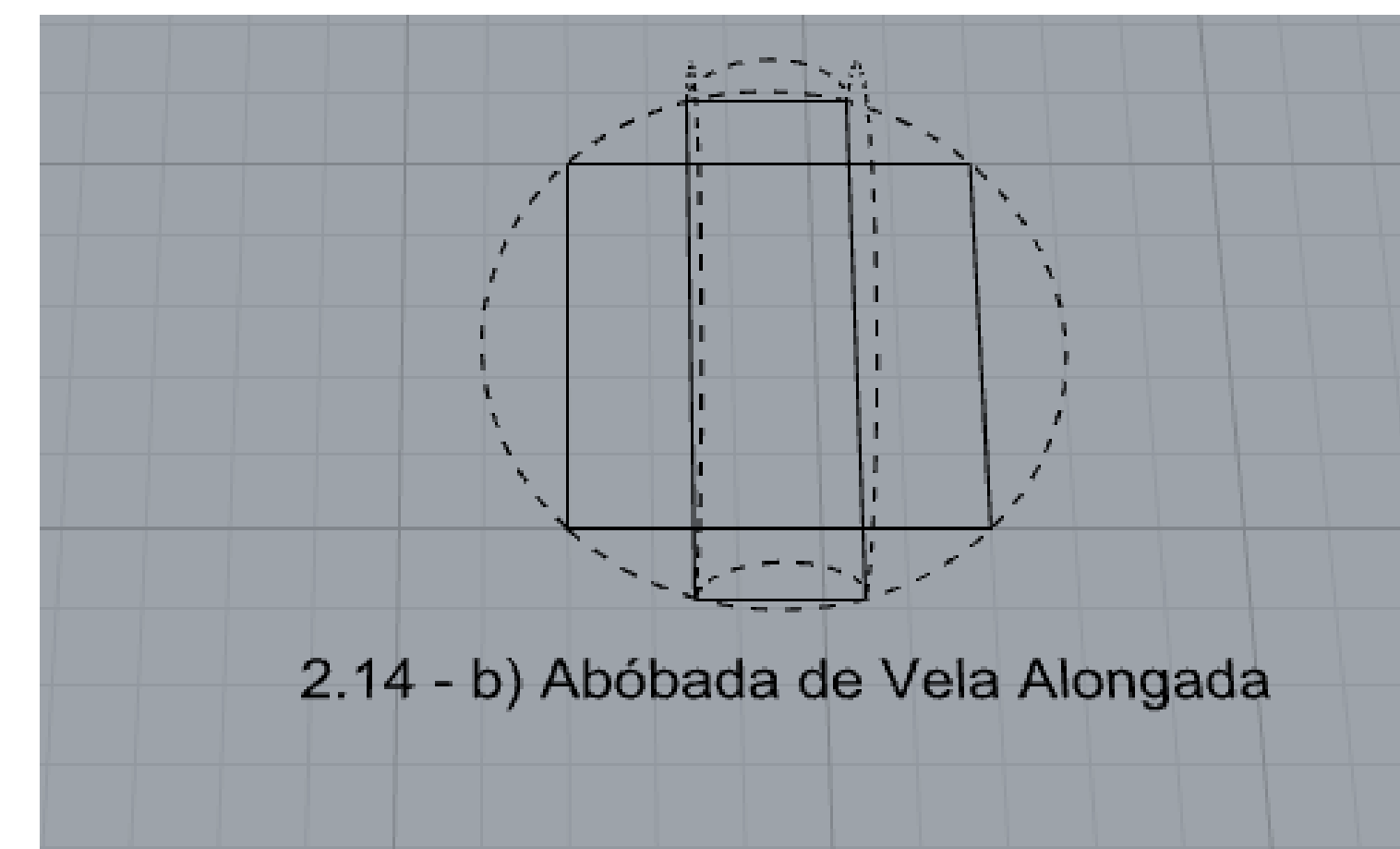
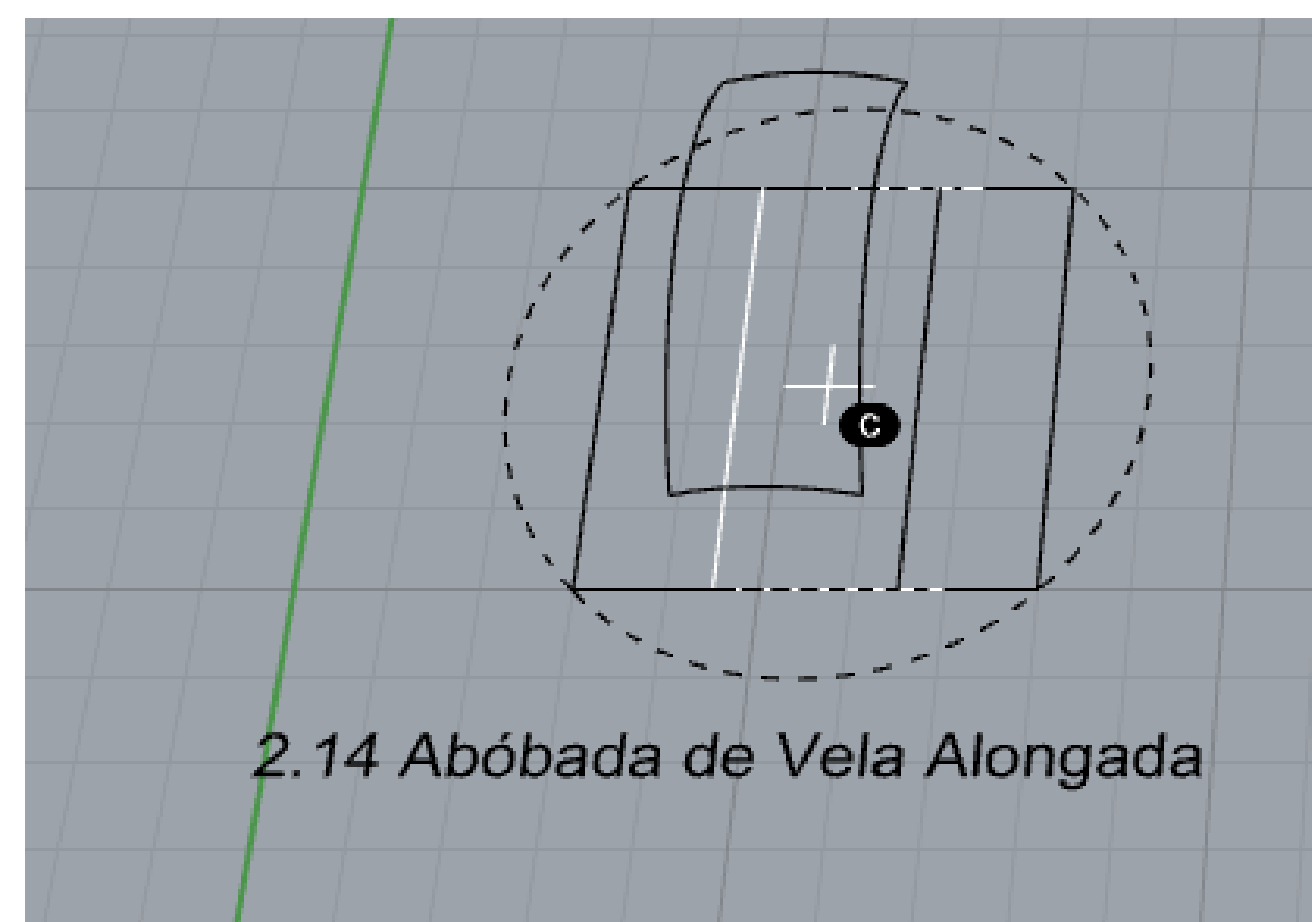
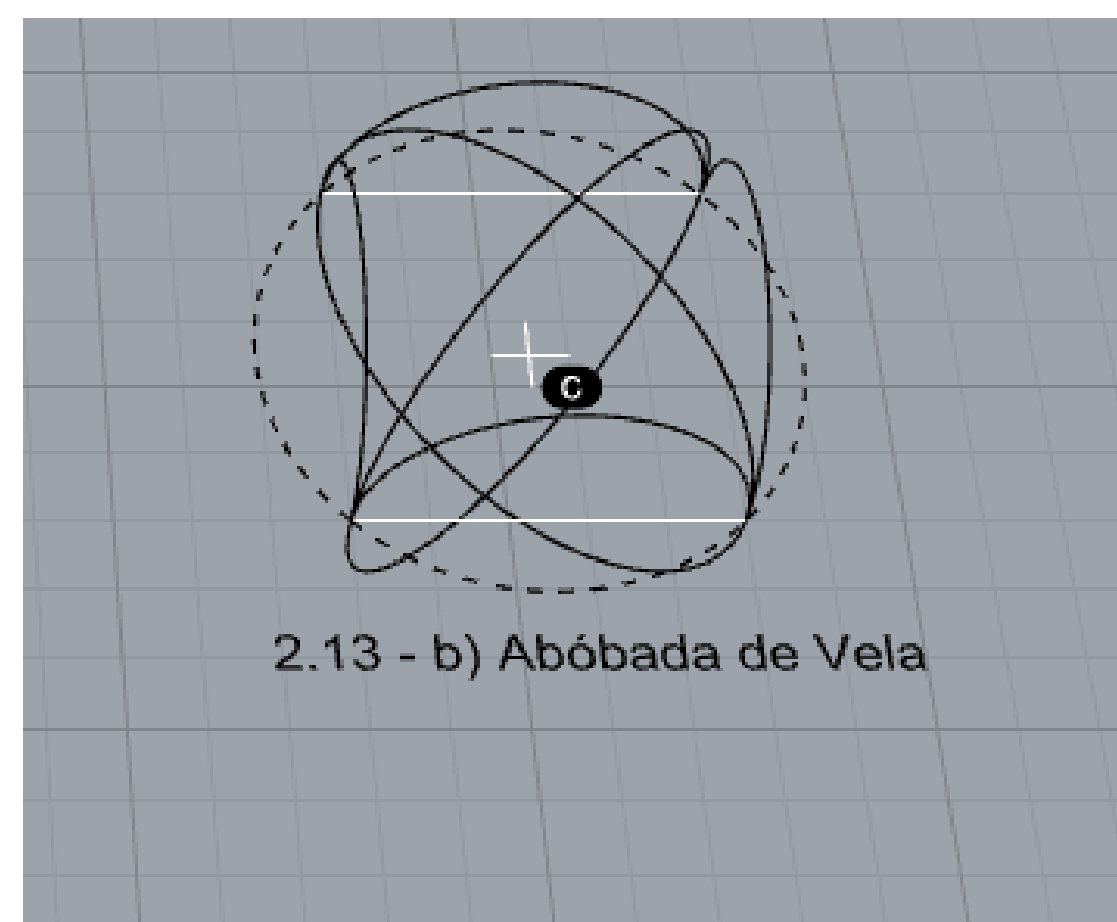
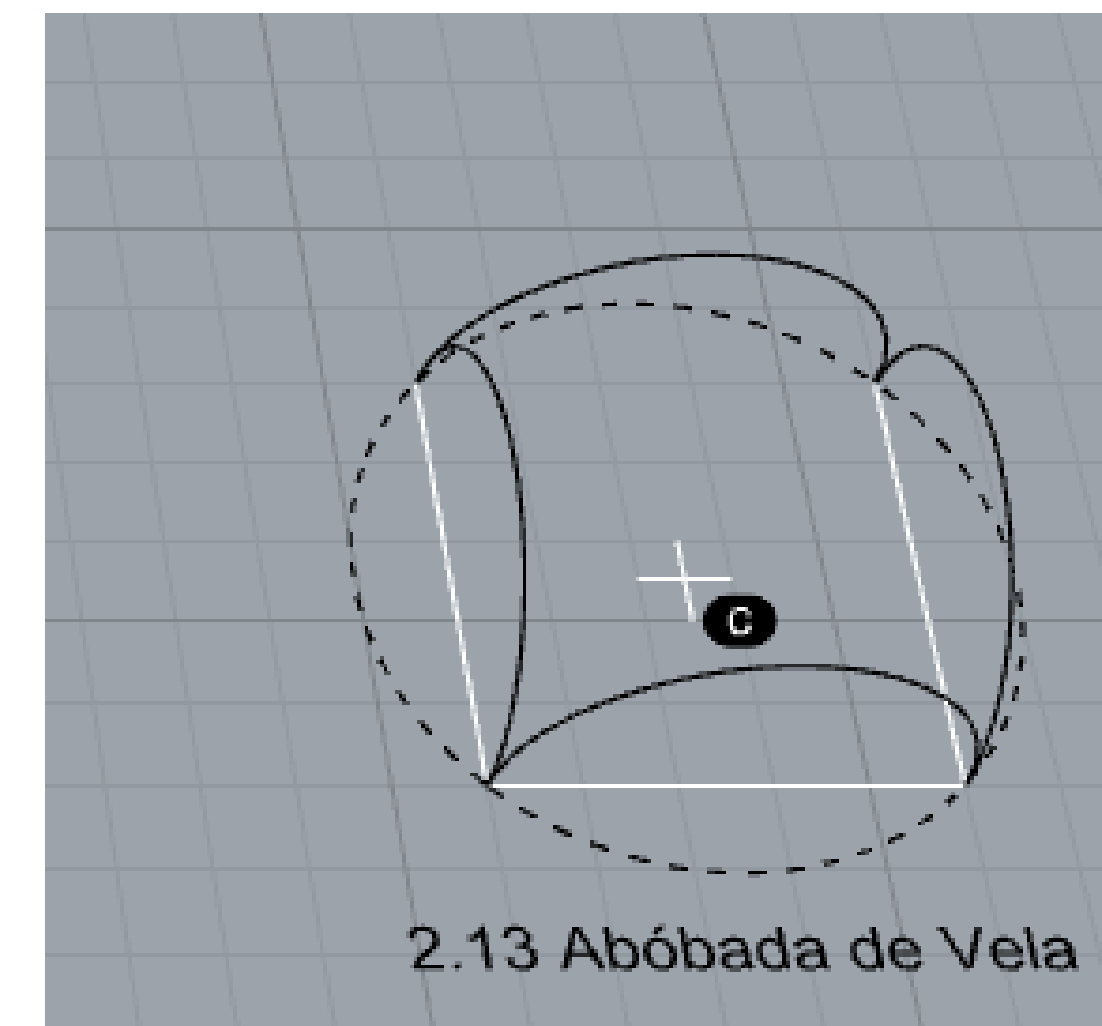
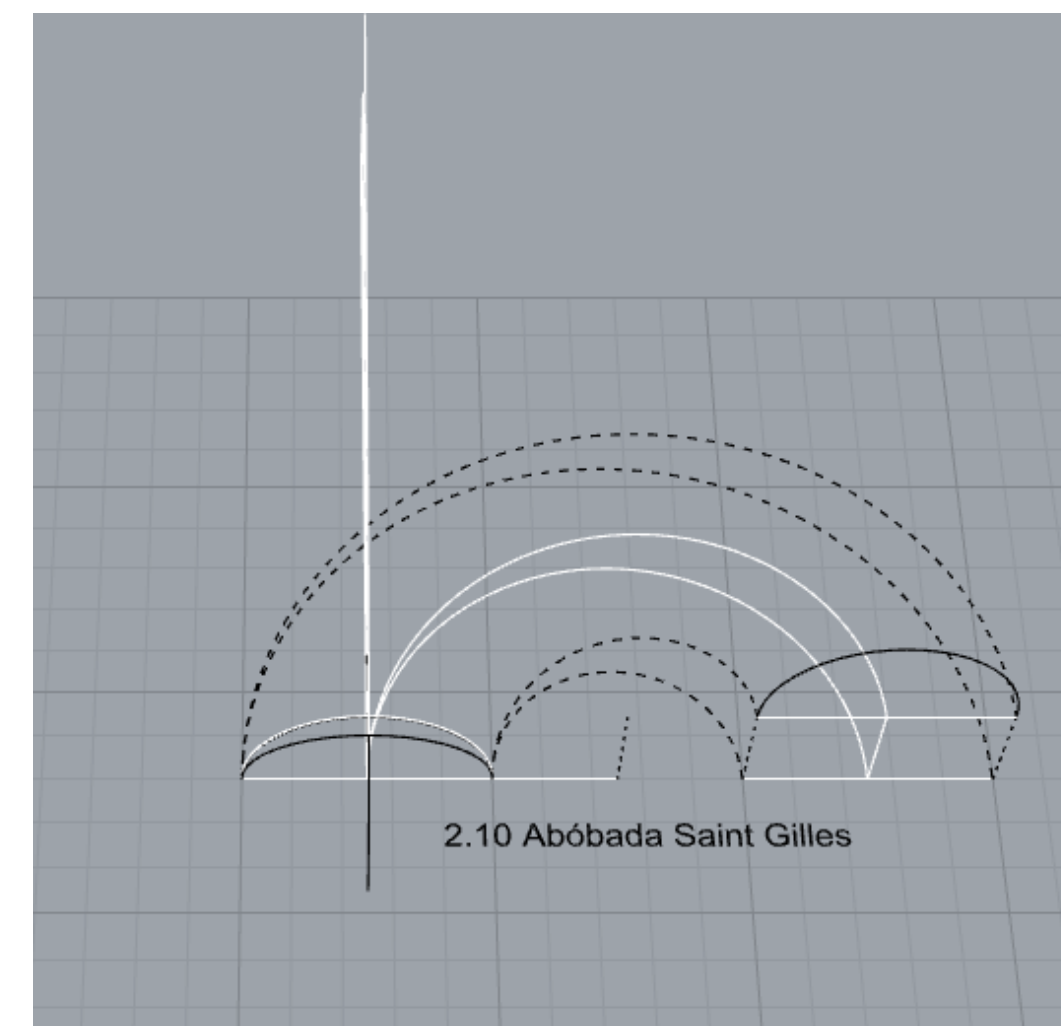
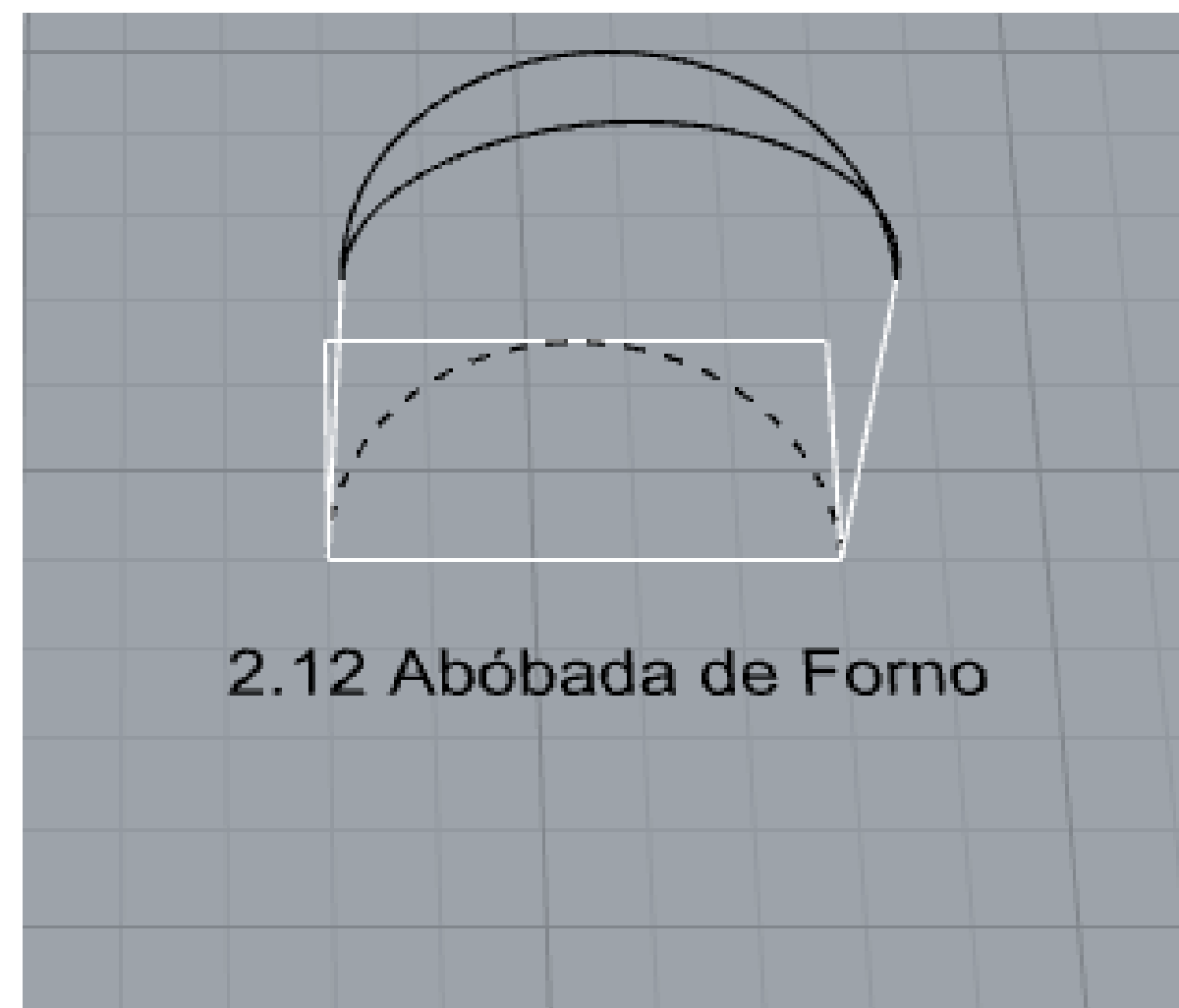
Aula 6- Construção de Abóbadas



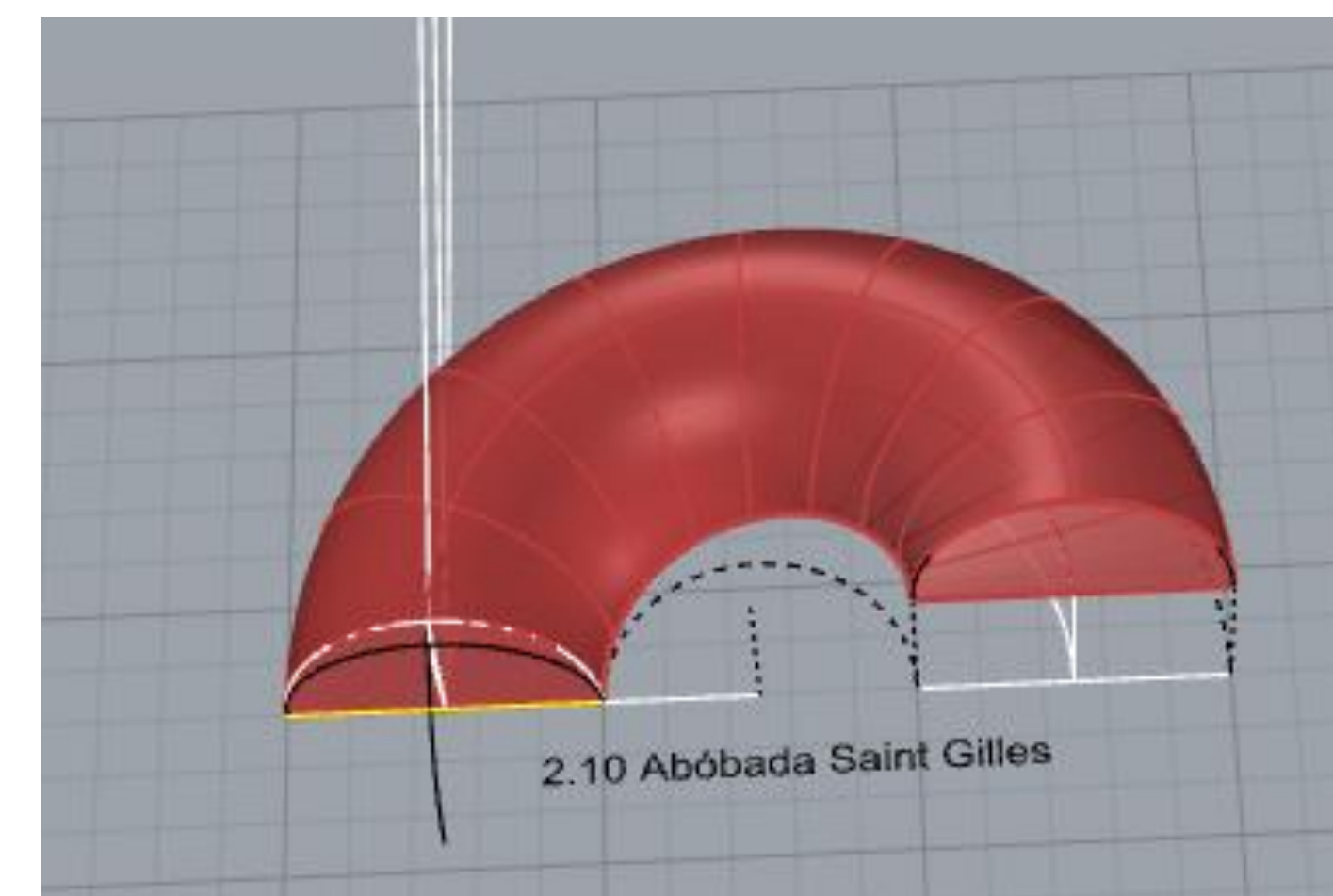
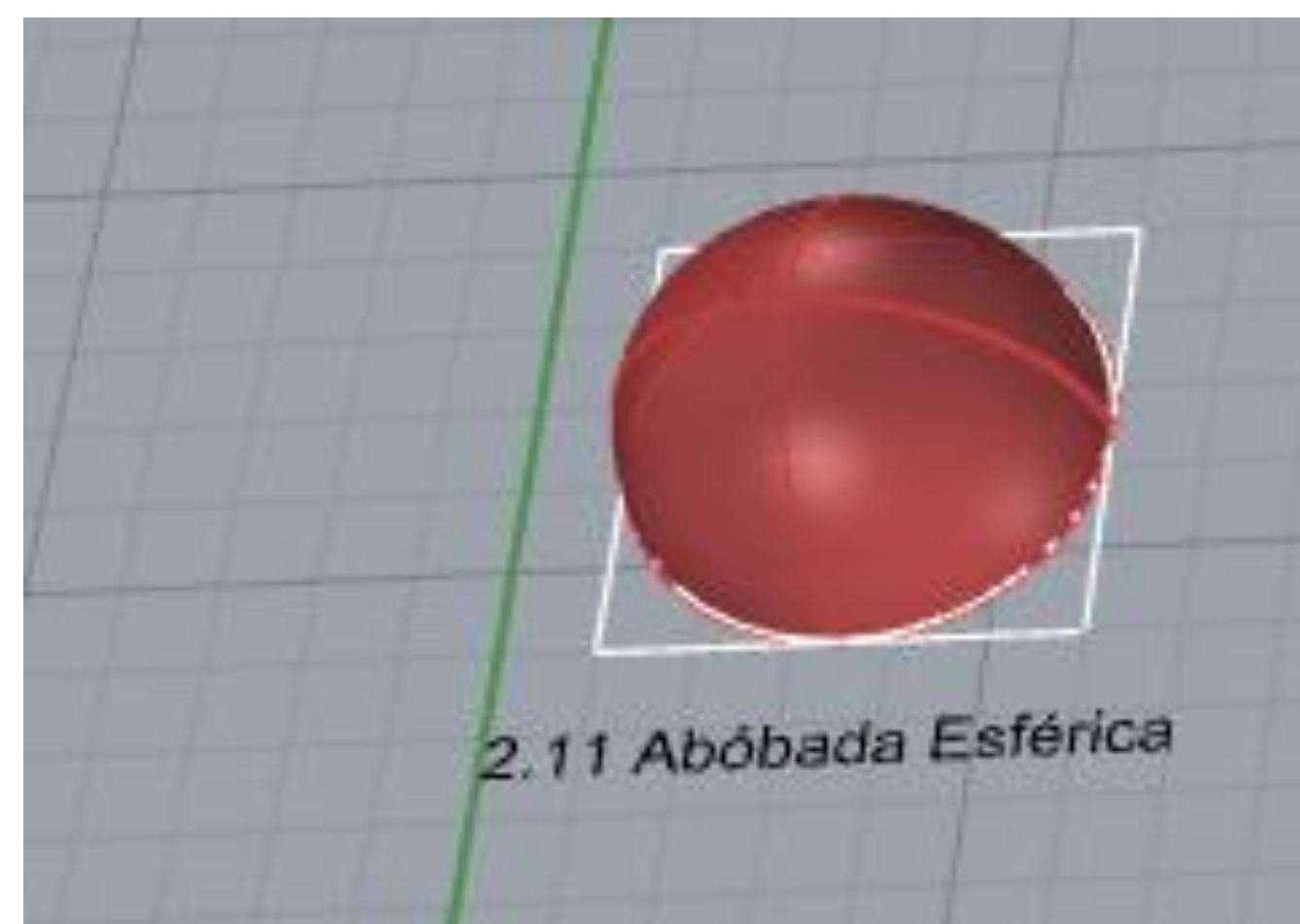
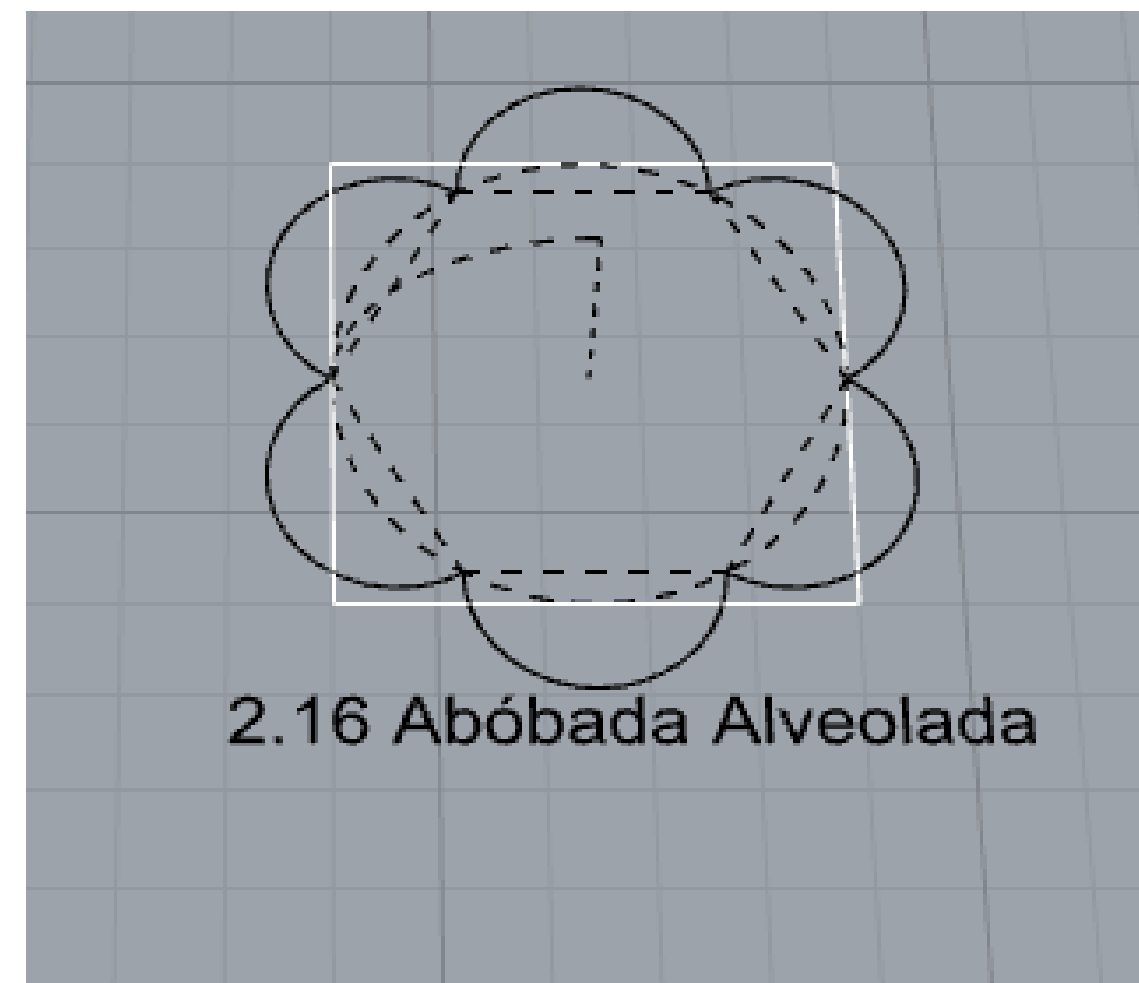
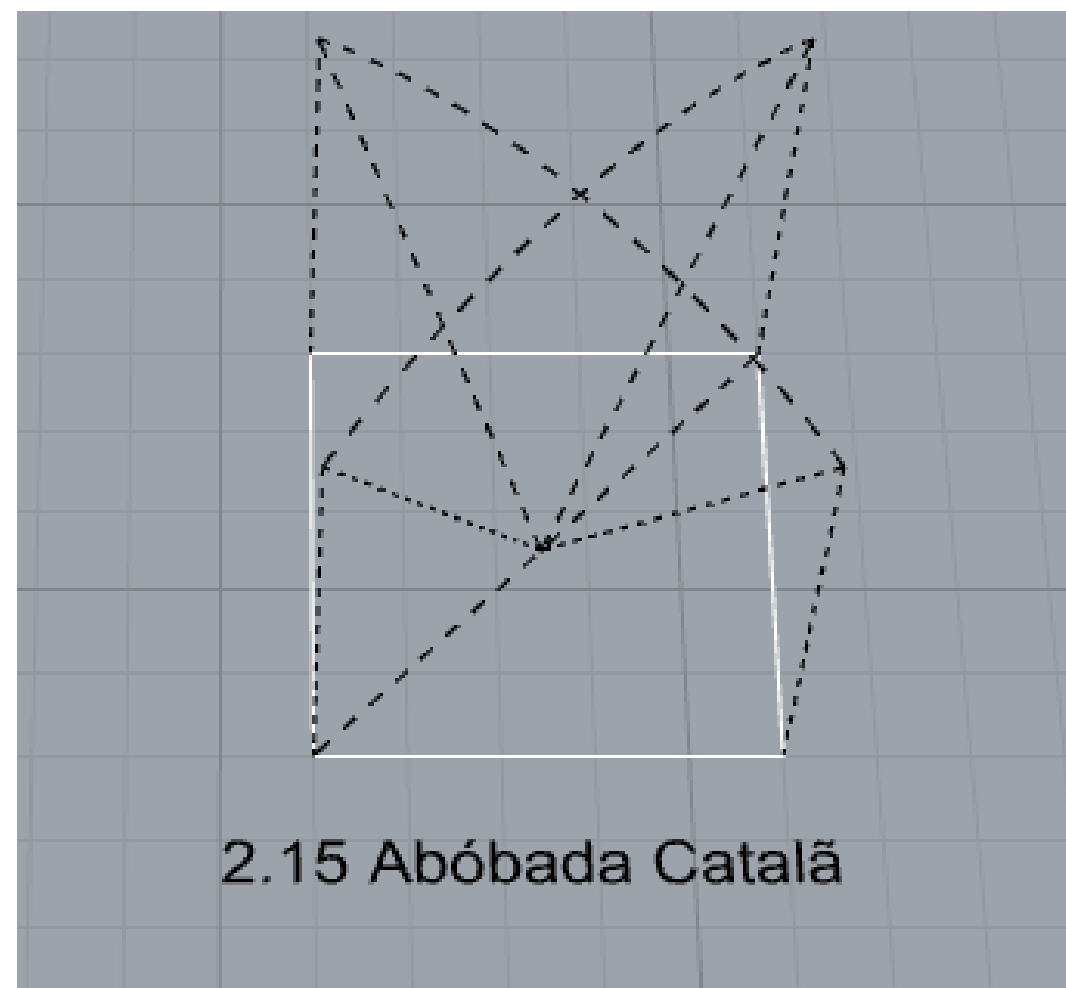
Aula 6- Construção de Abóbadas



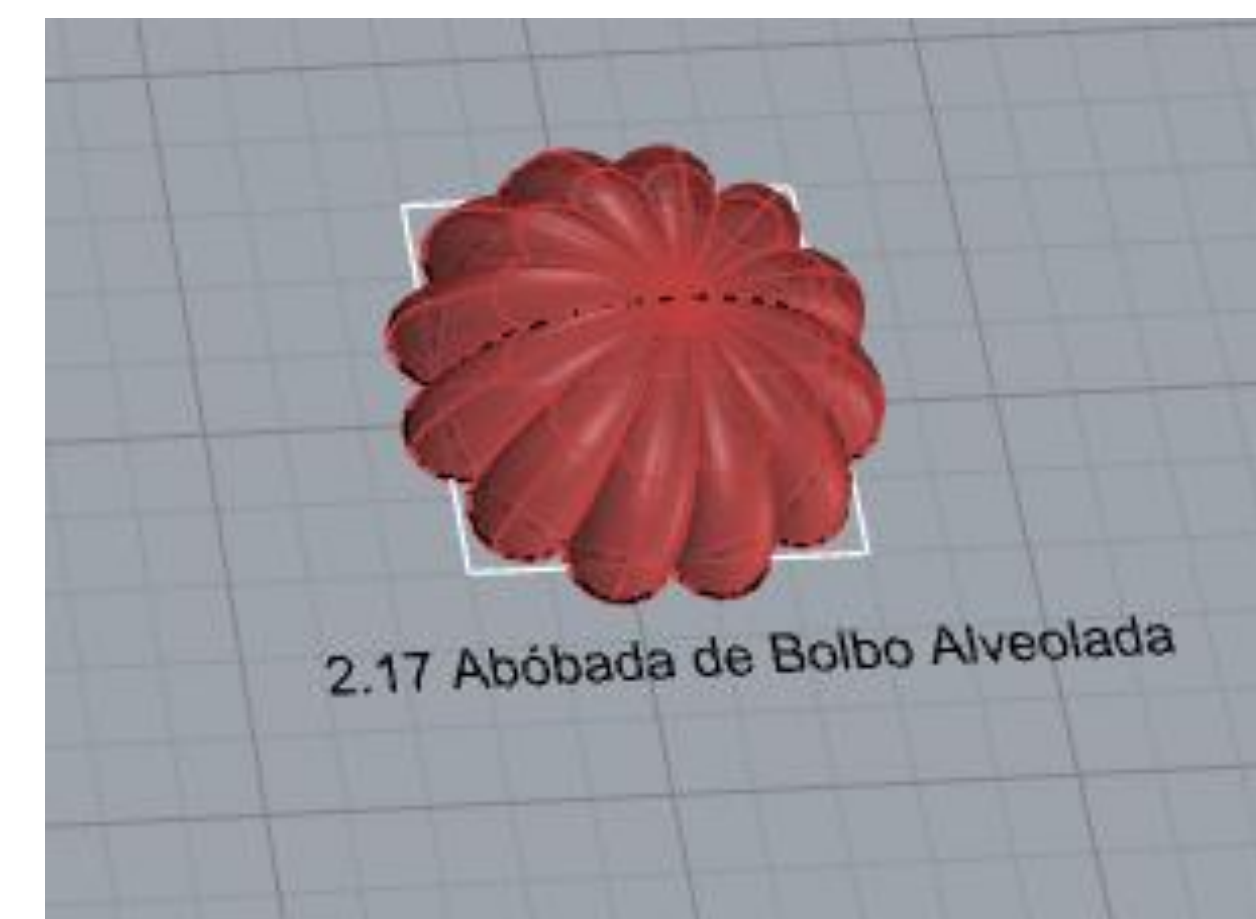
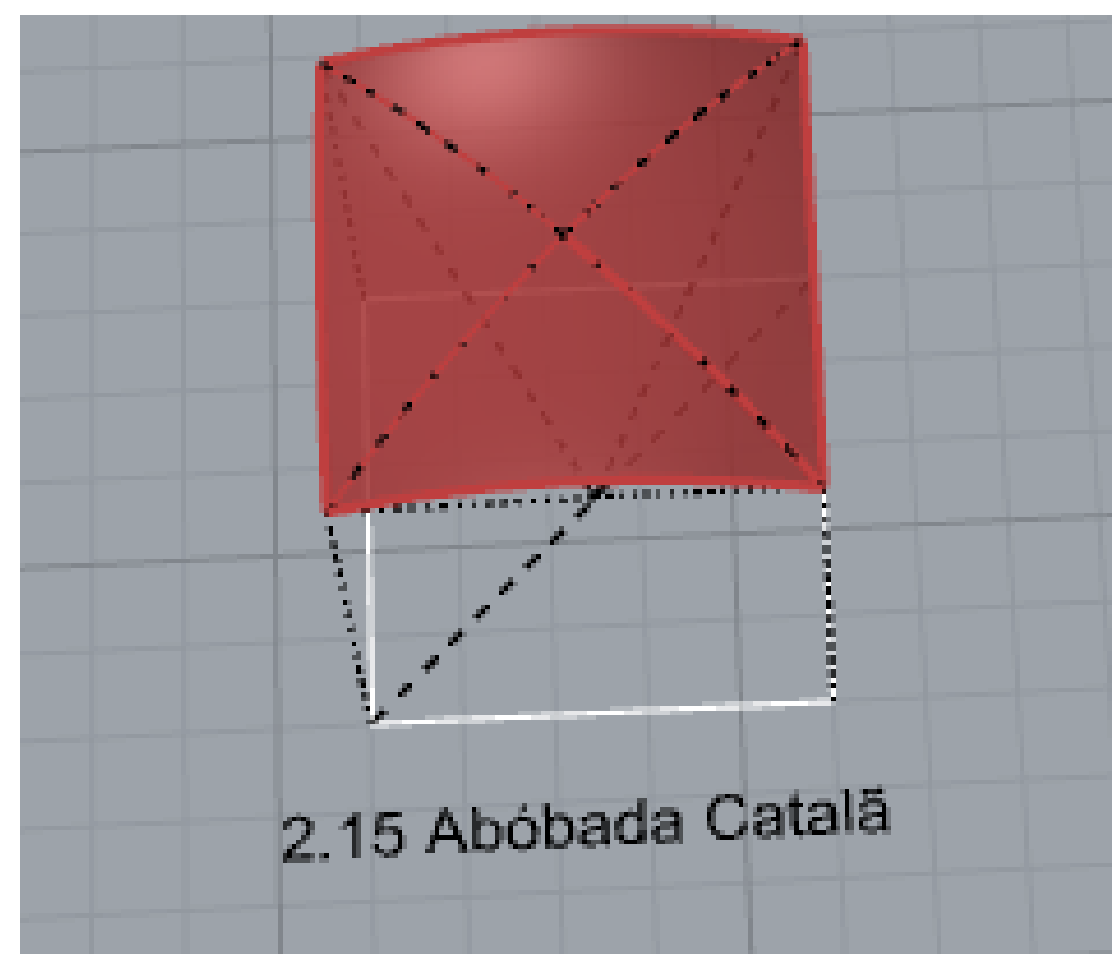
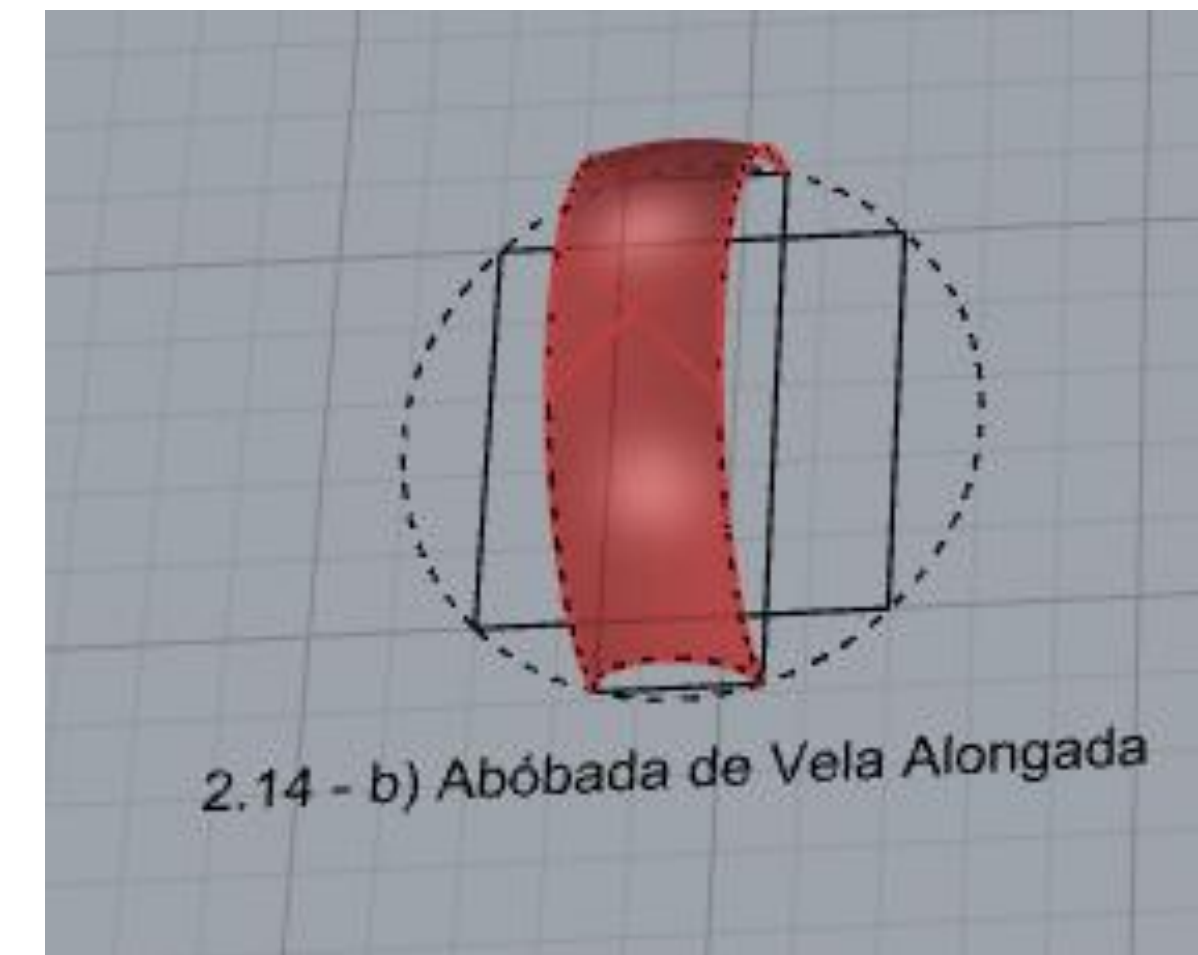
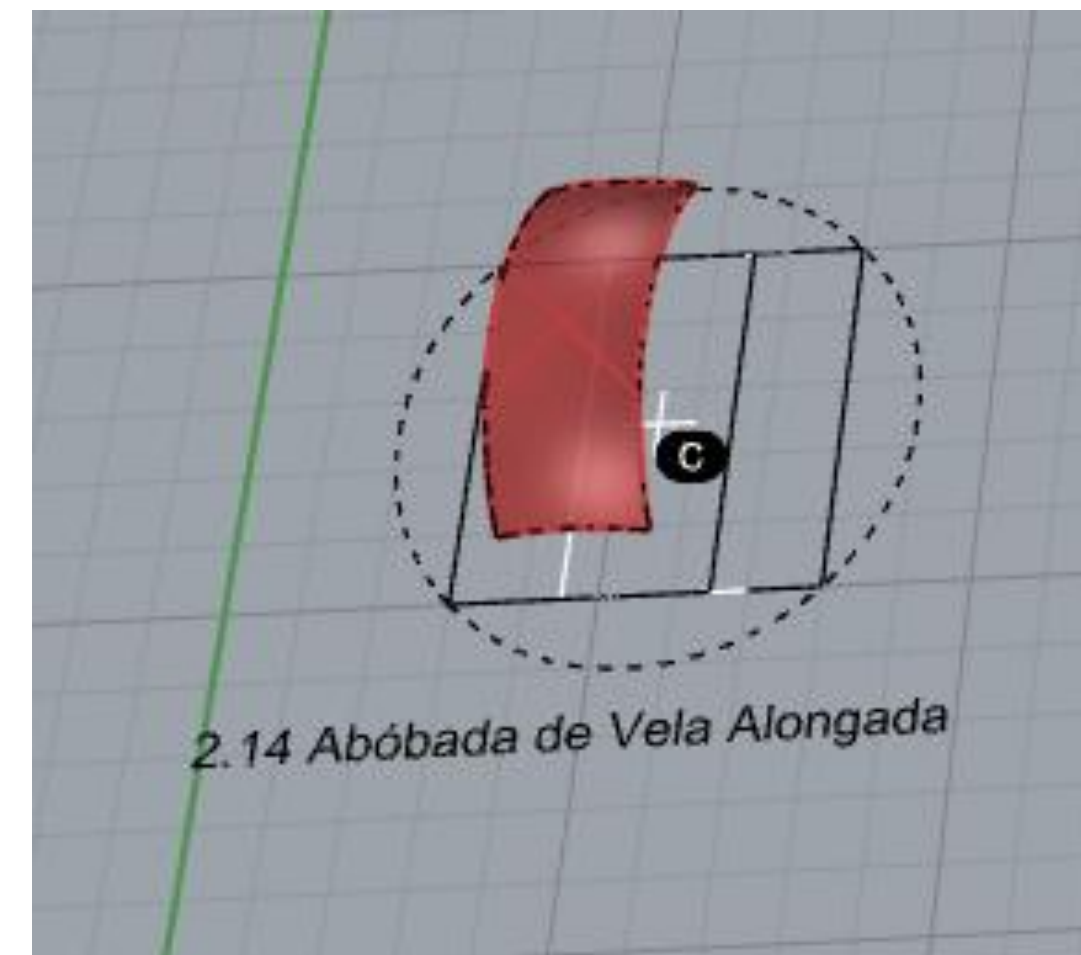
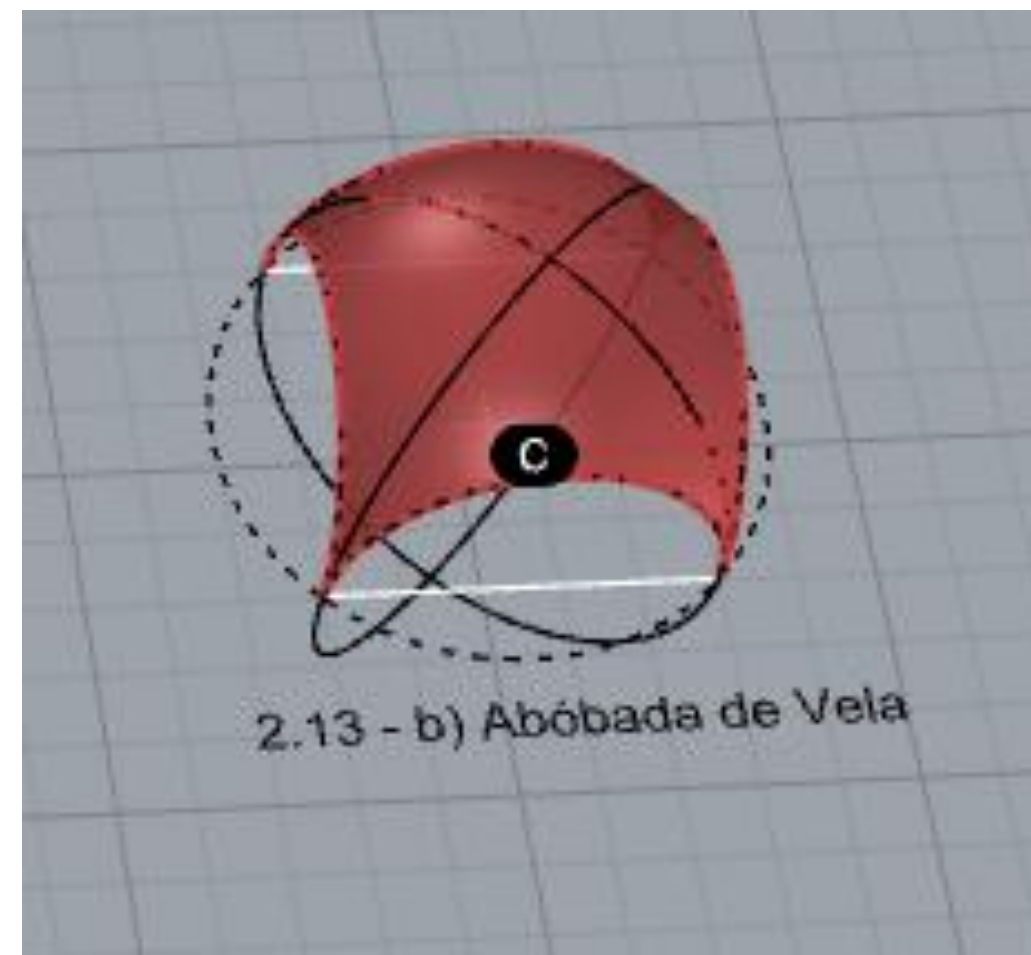
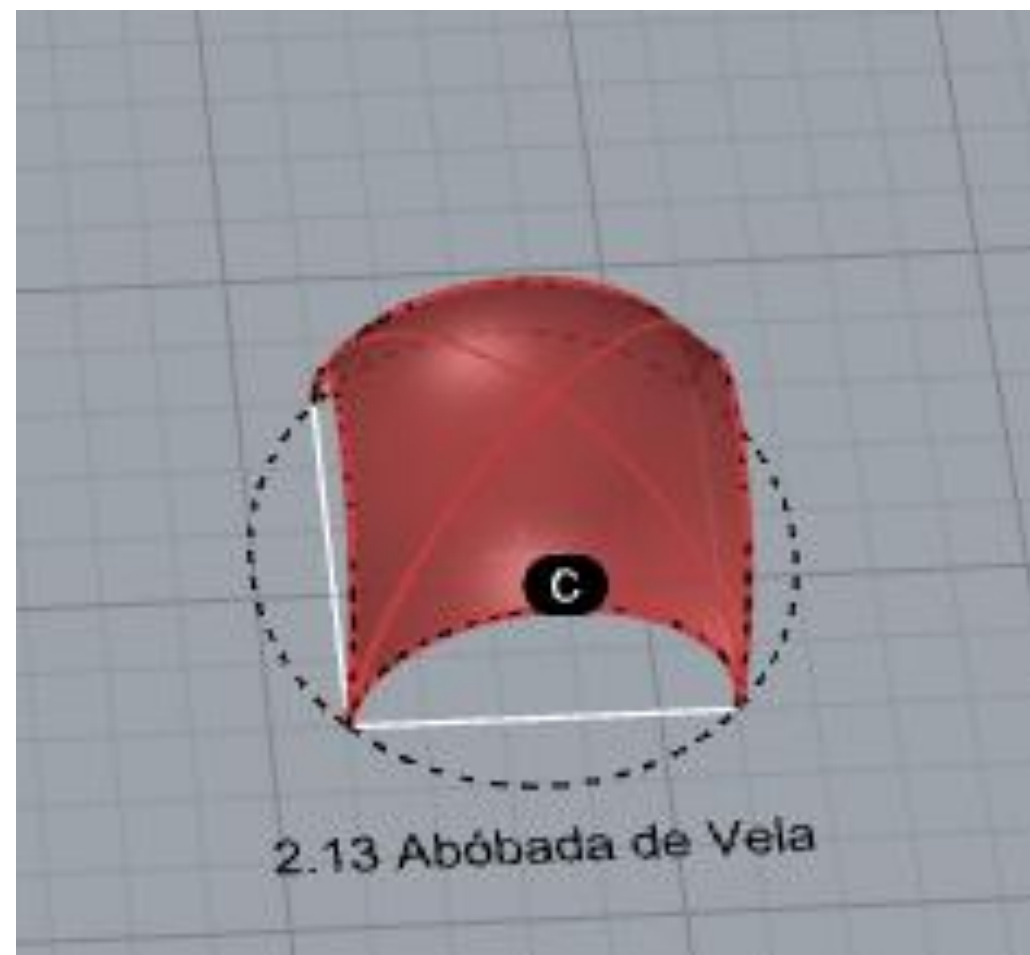
Aula 6- Construção de Abóbadas



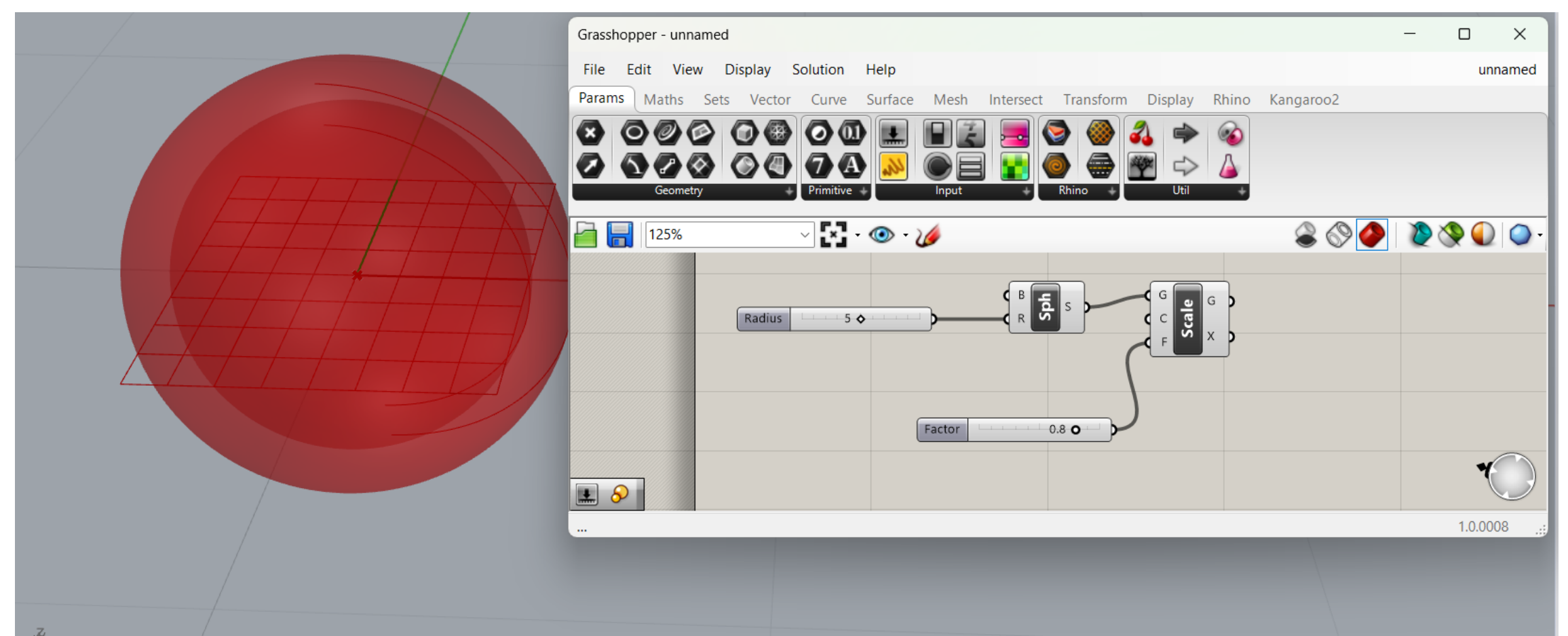
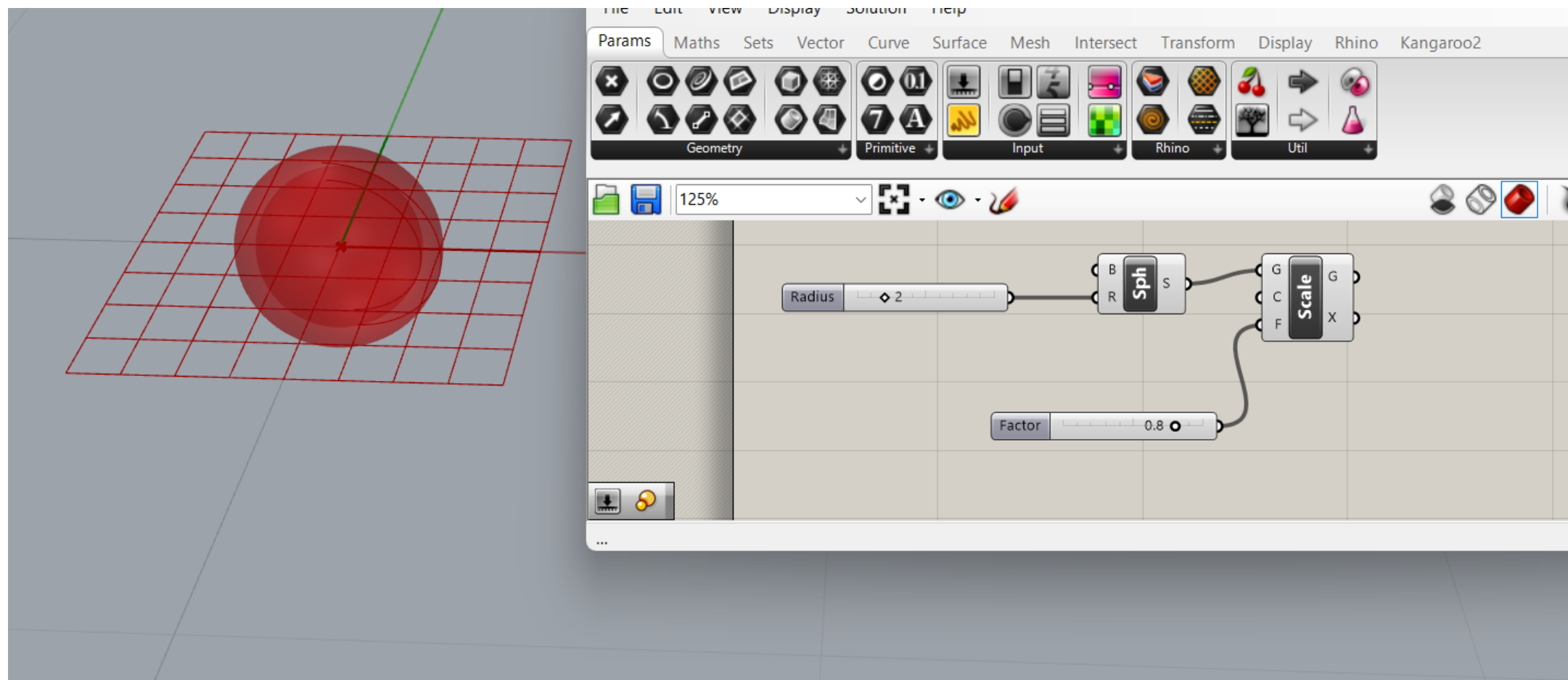
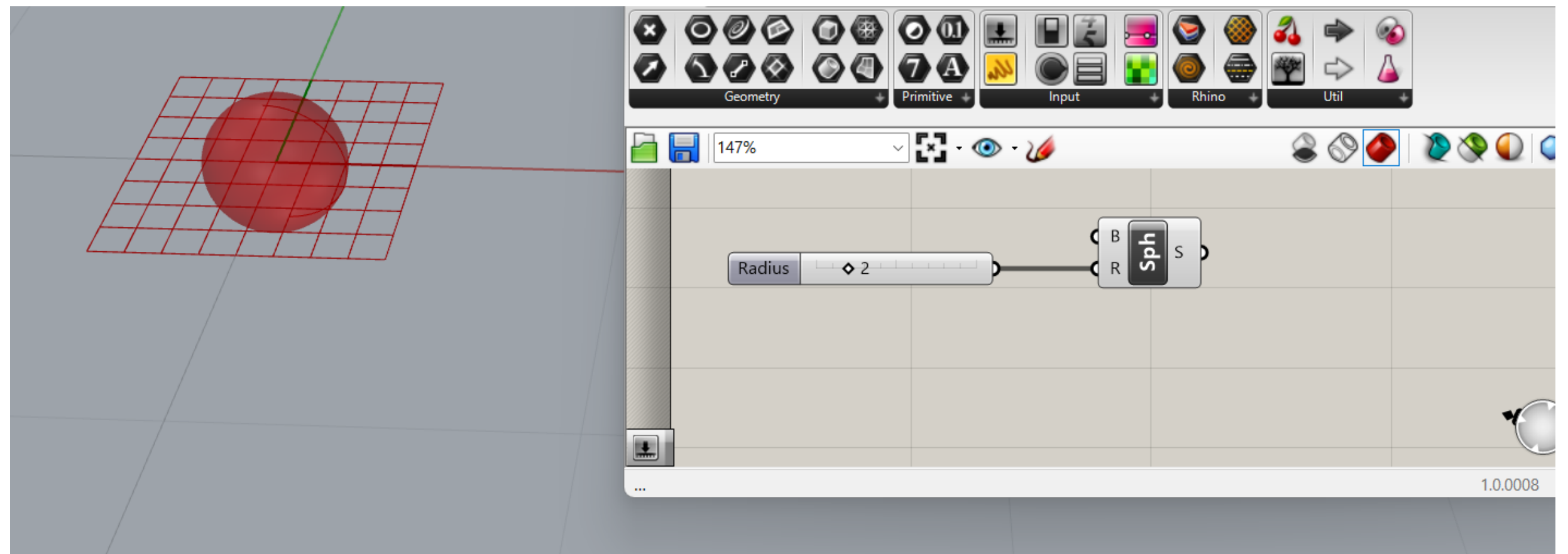
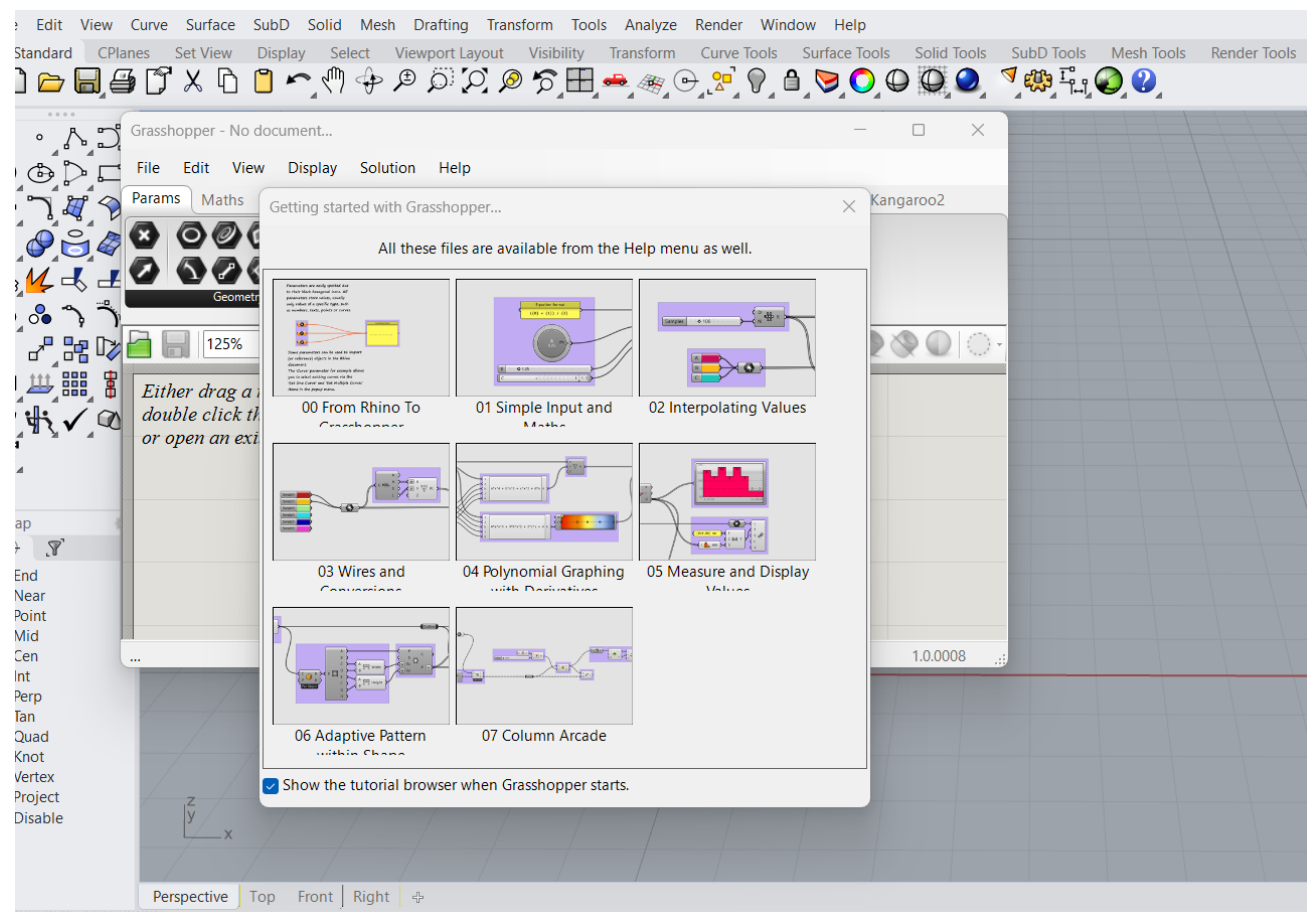
Aula 7- Construção de Abóbadas (Continuação)



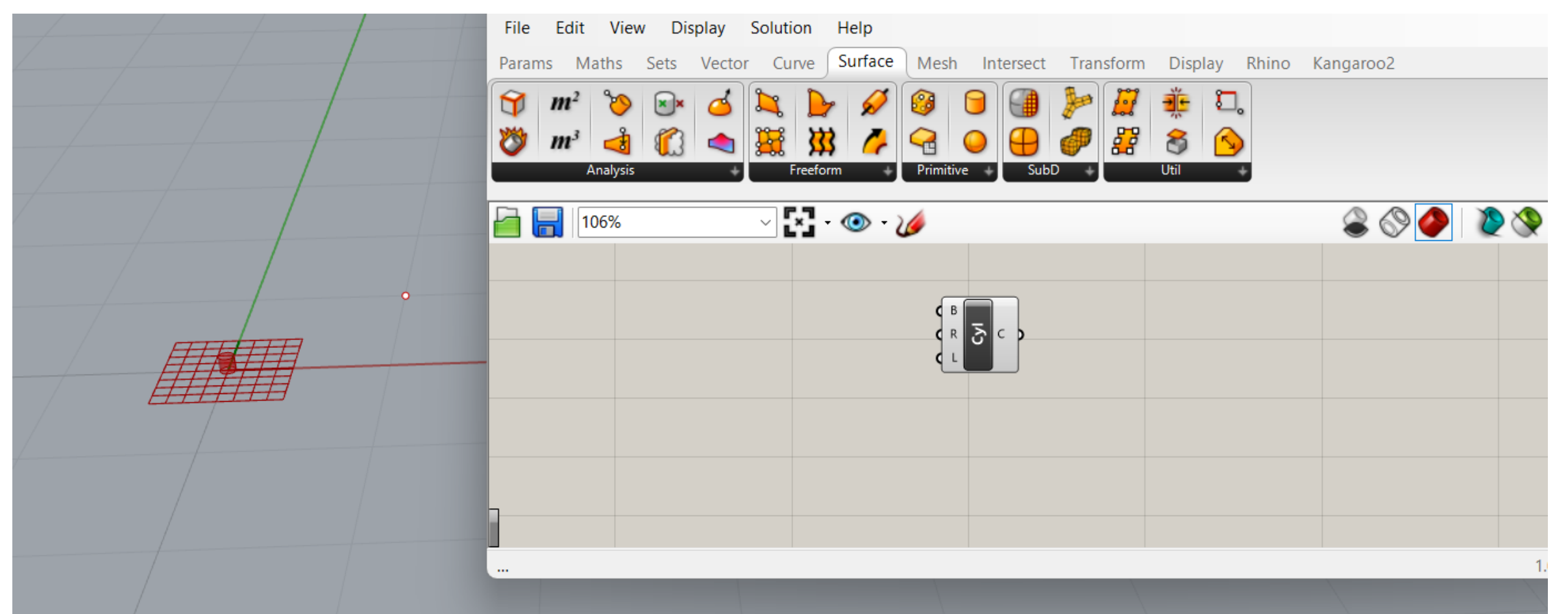
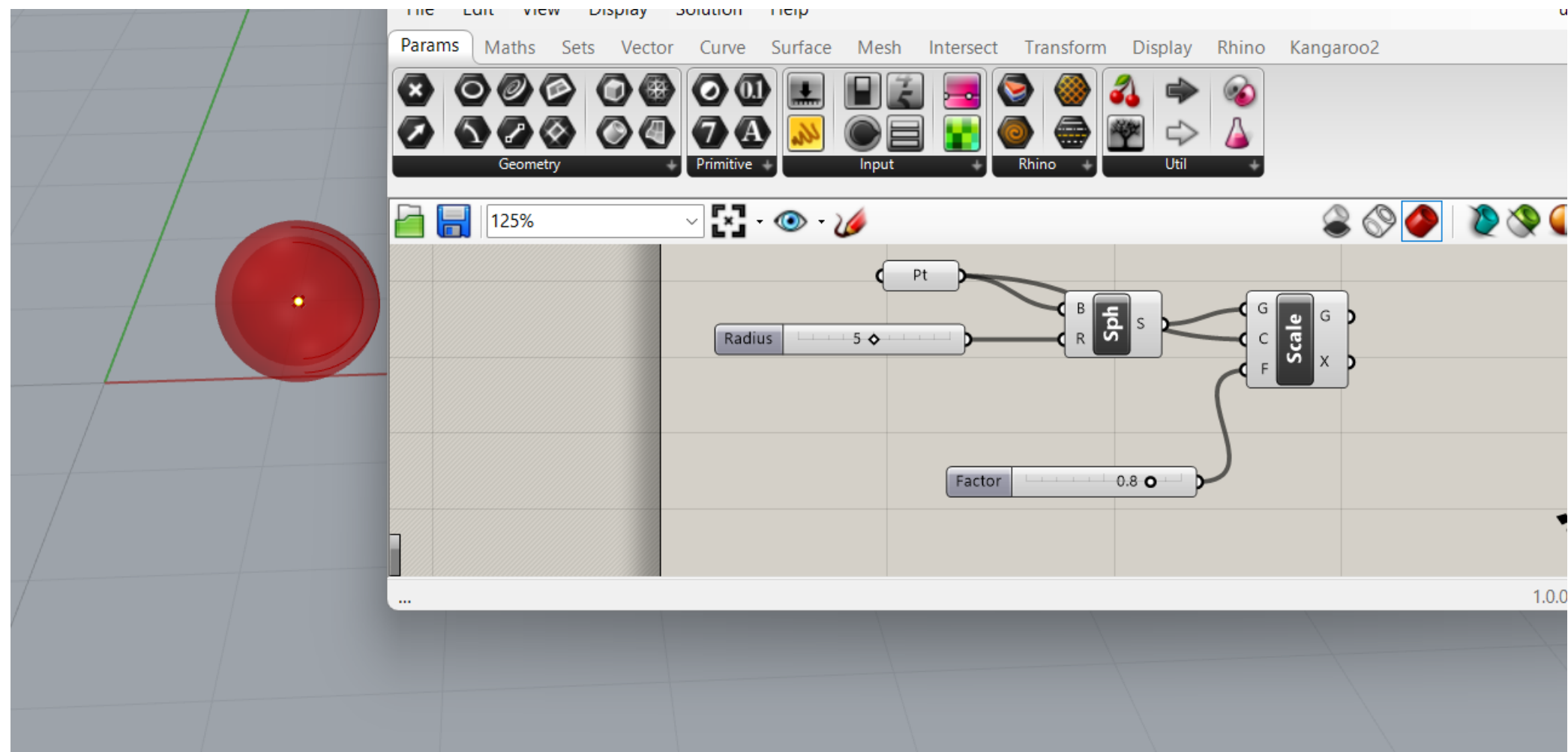
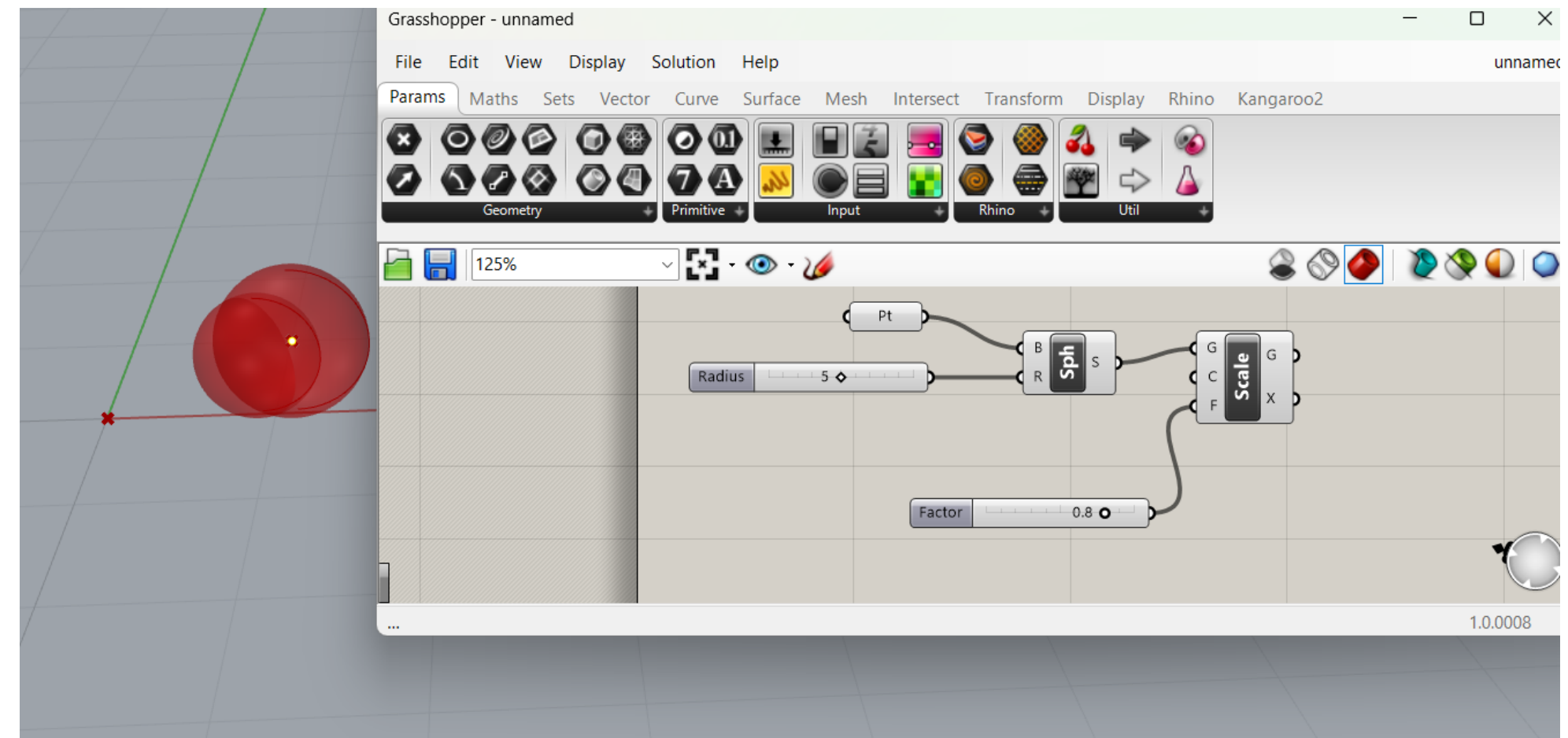
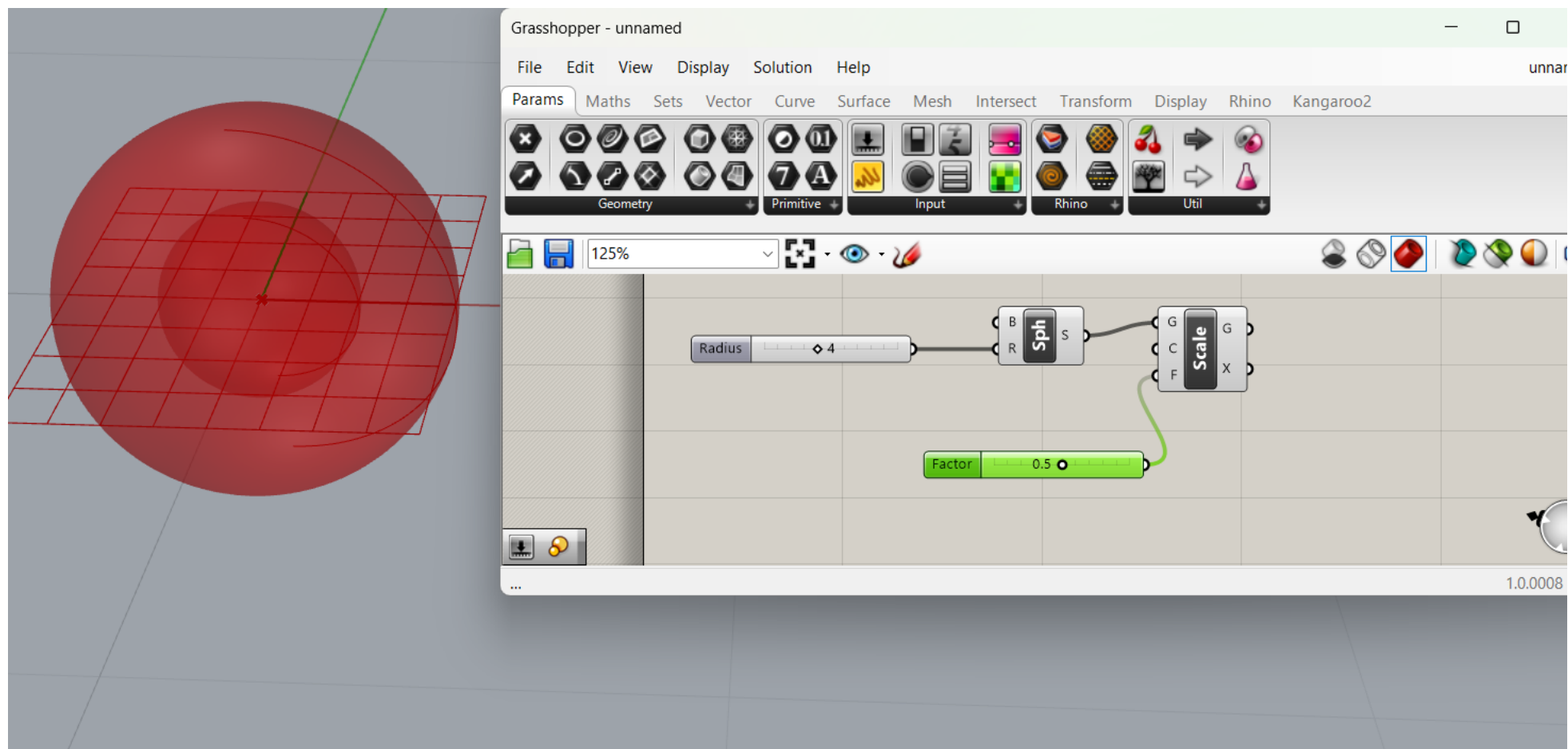
Aula 7- Construção de Abóbadas (Continuação)



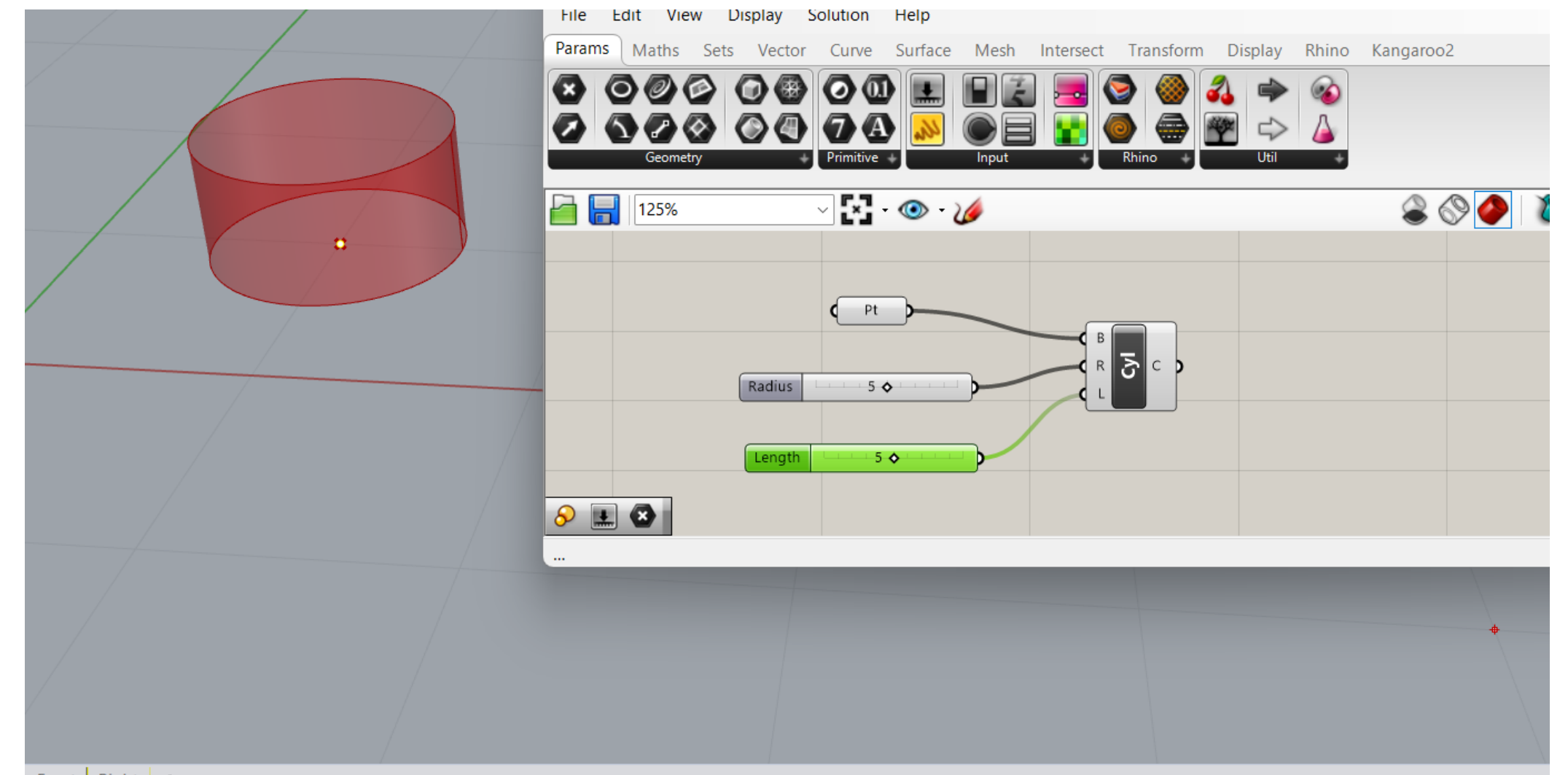
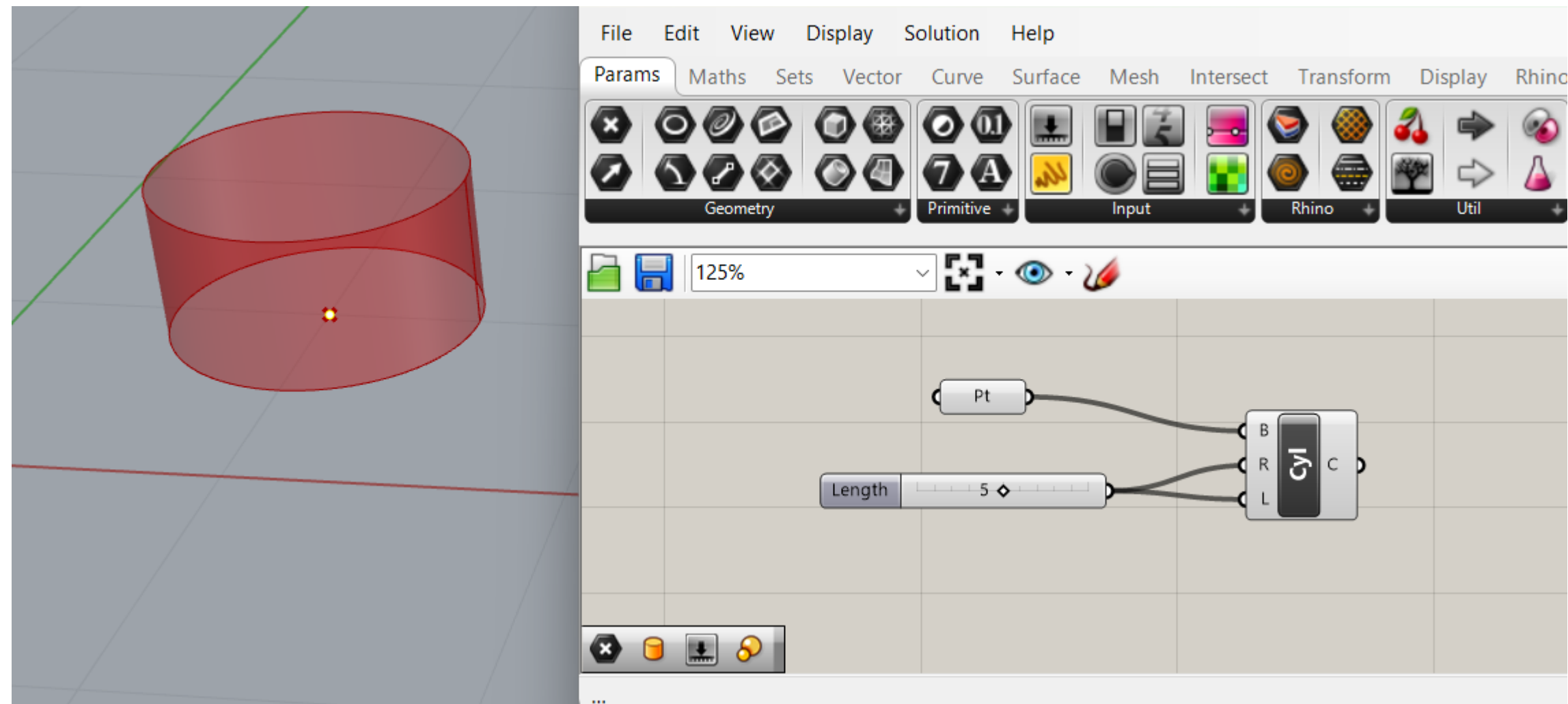
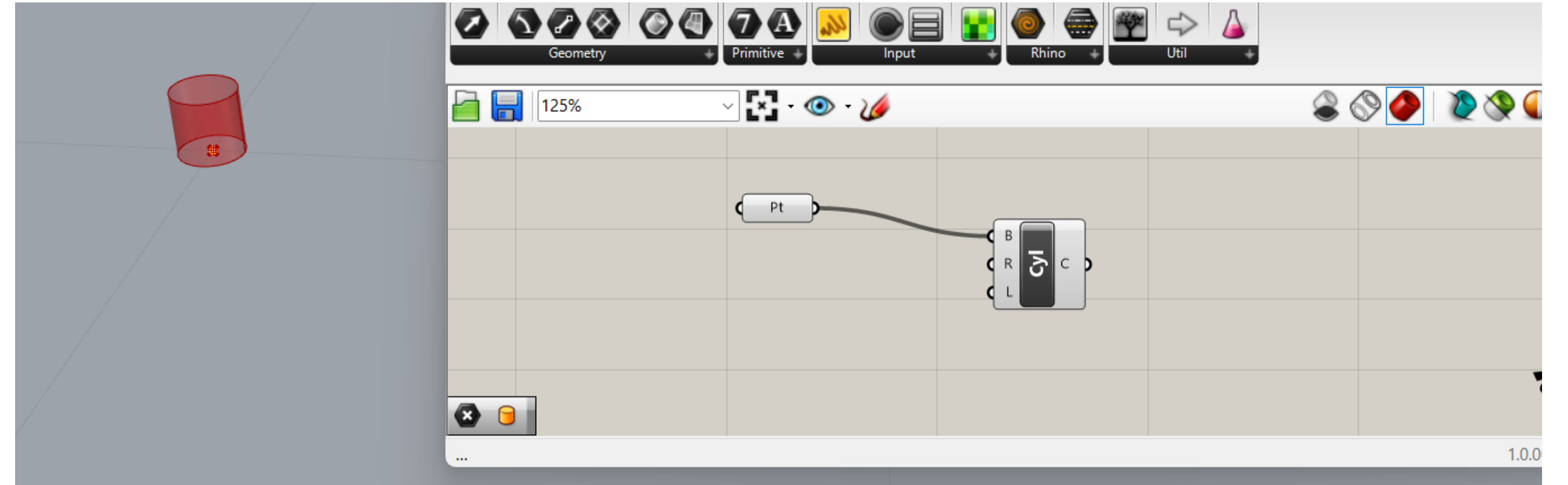
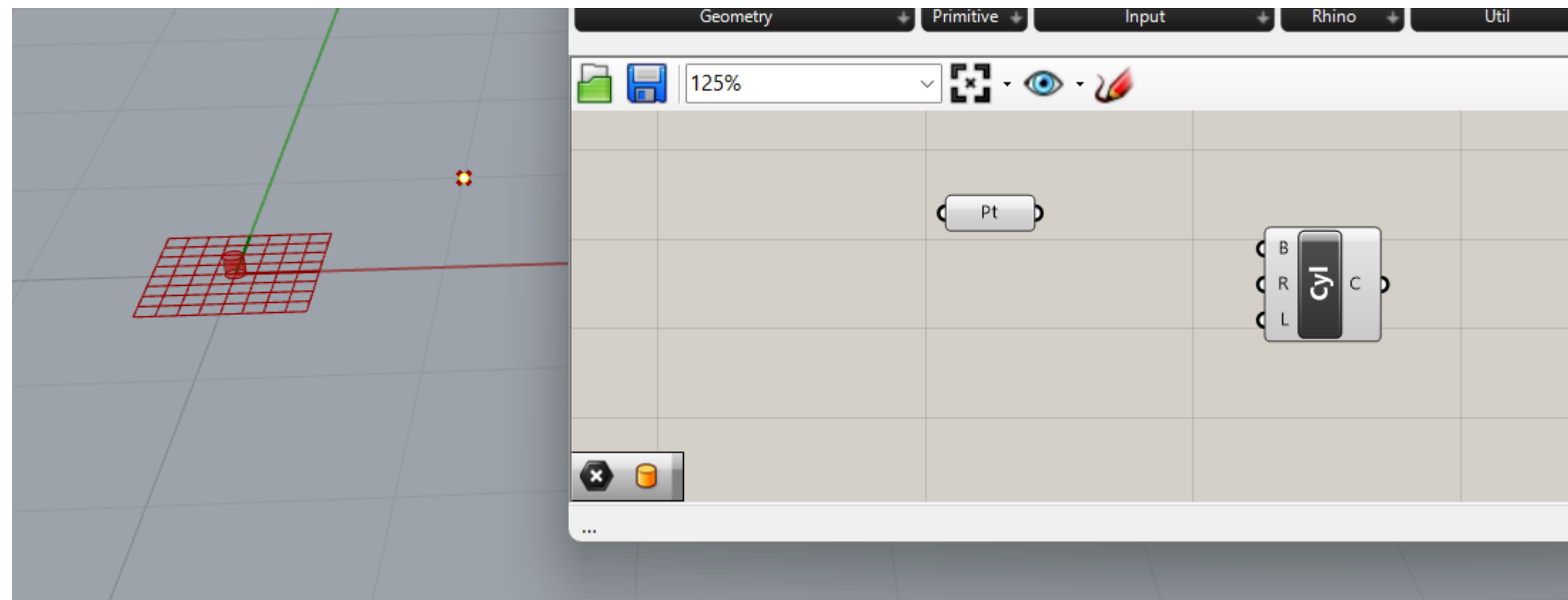
Aula 7- Construção de Abóbadas (Continuação)



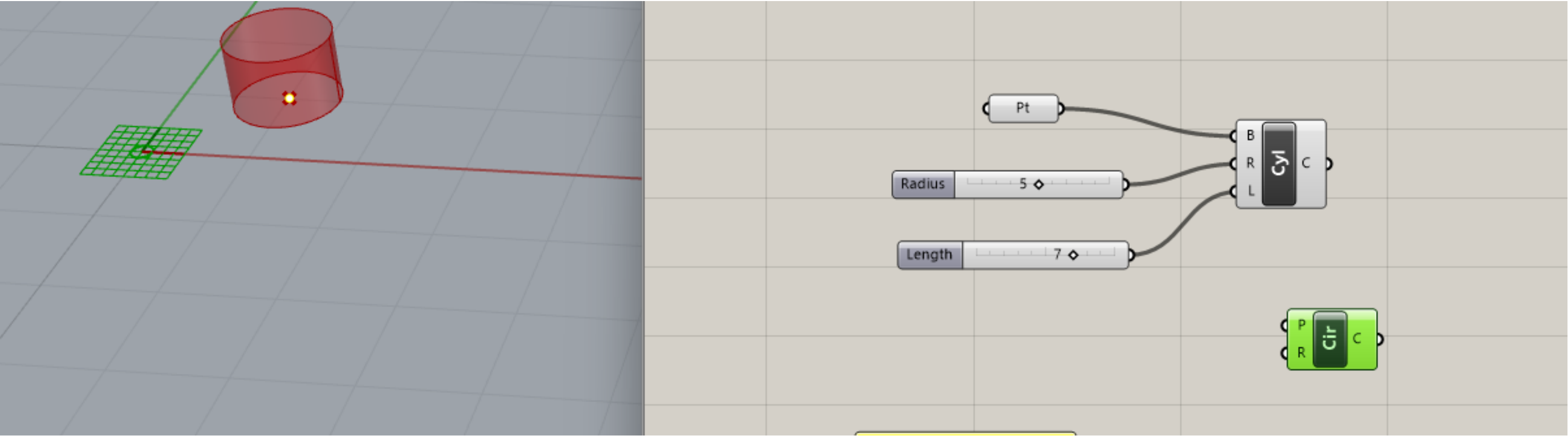
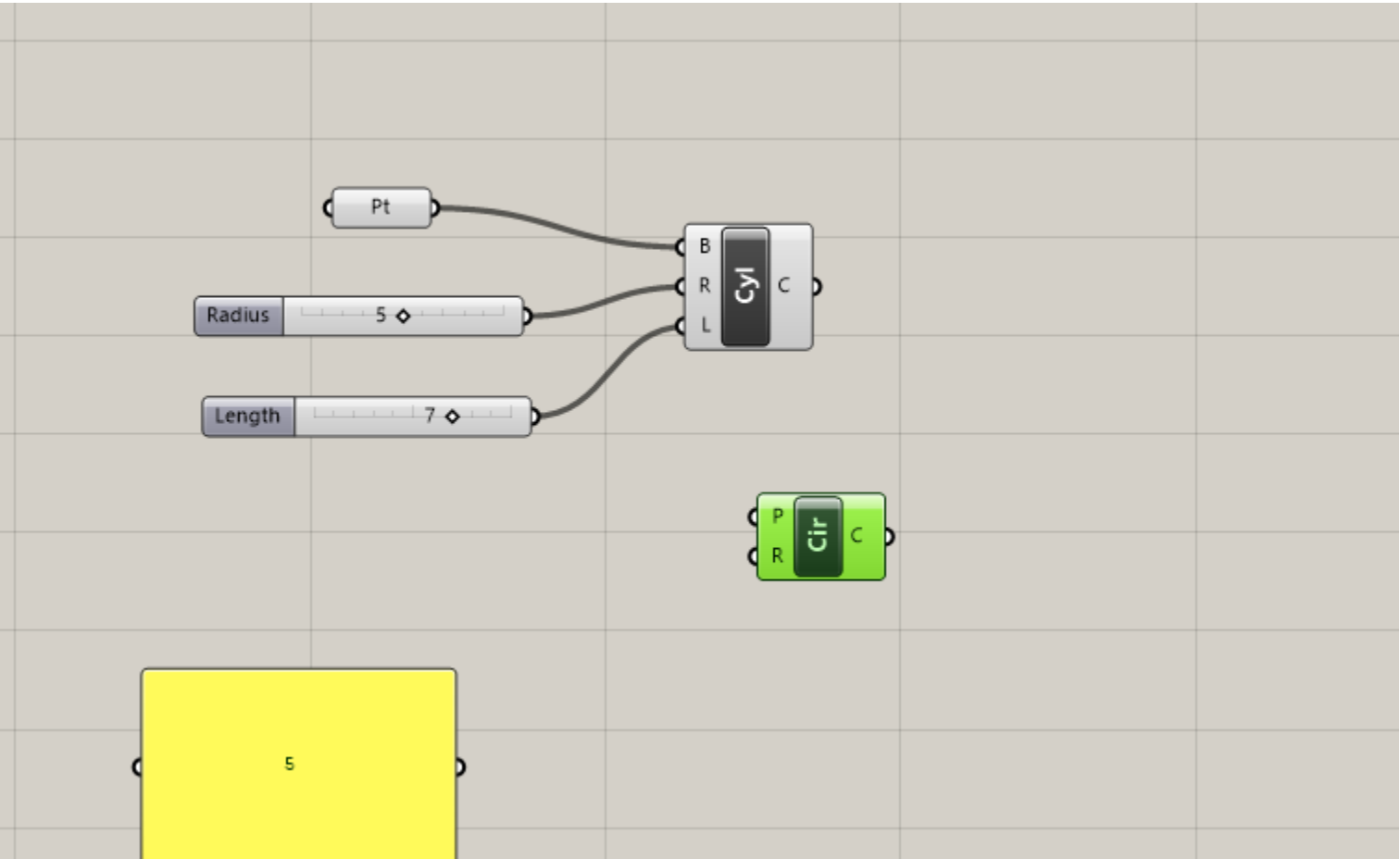
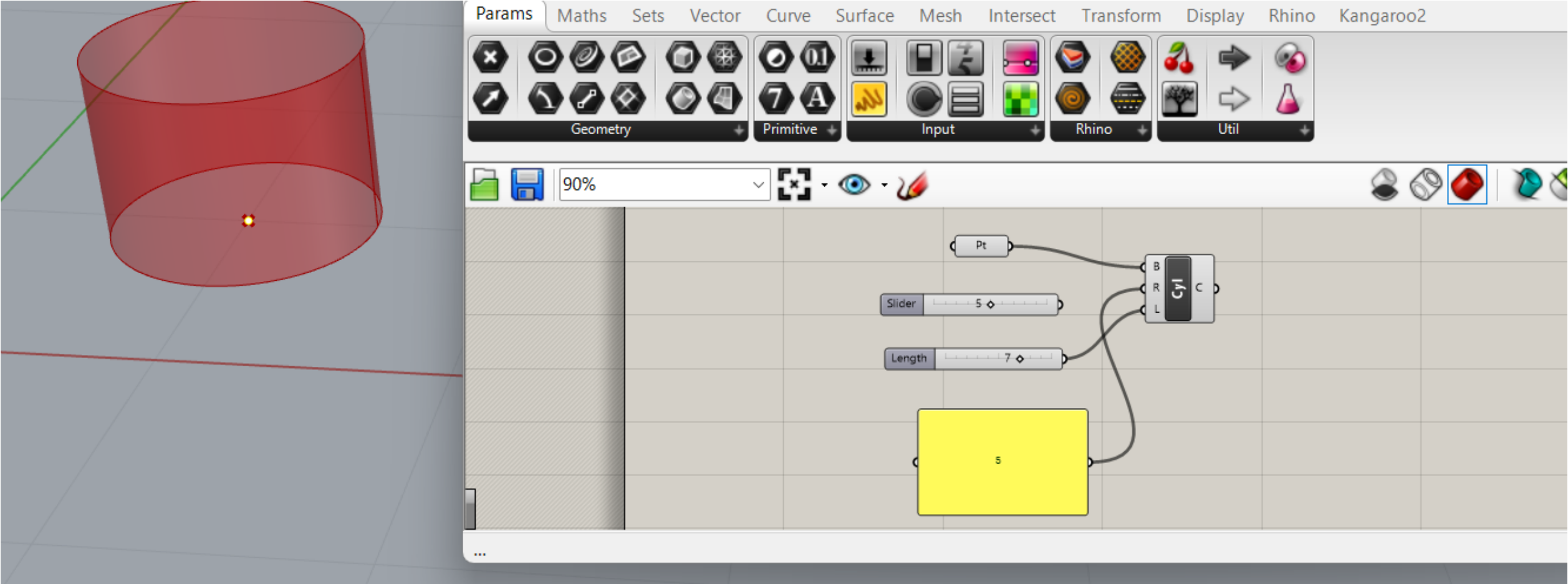
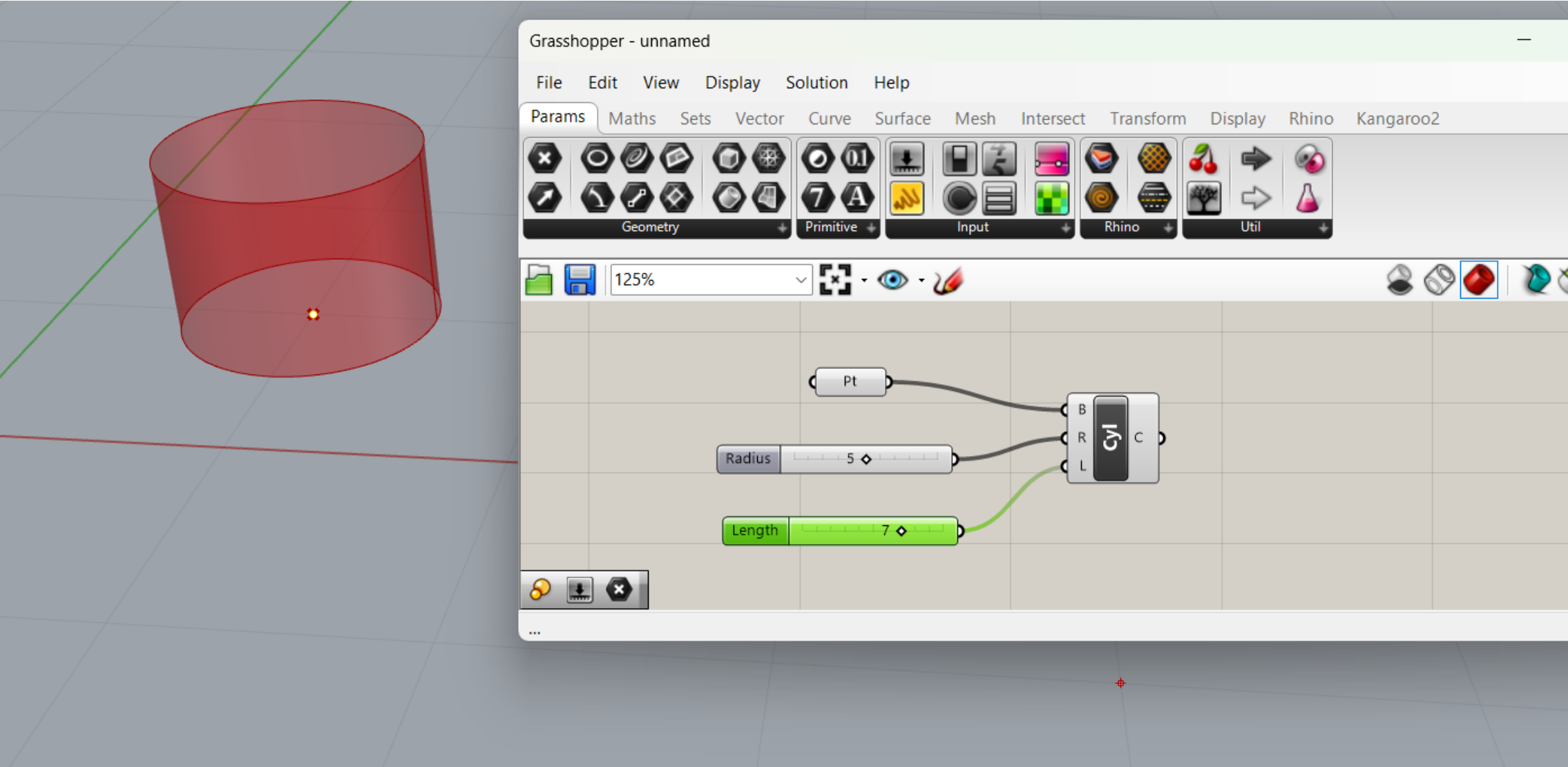
Aula 8- Grassopper



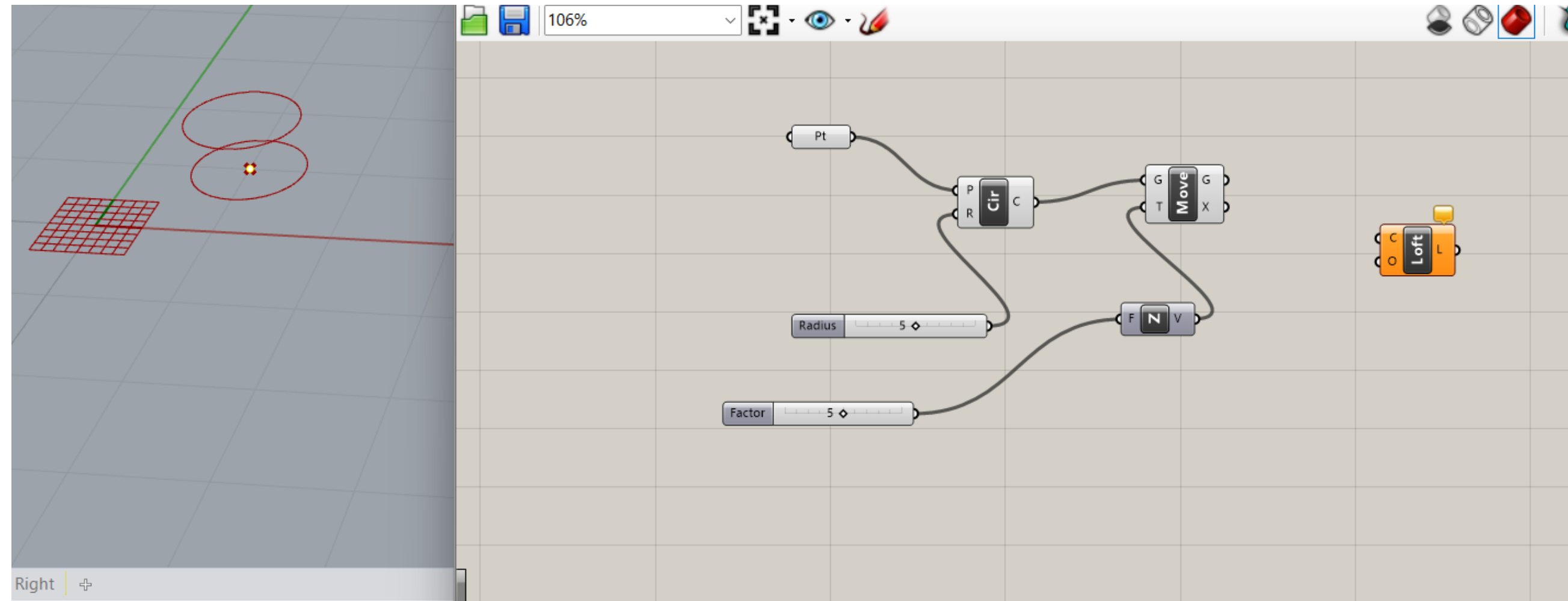
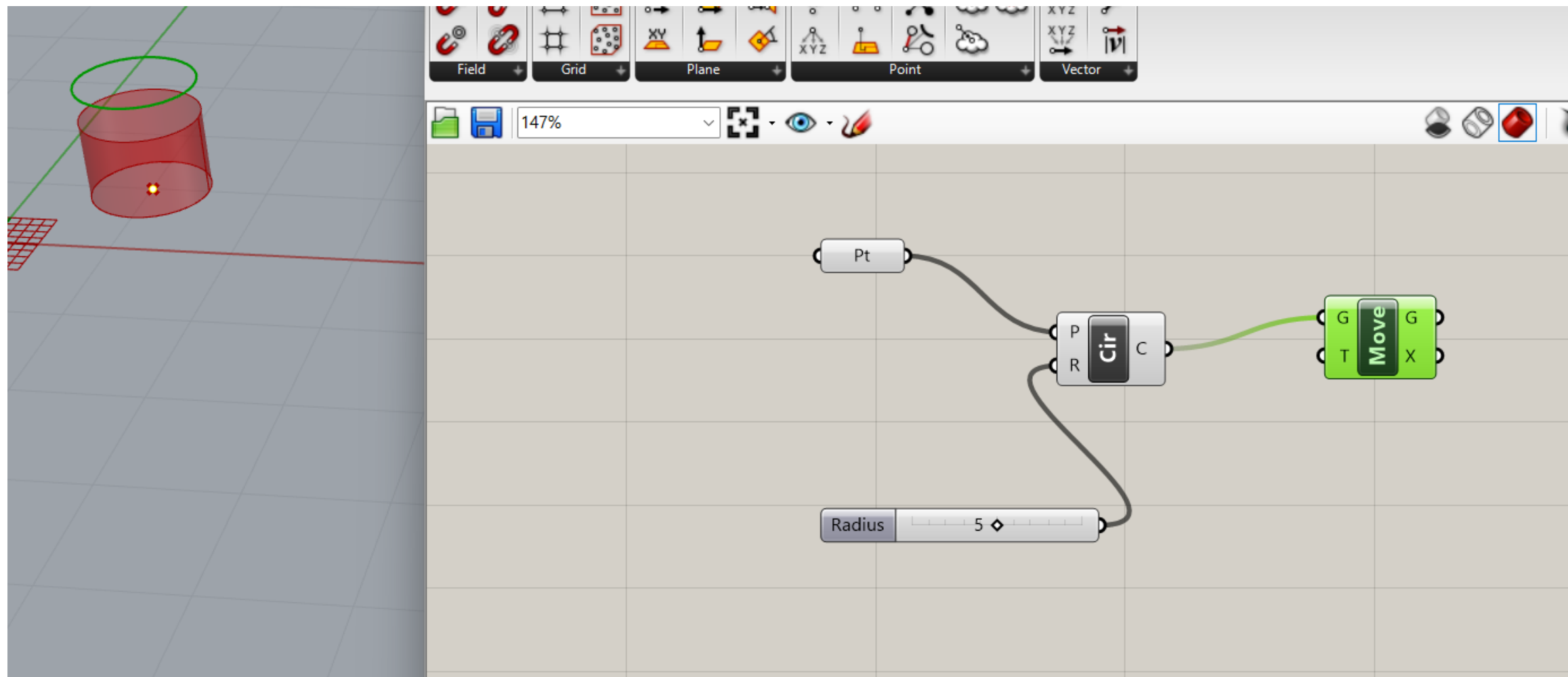
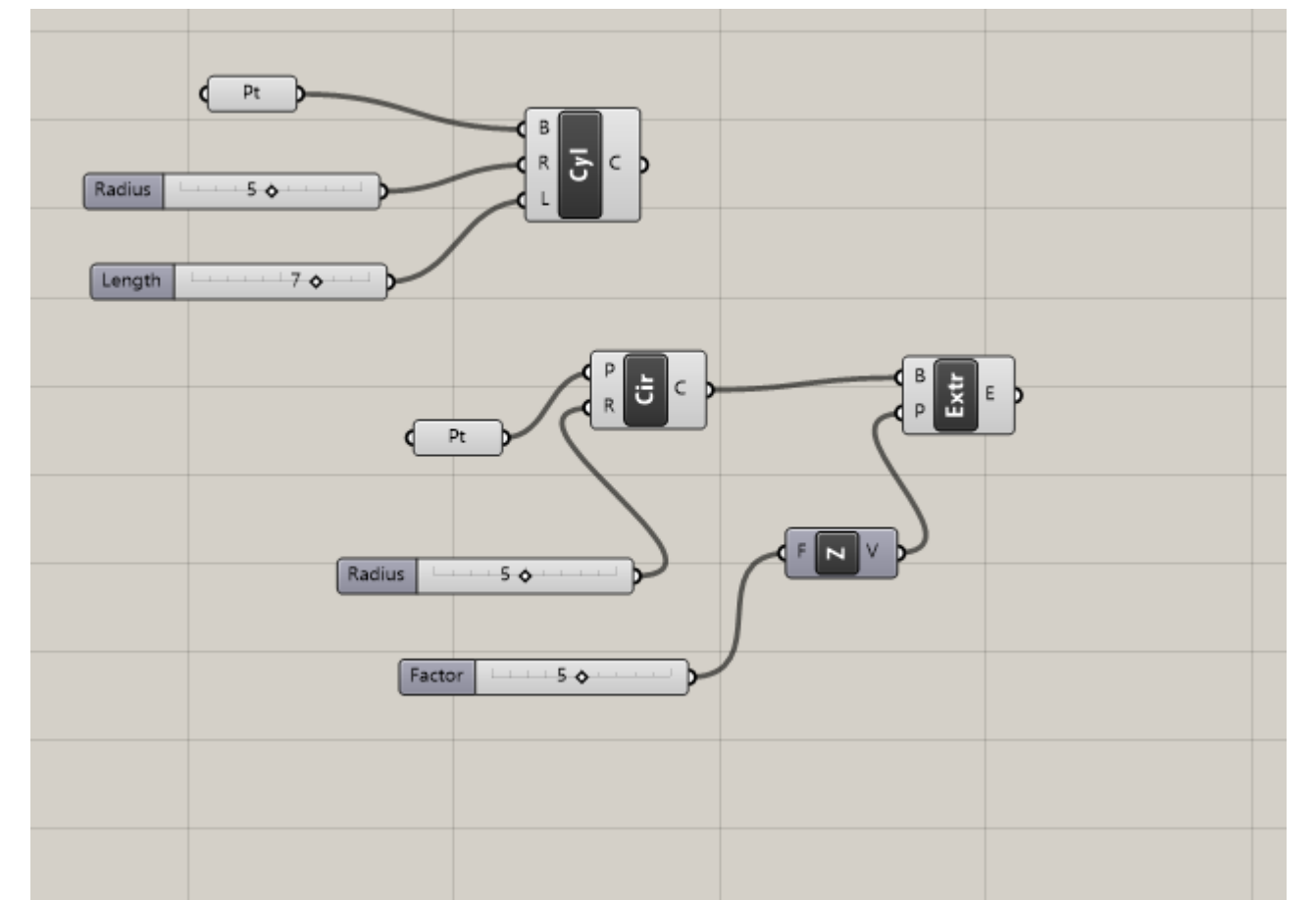
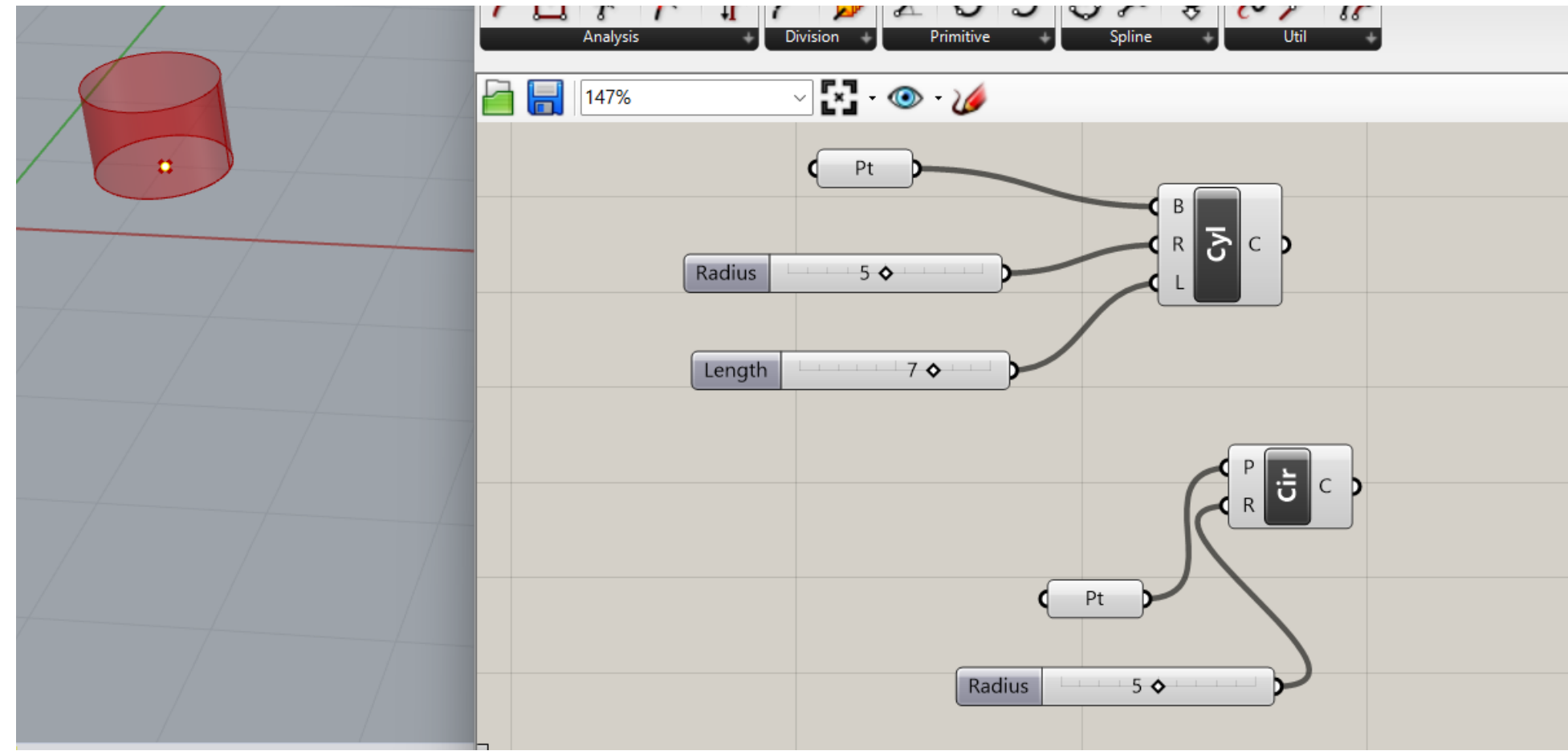
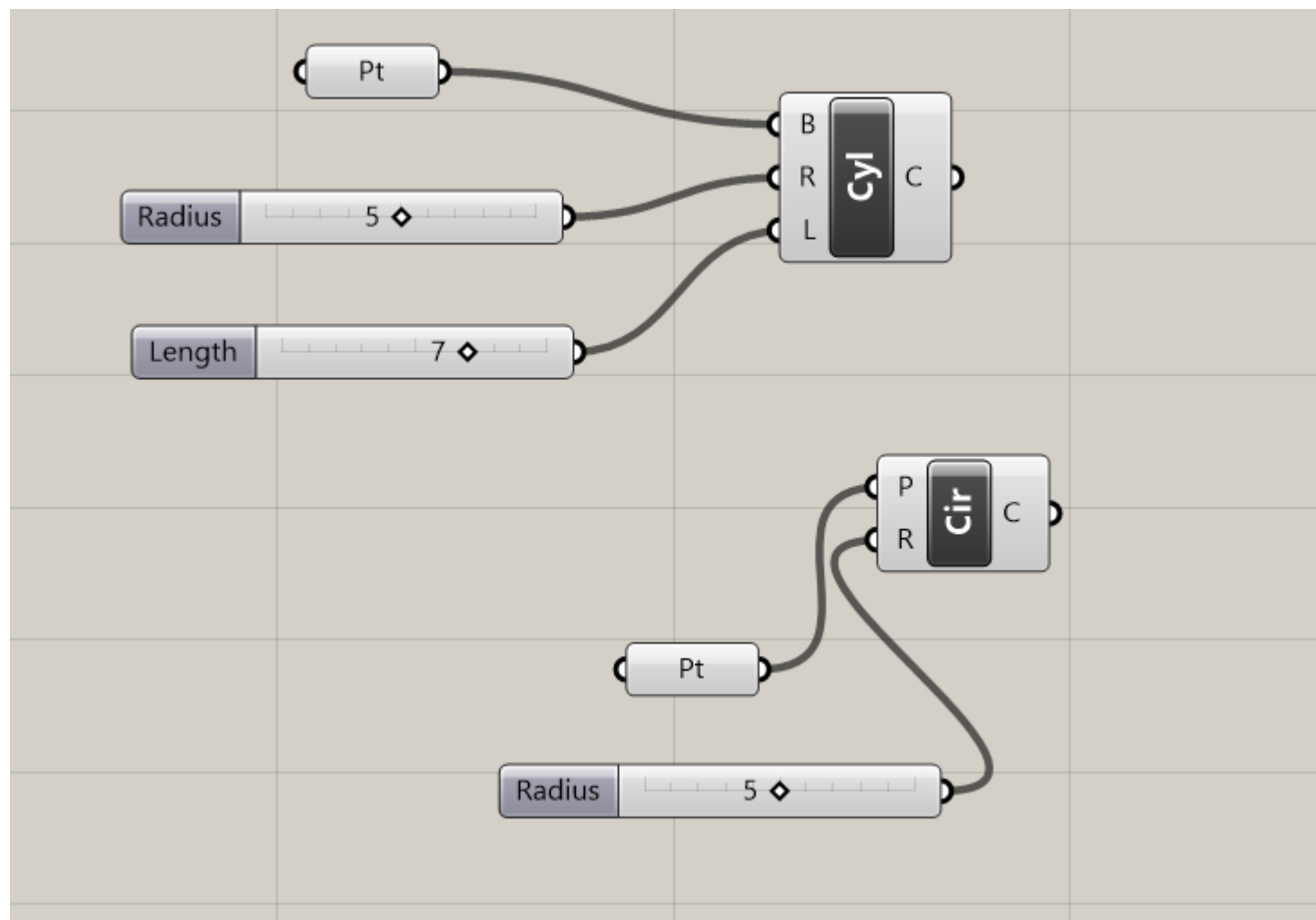
Aula 8- Grassopper



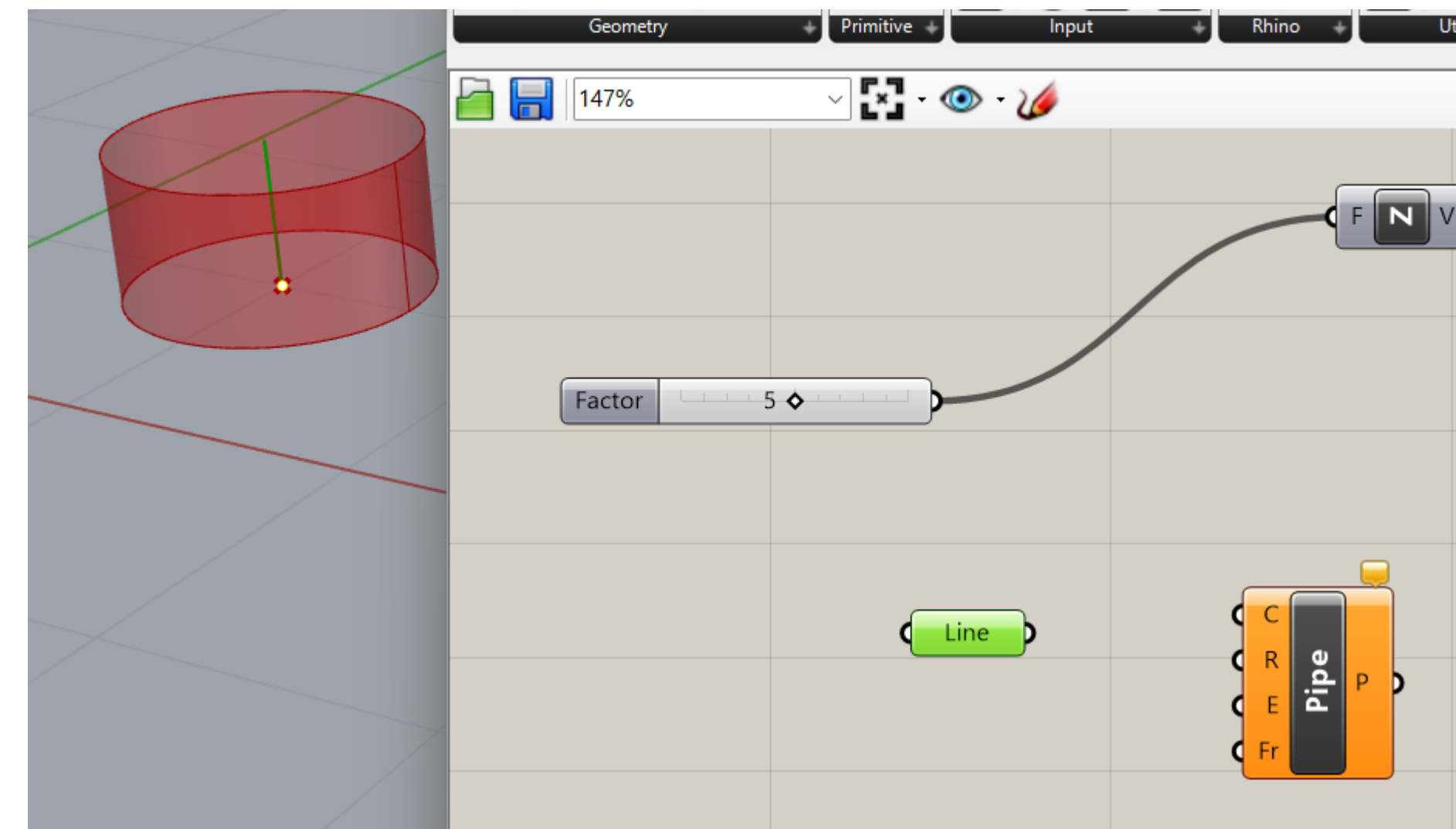
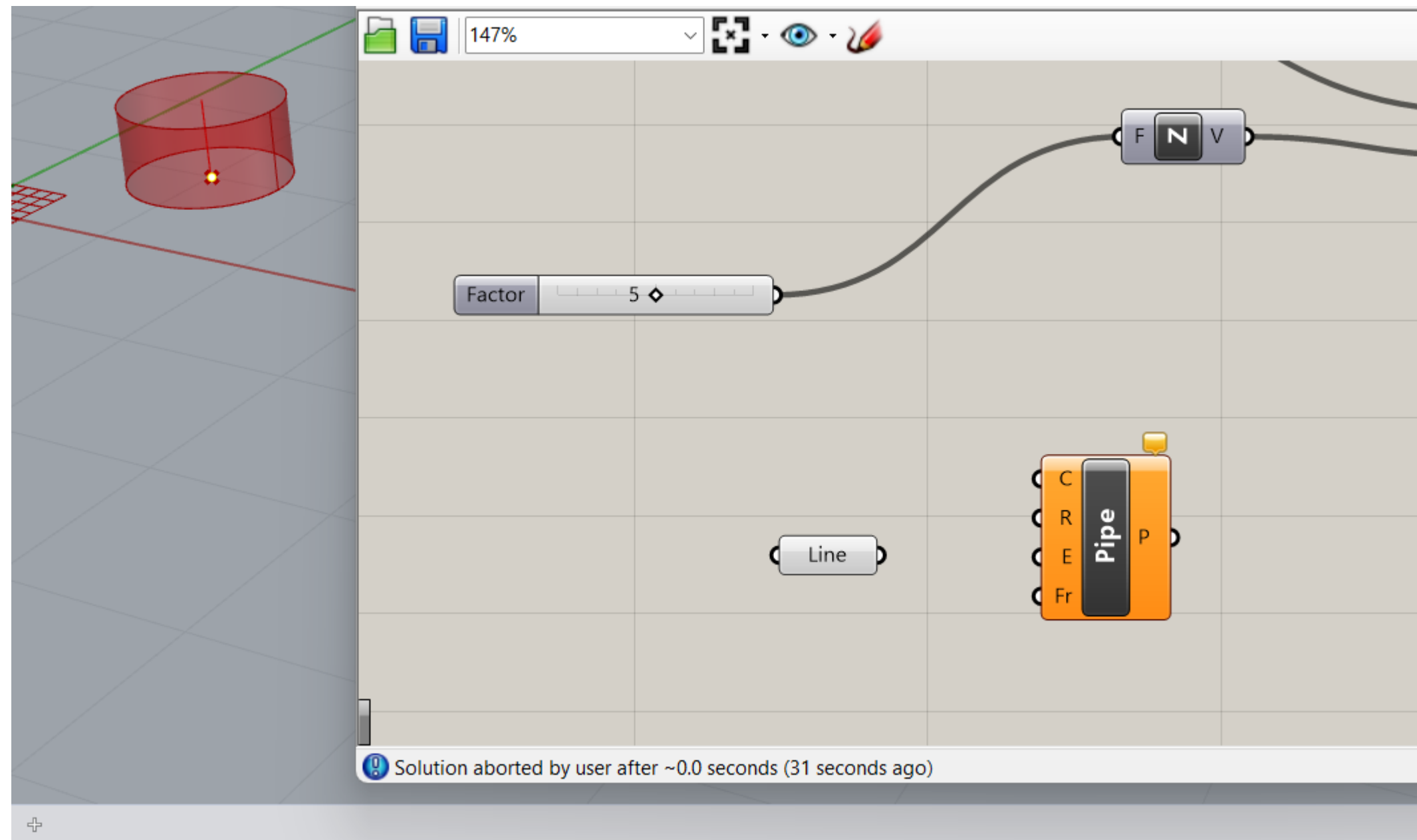
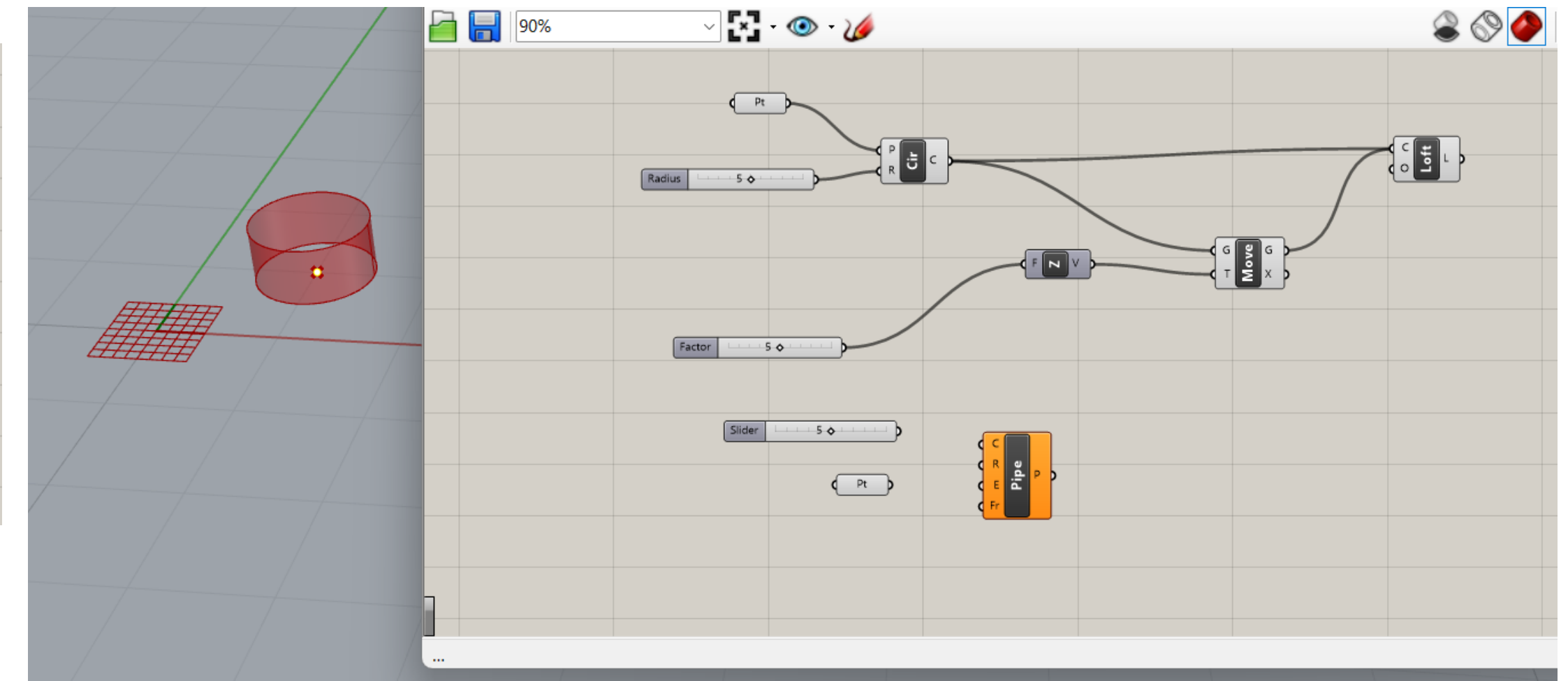
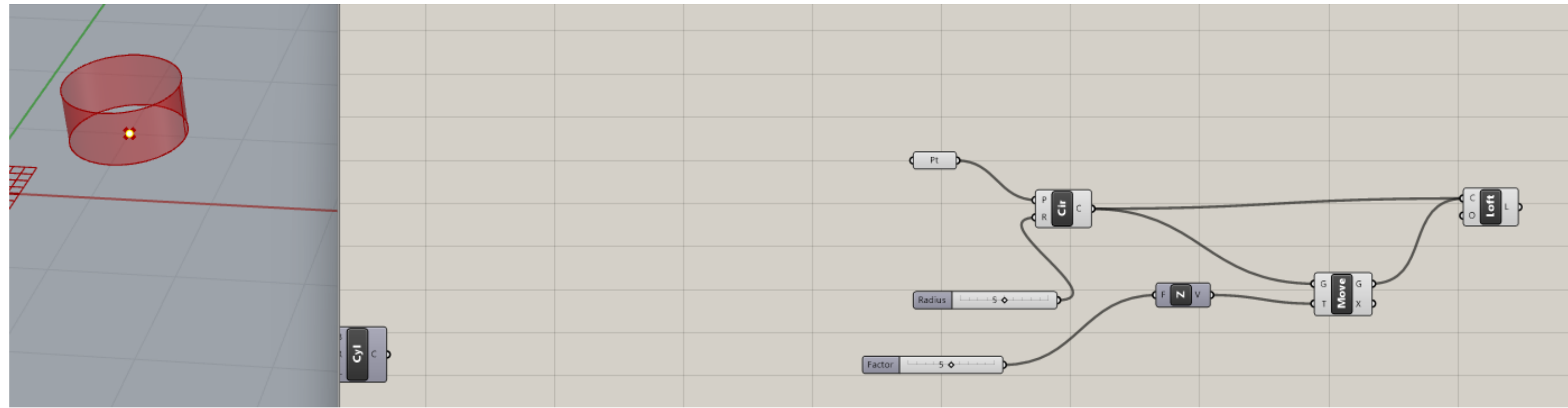
Aula 8- Grassopper



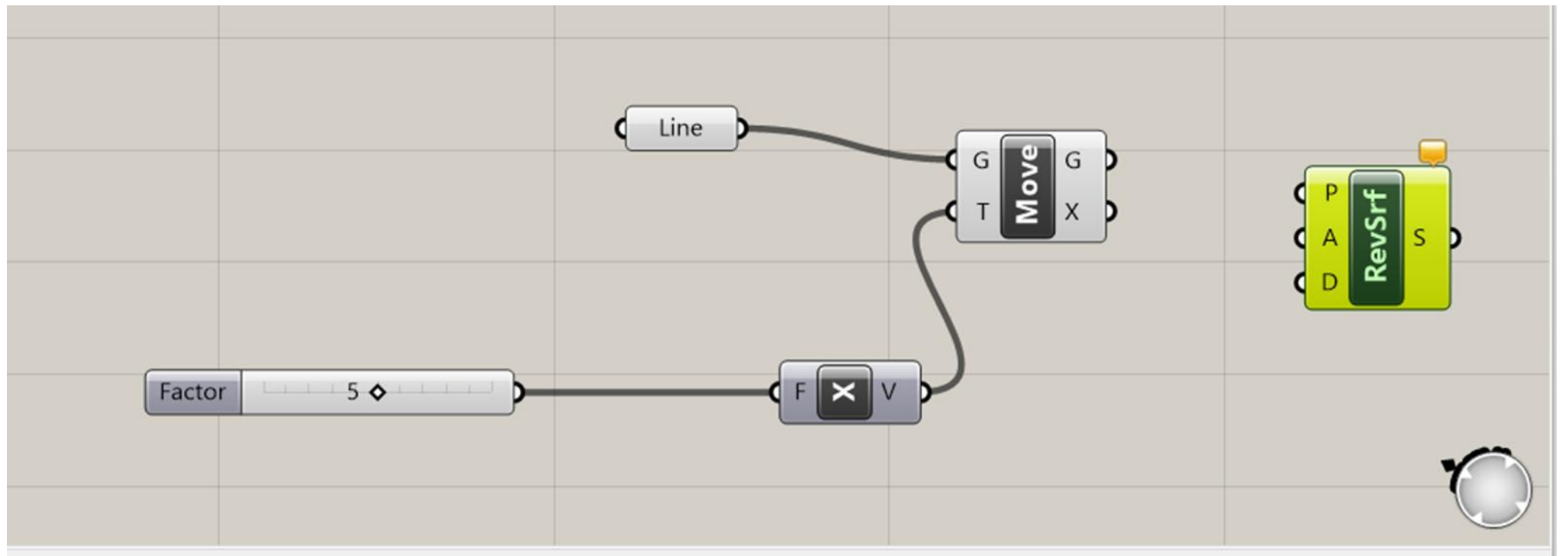
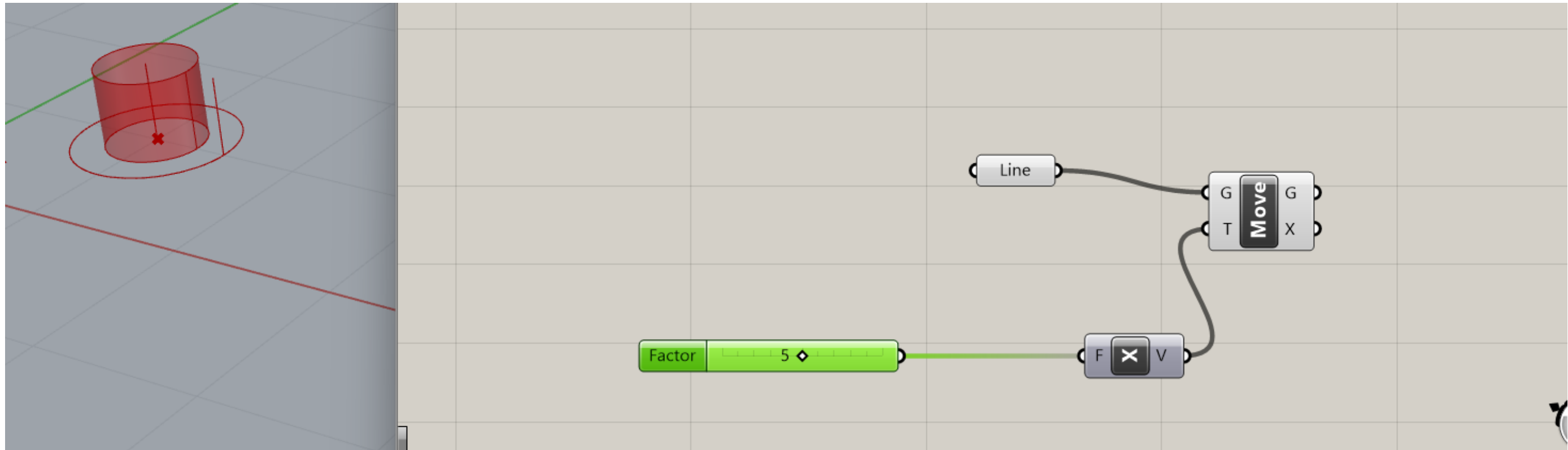
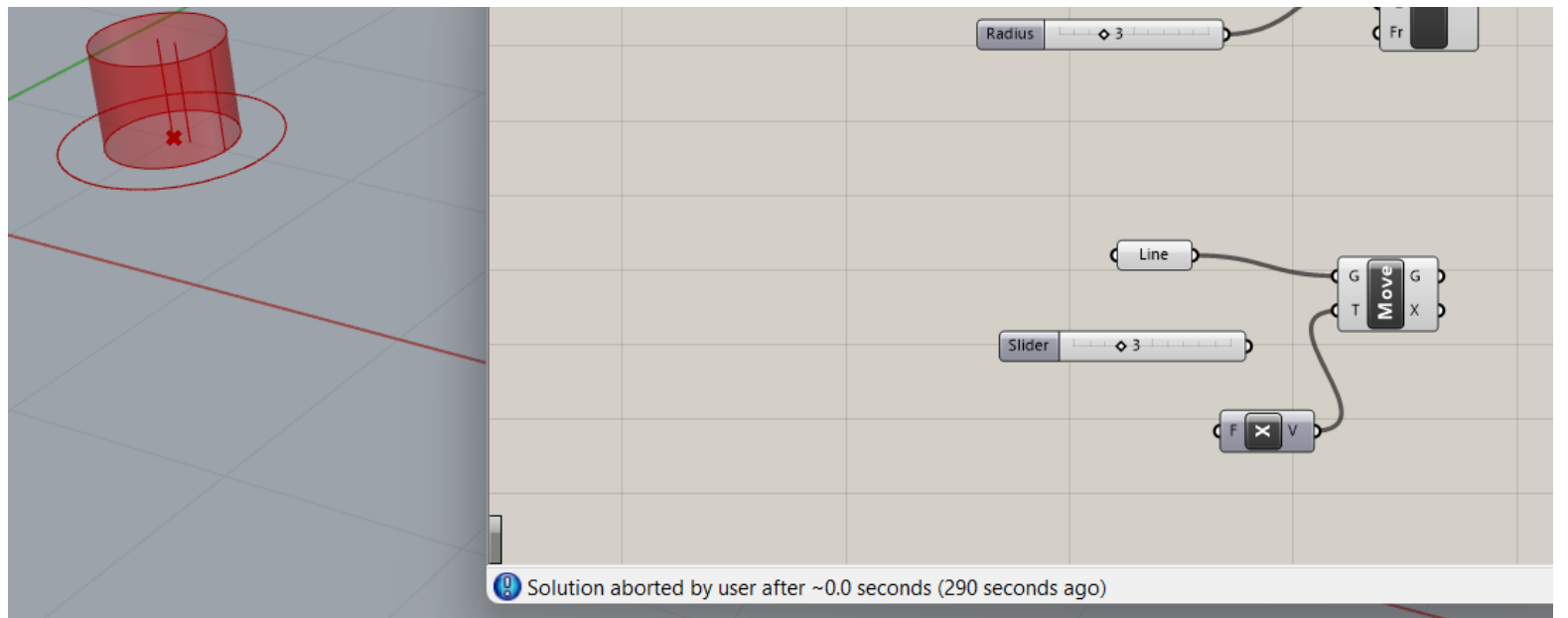
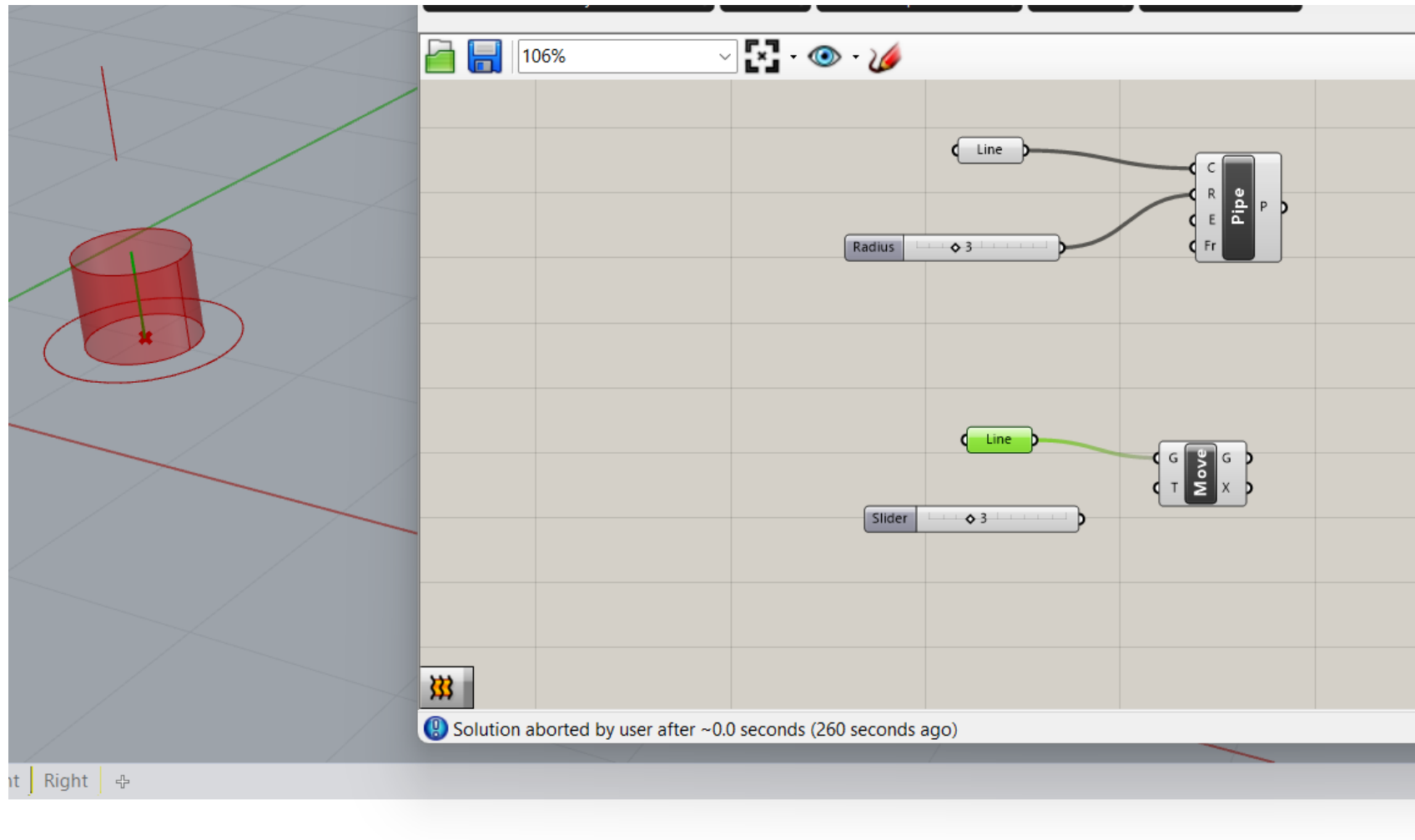
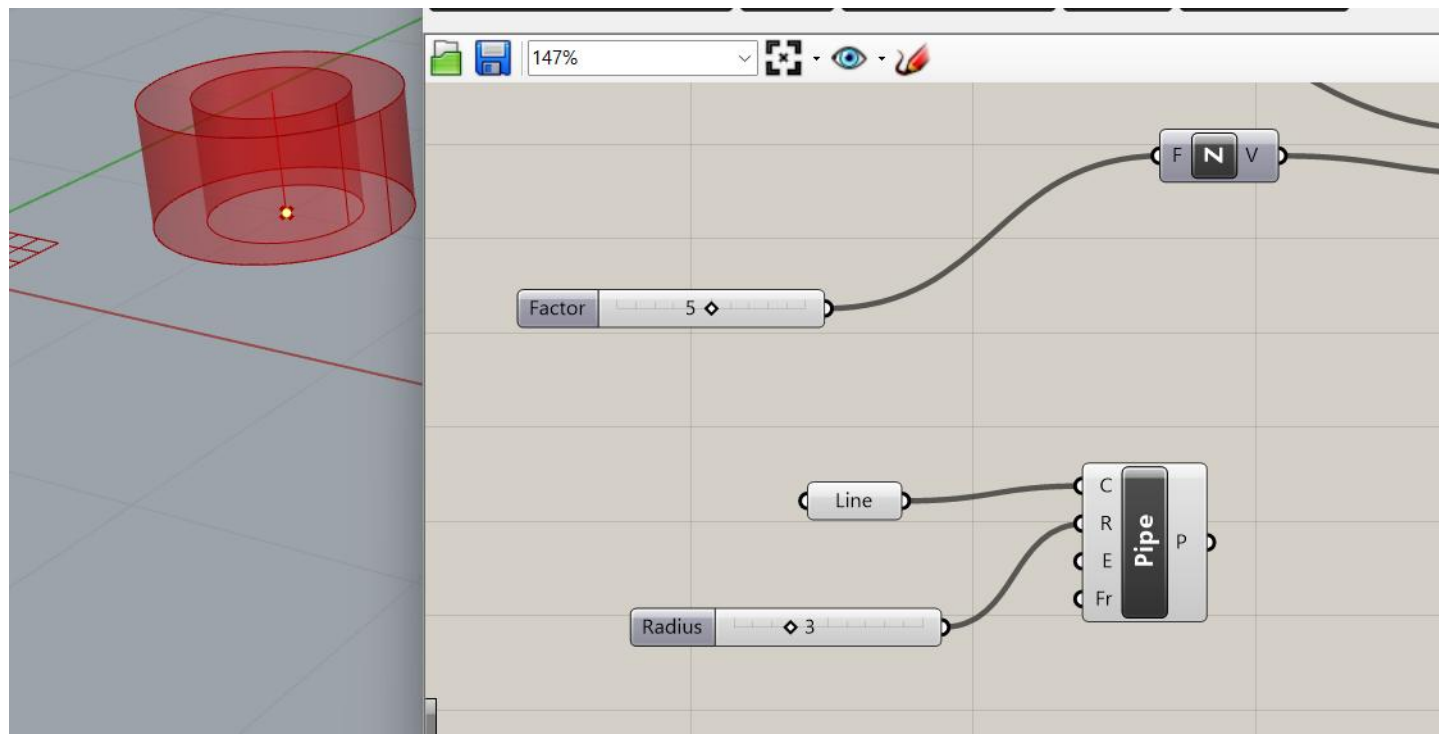
Aula 8- Grassopper



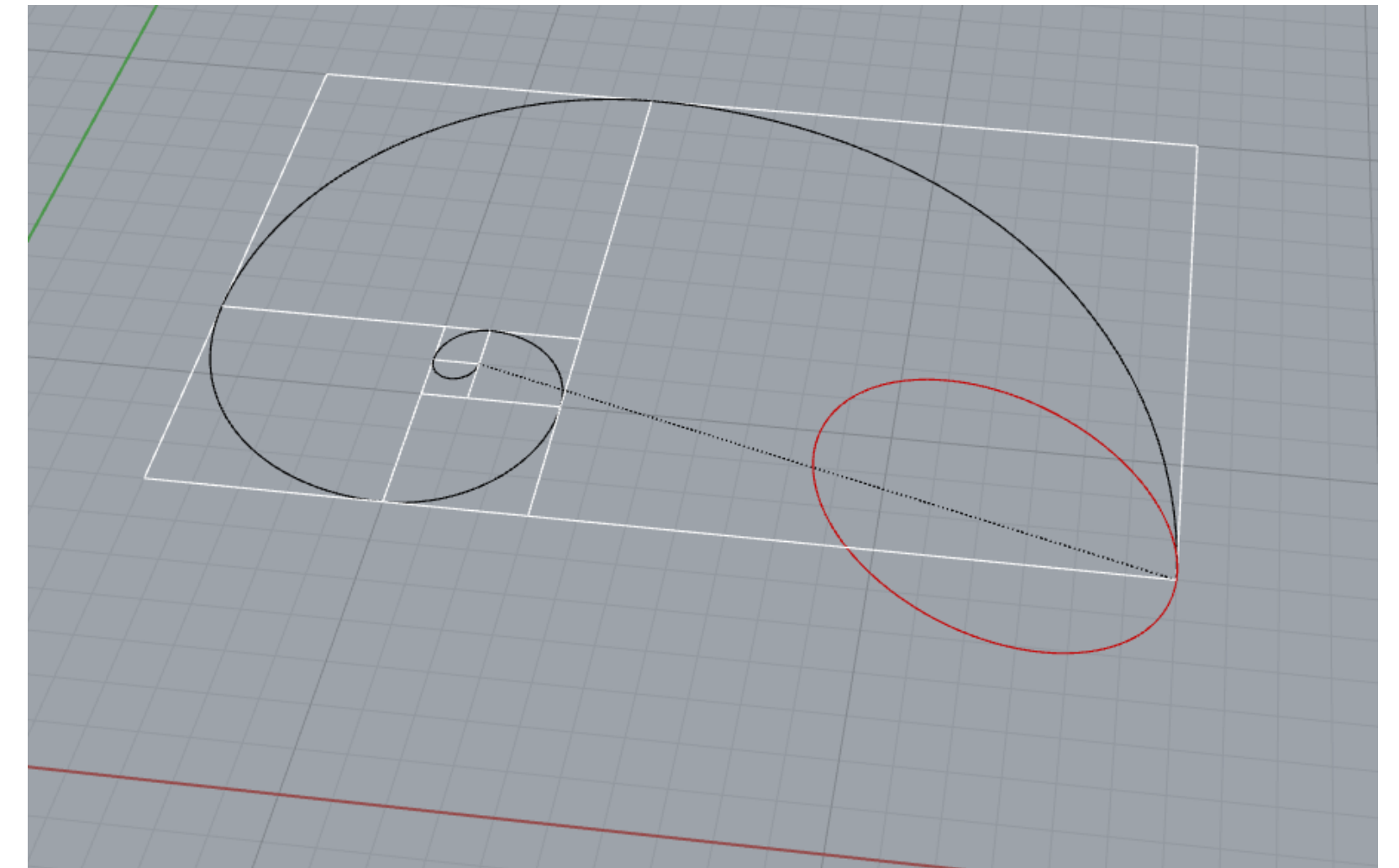
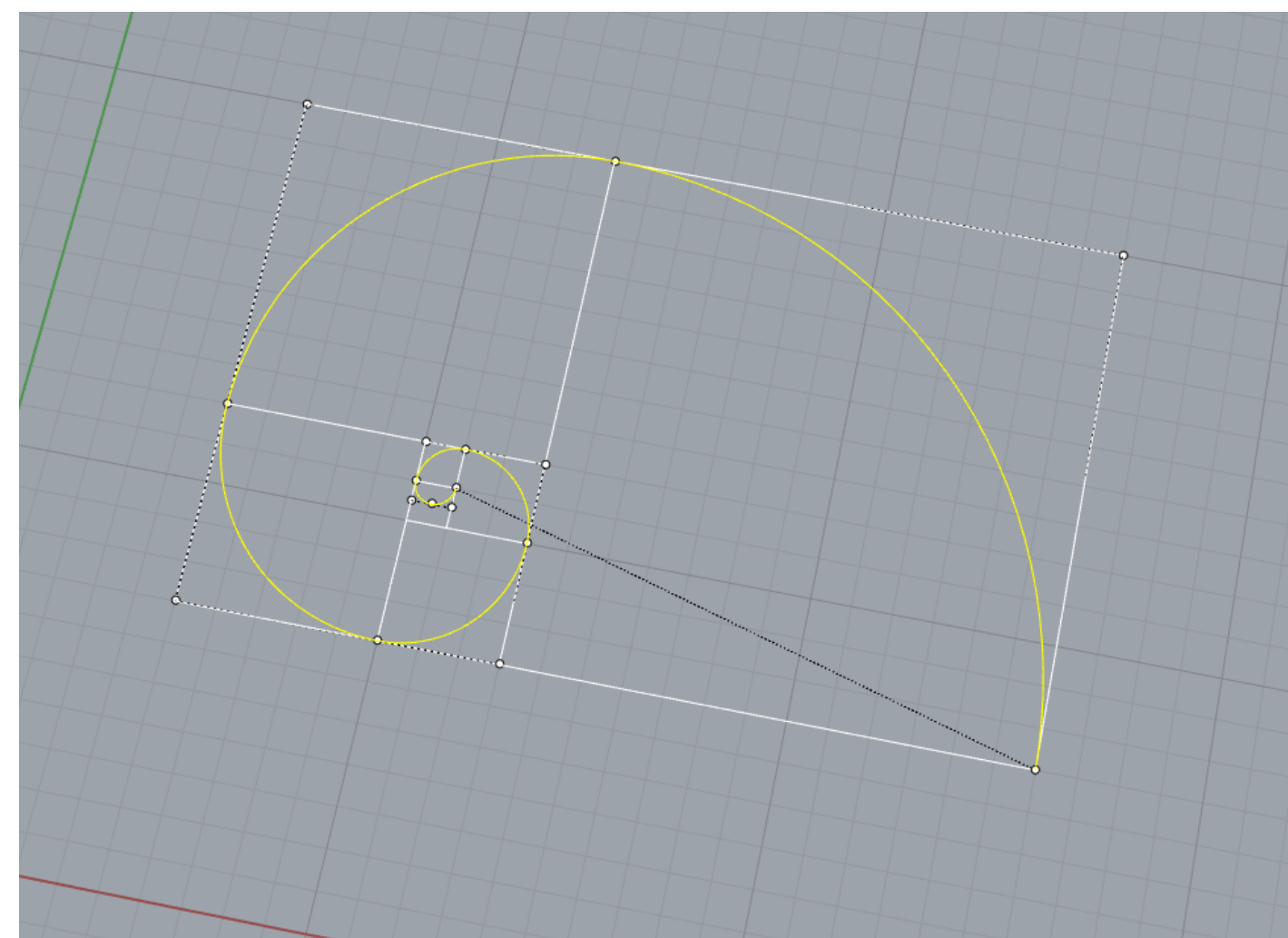
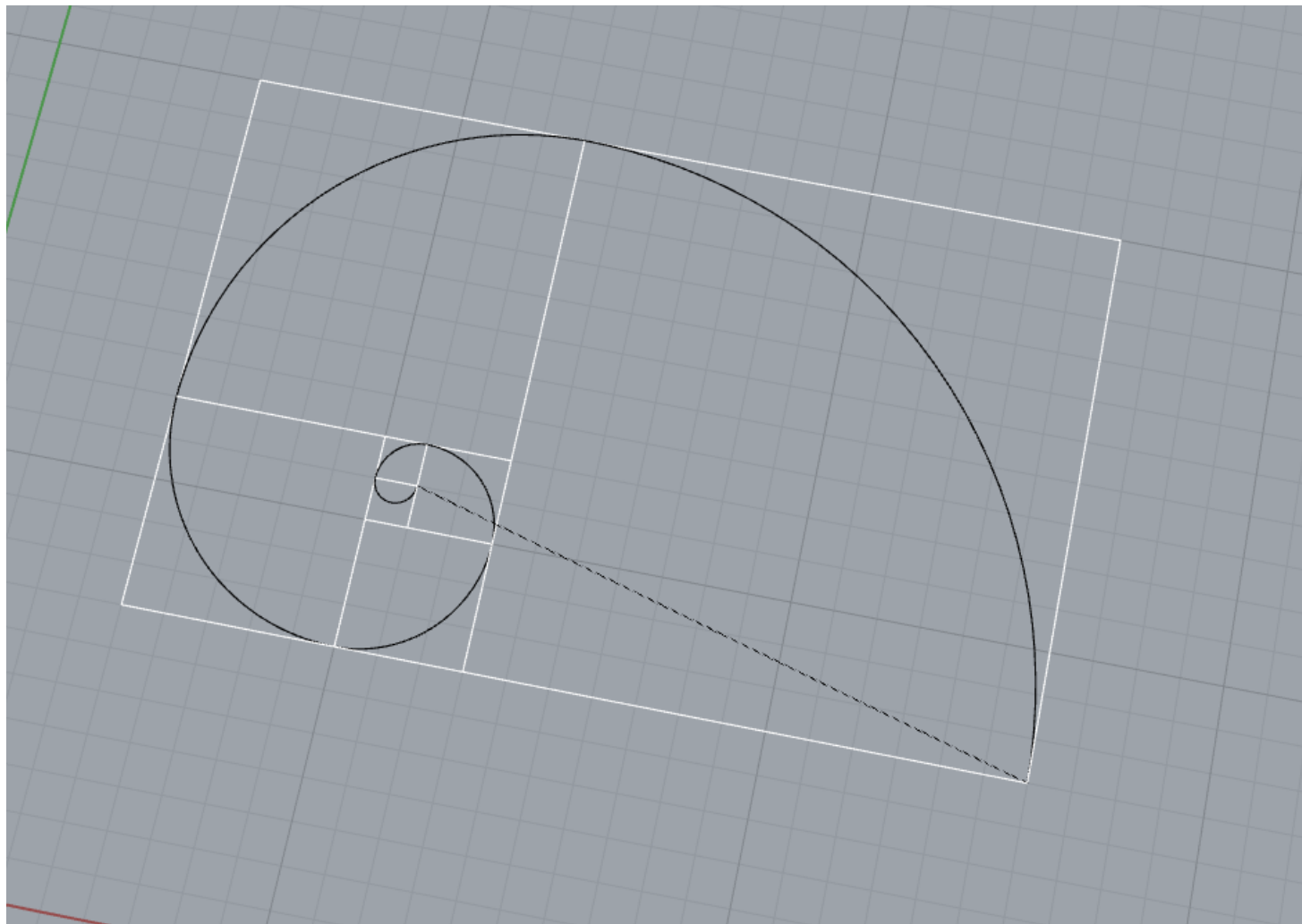
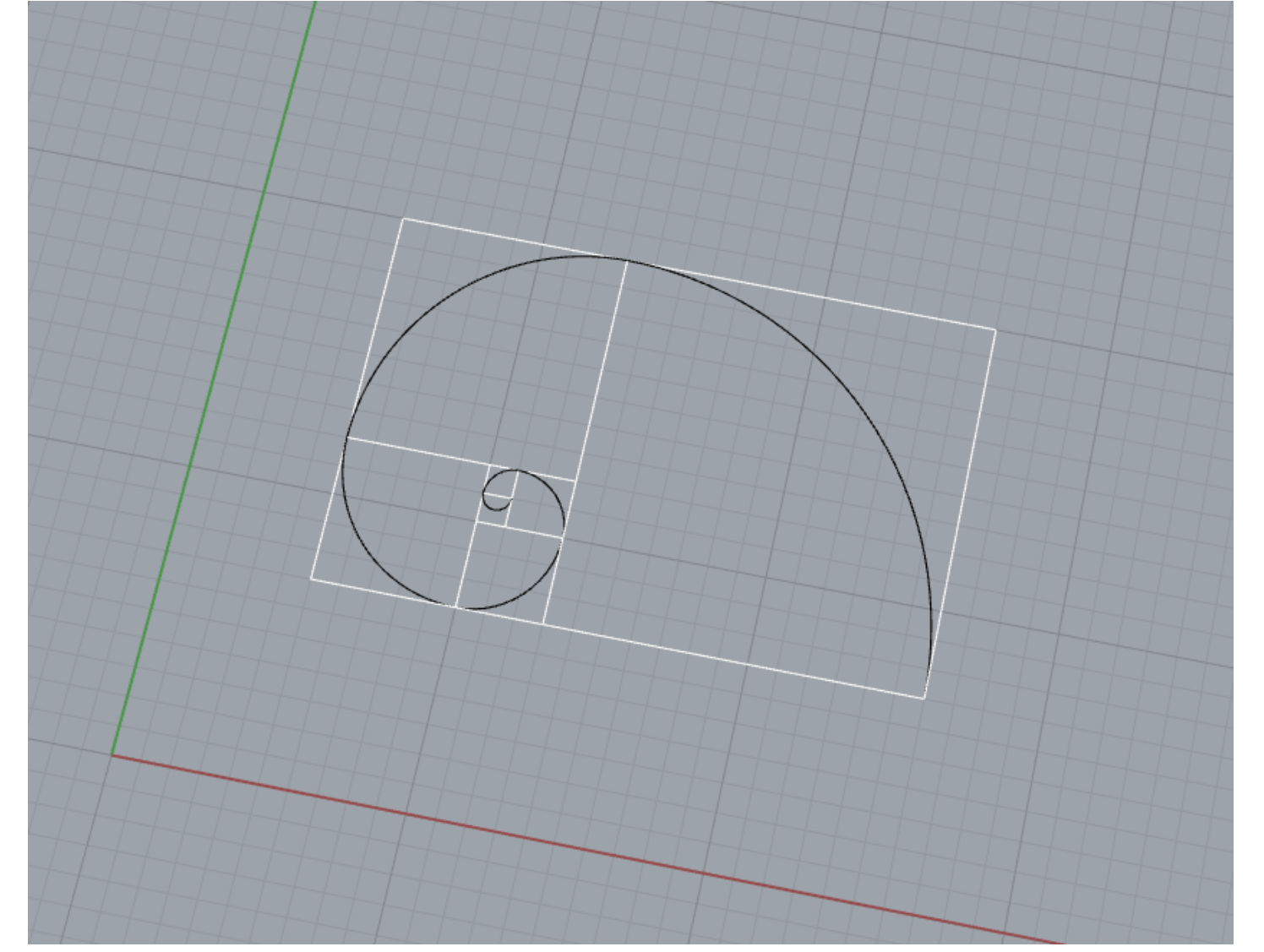
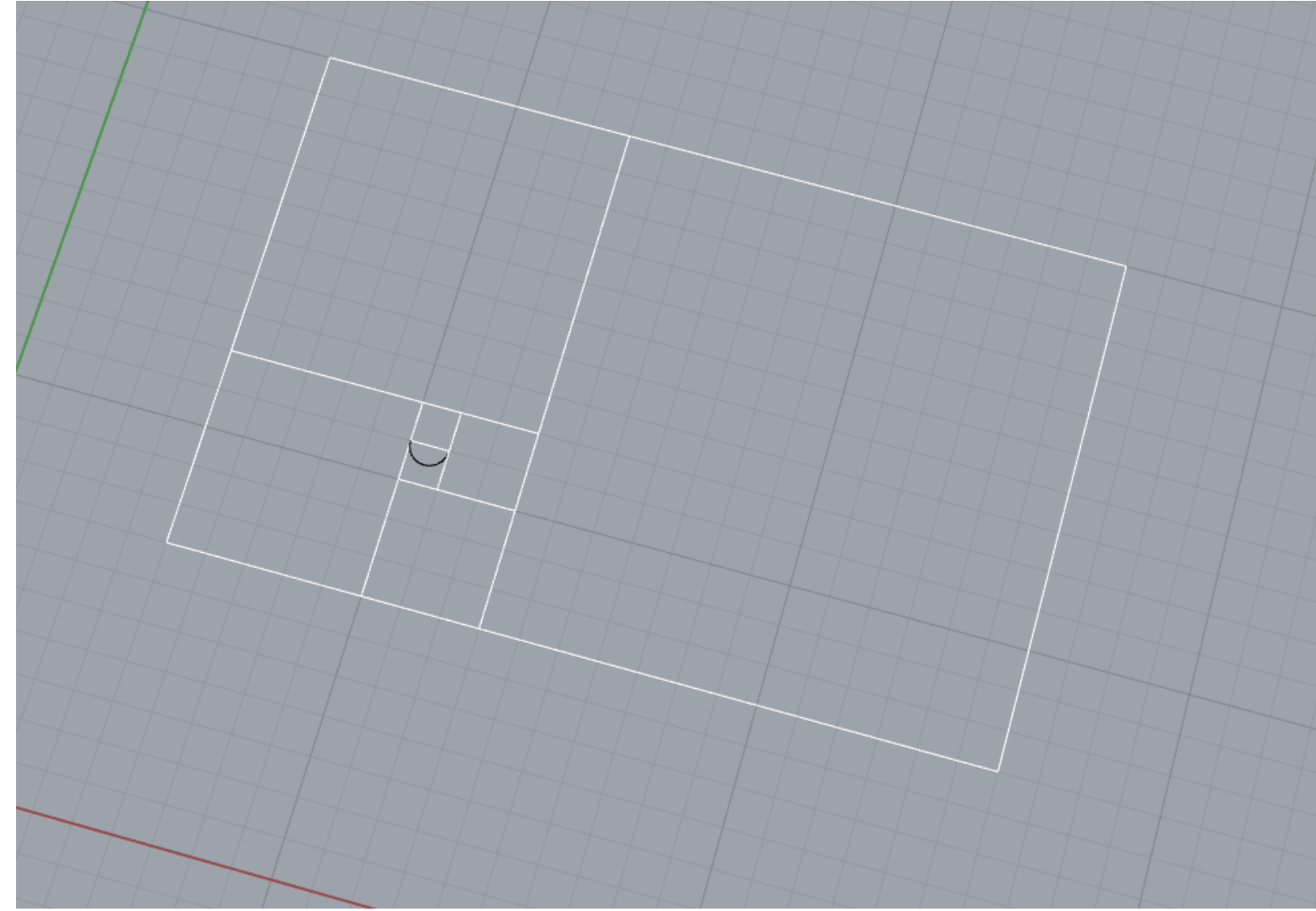
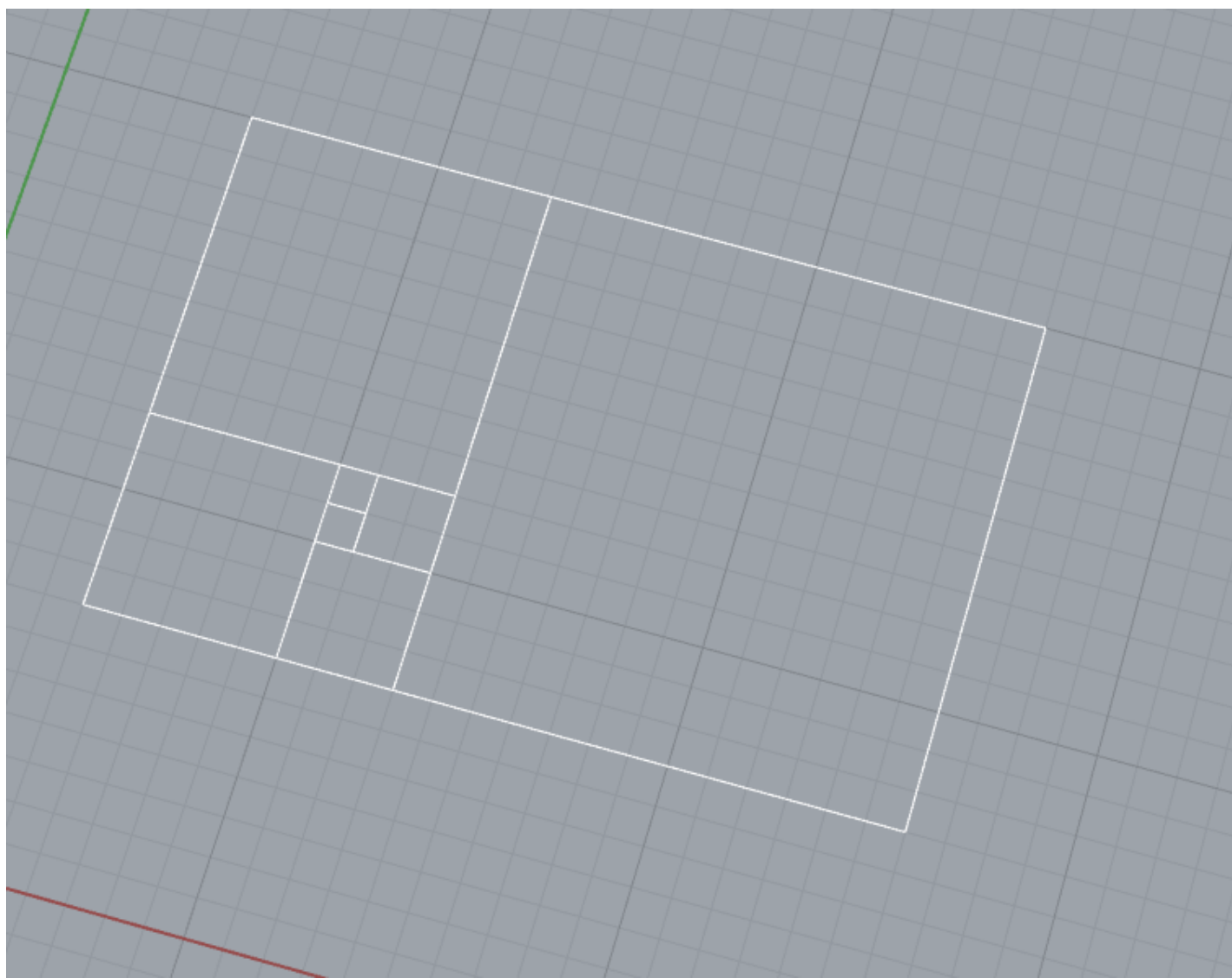
Aula 8- Grassopper



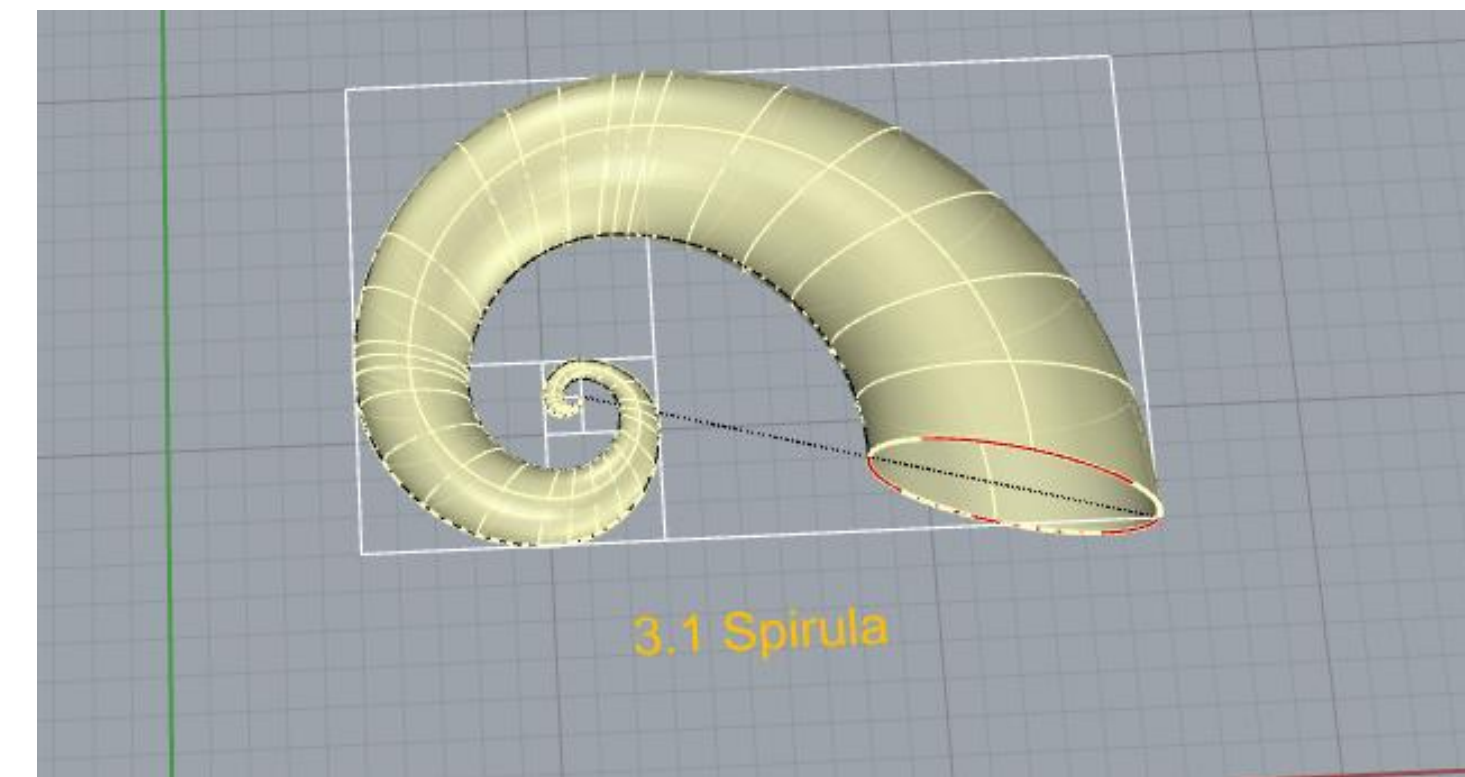
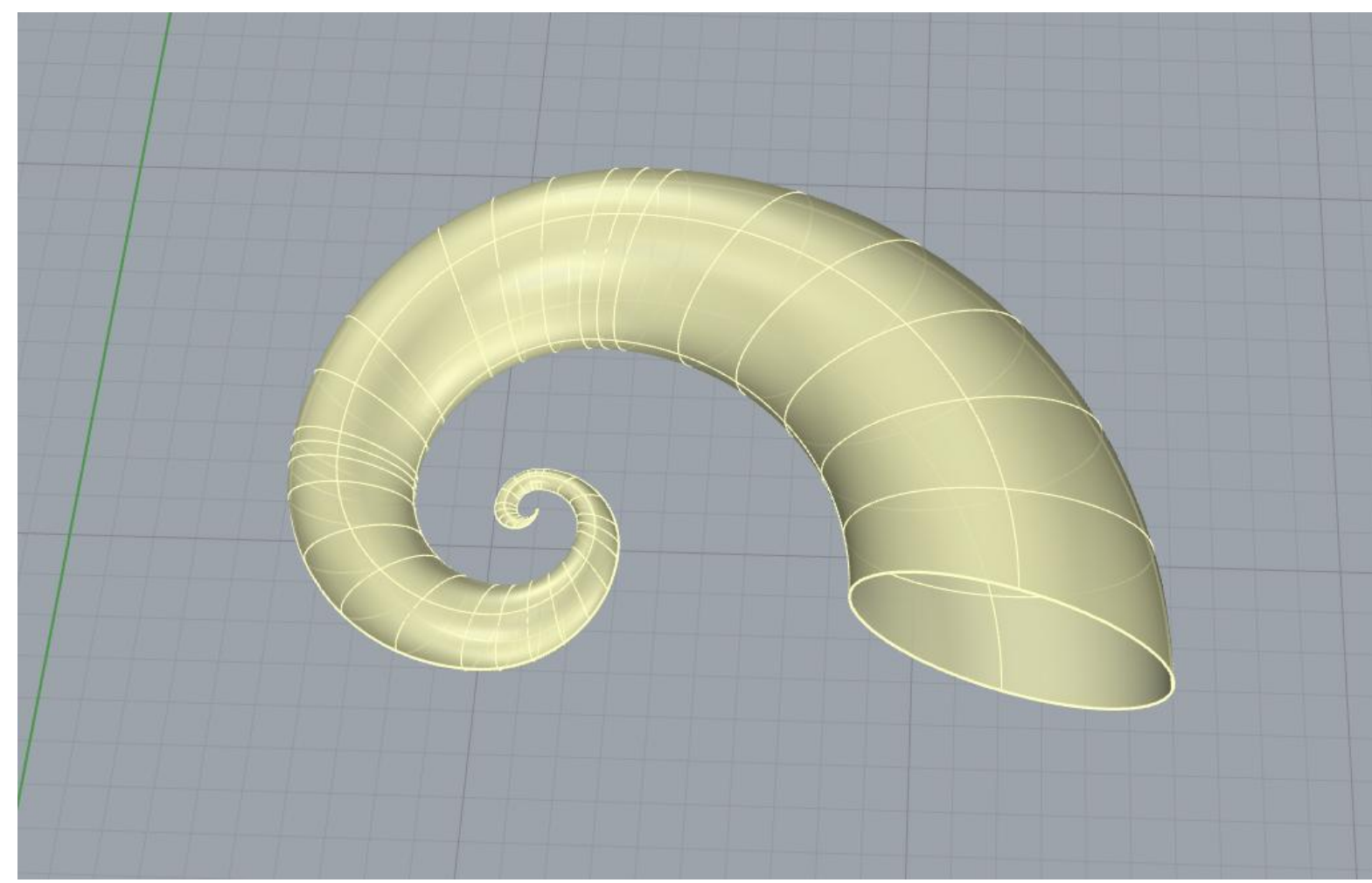
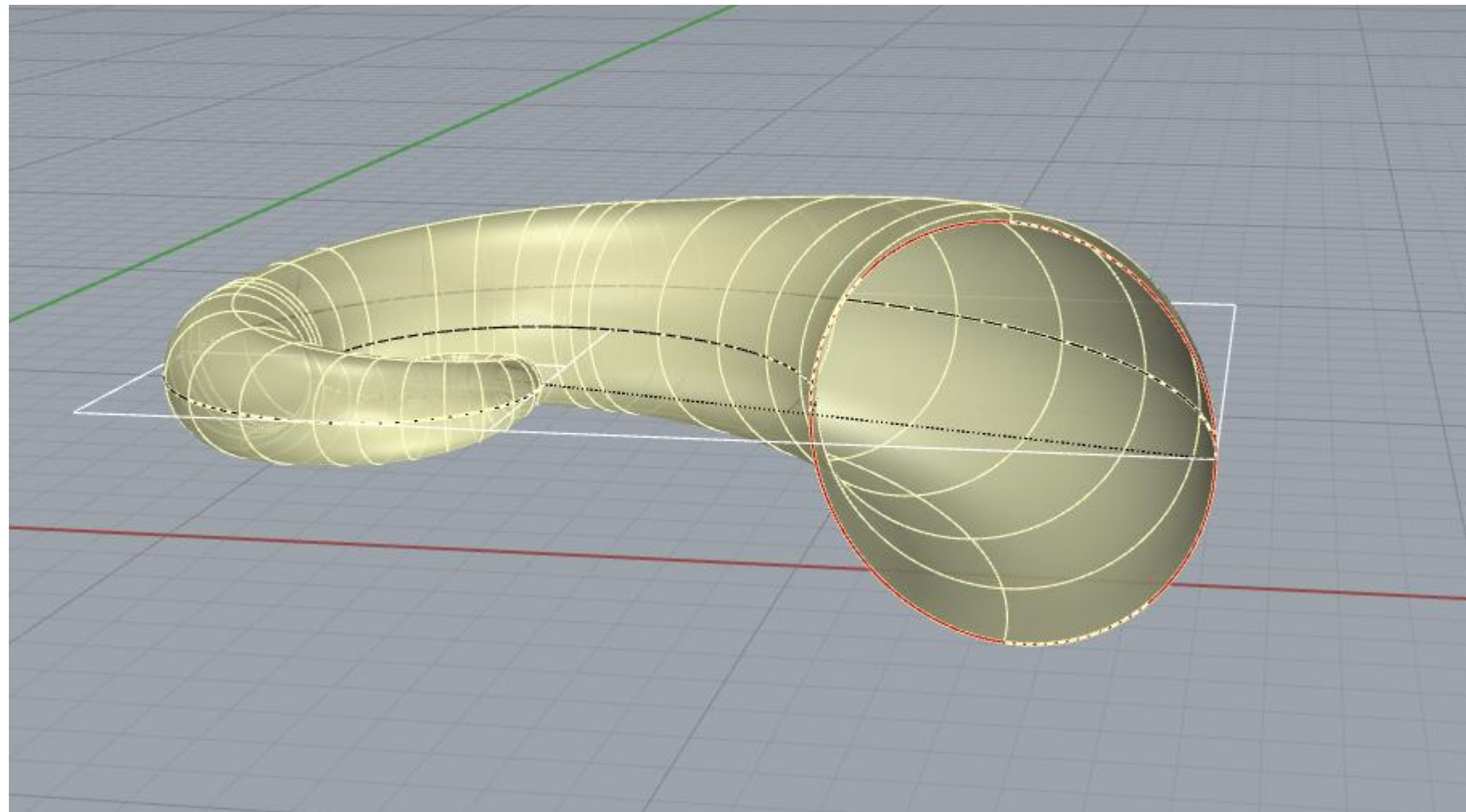
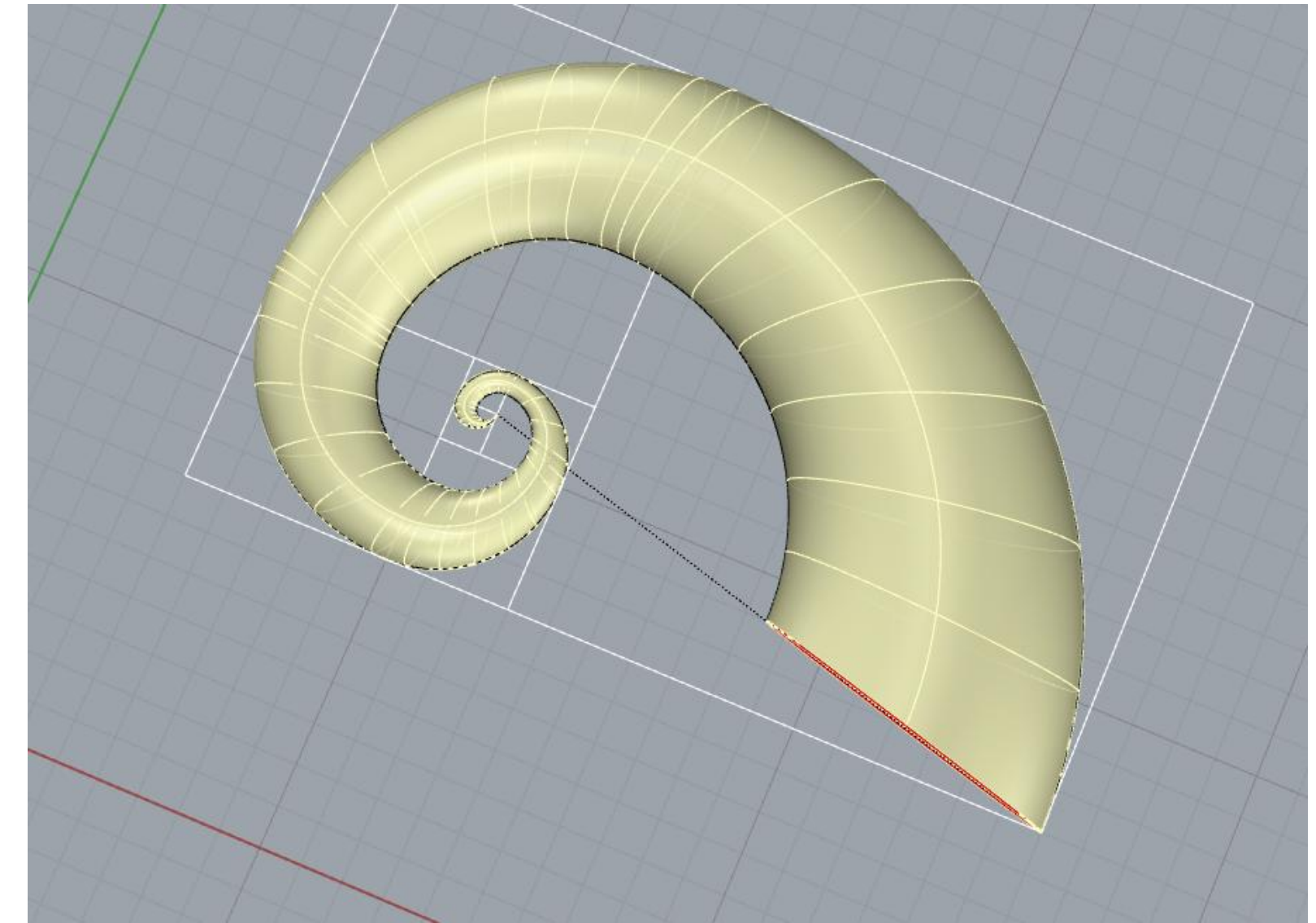
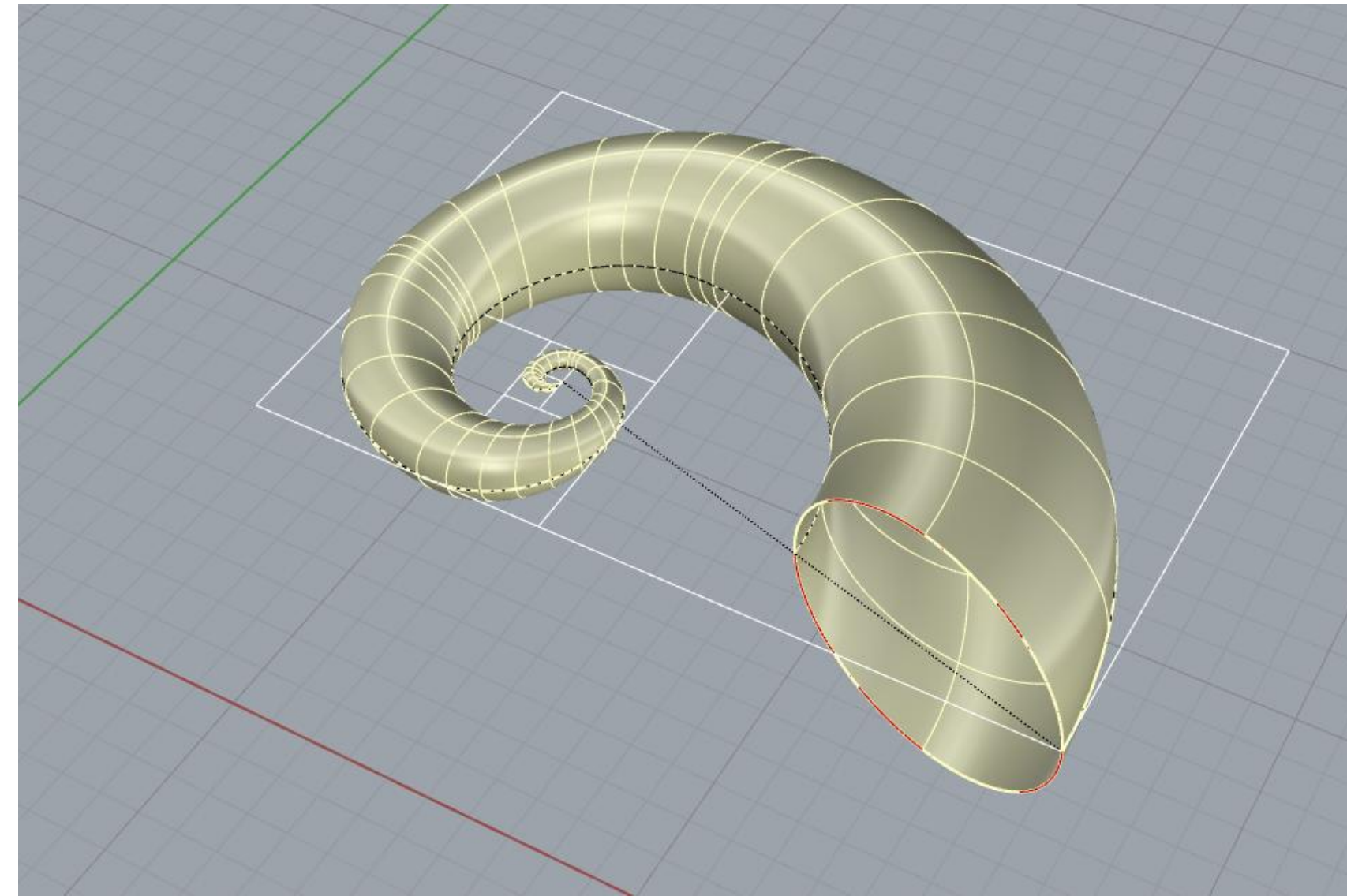
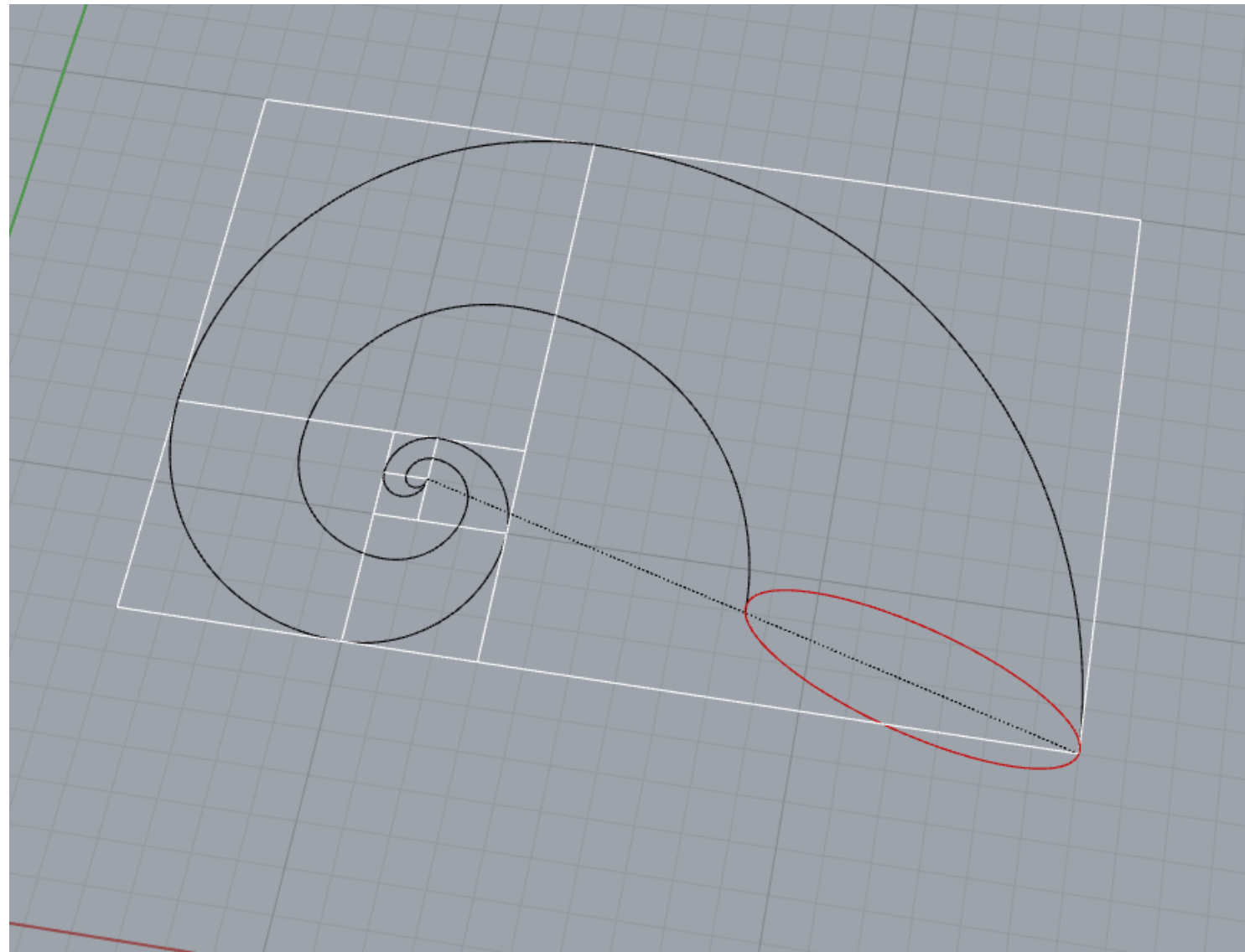
Aula 8- Grassopper



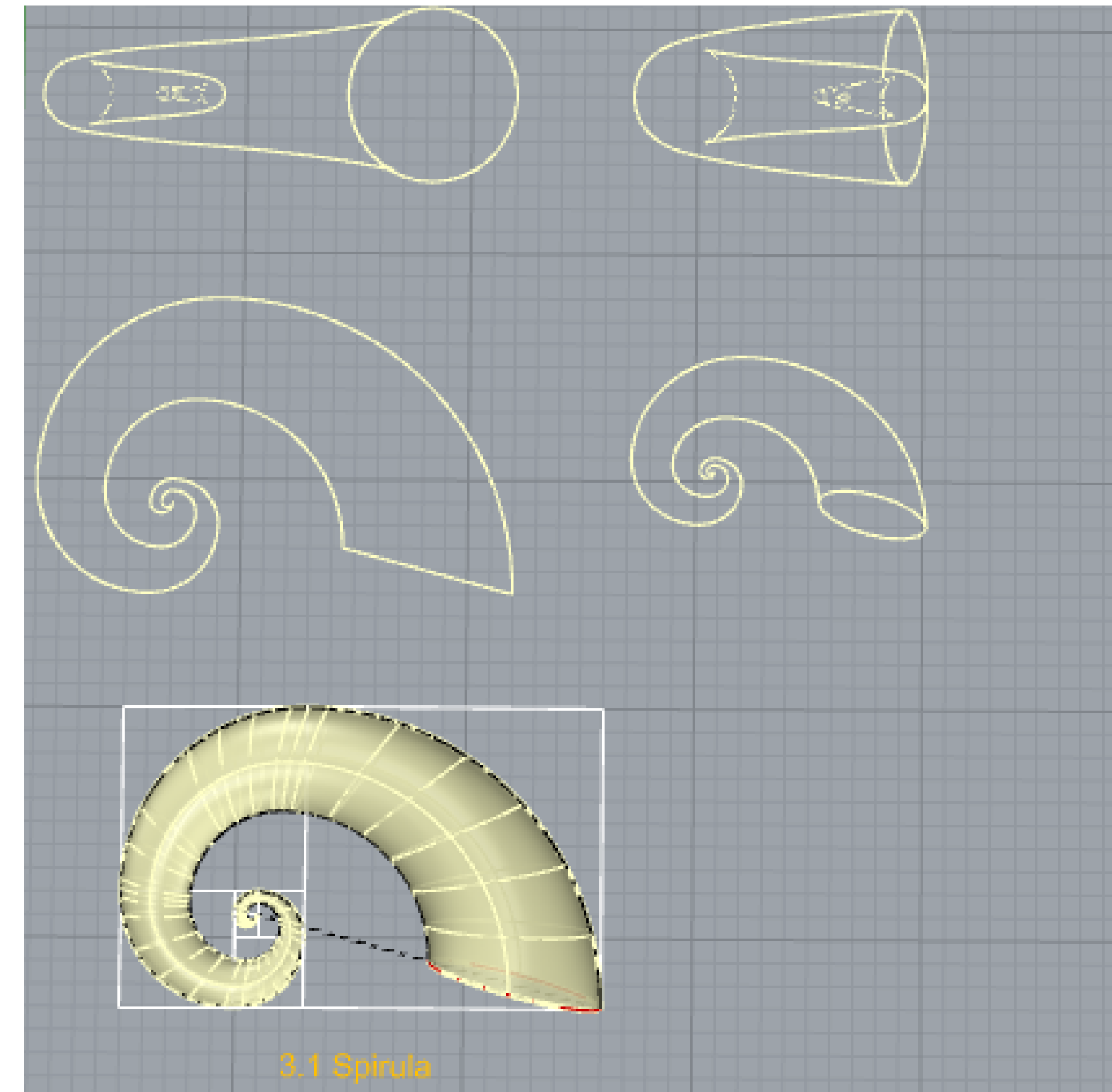
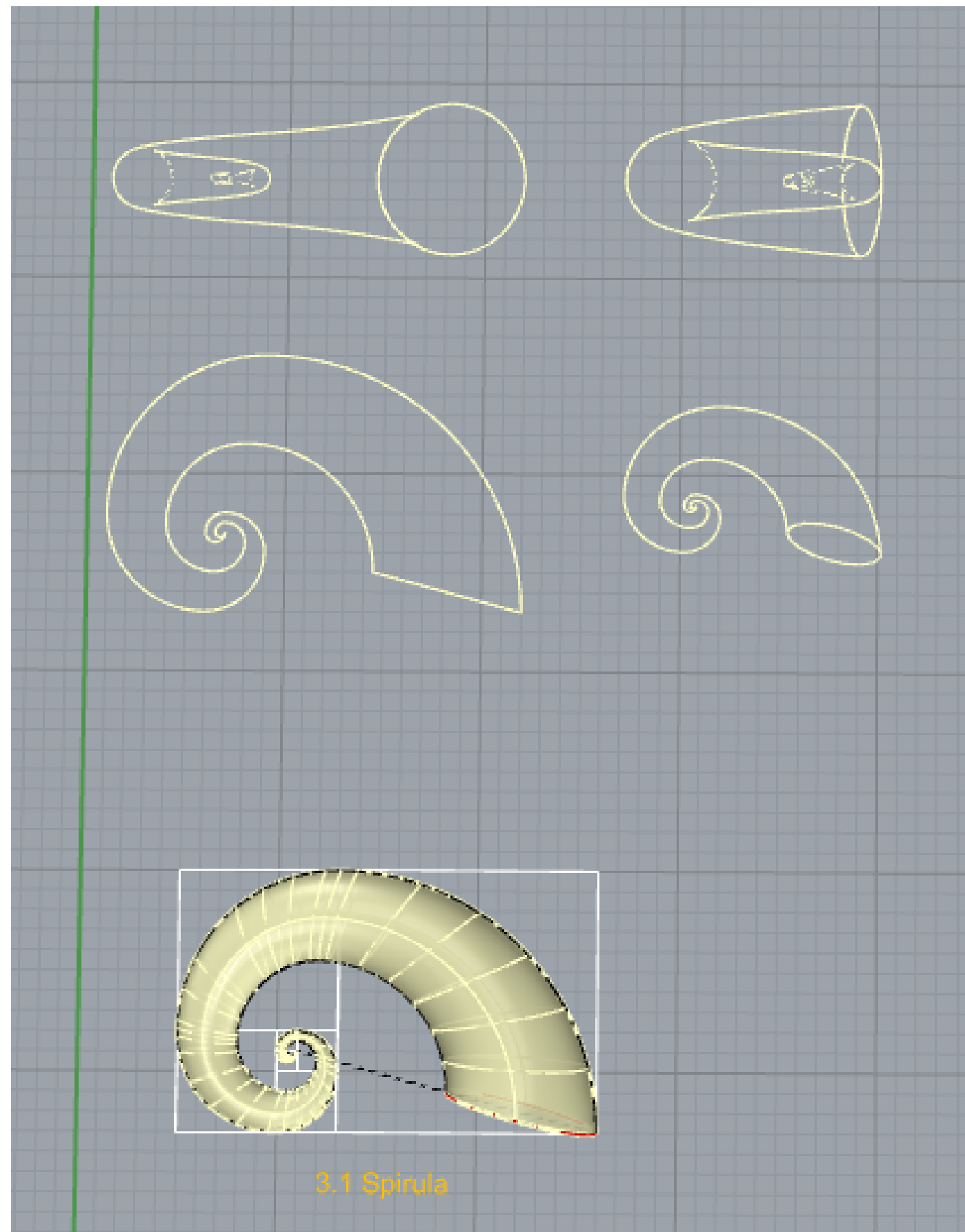
Aula 8- Grassopper



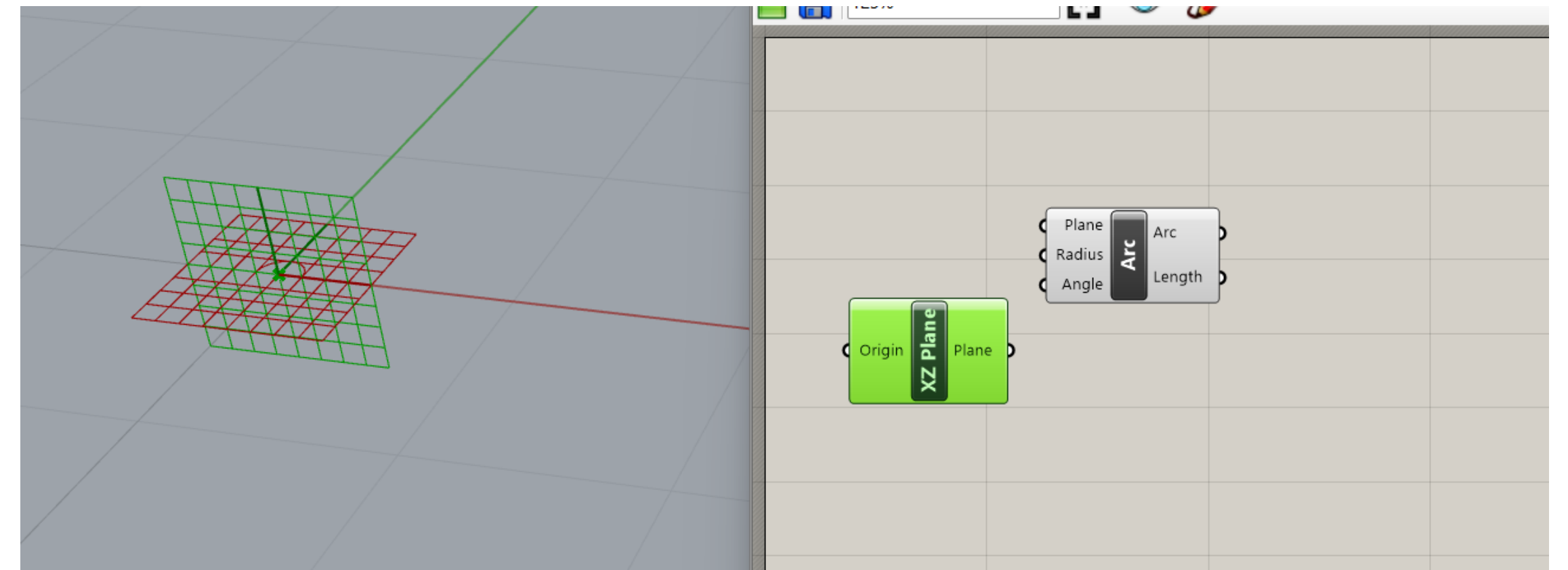
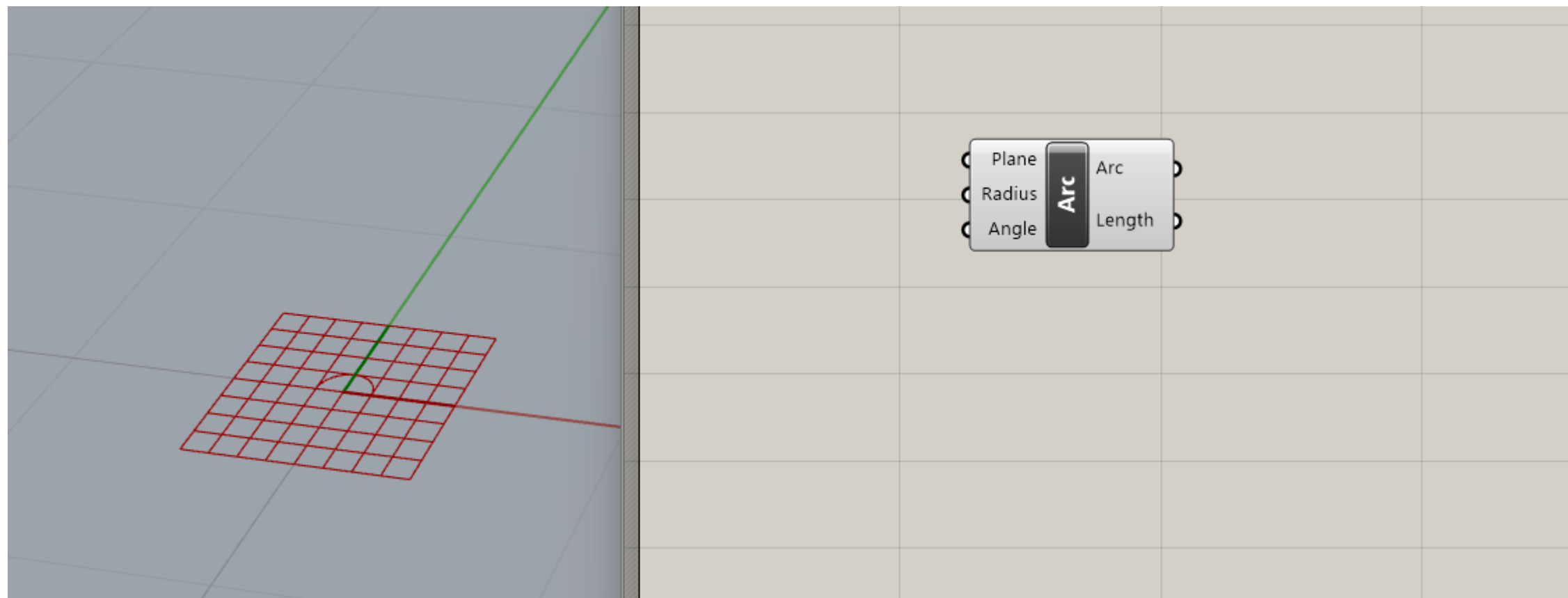
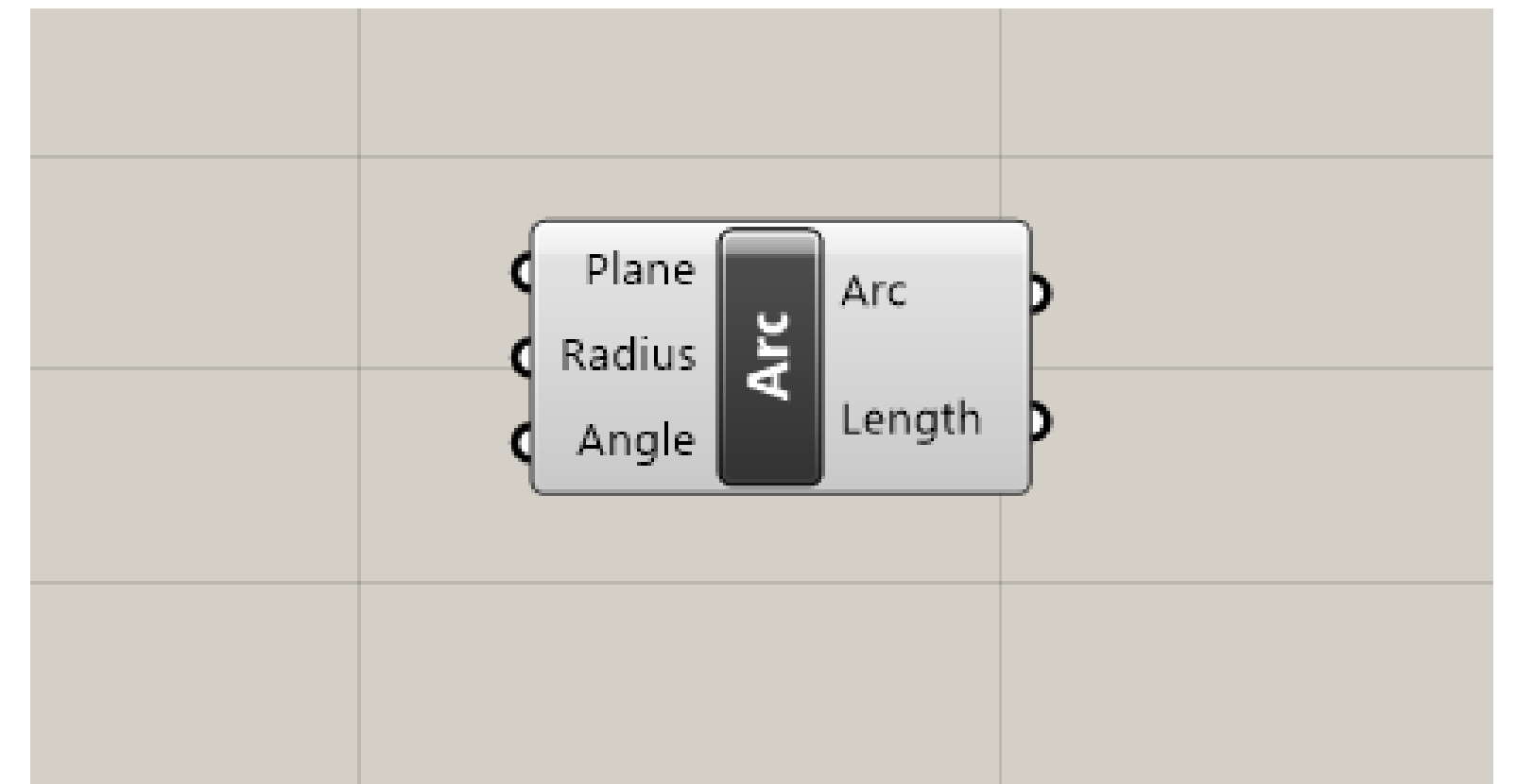
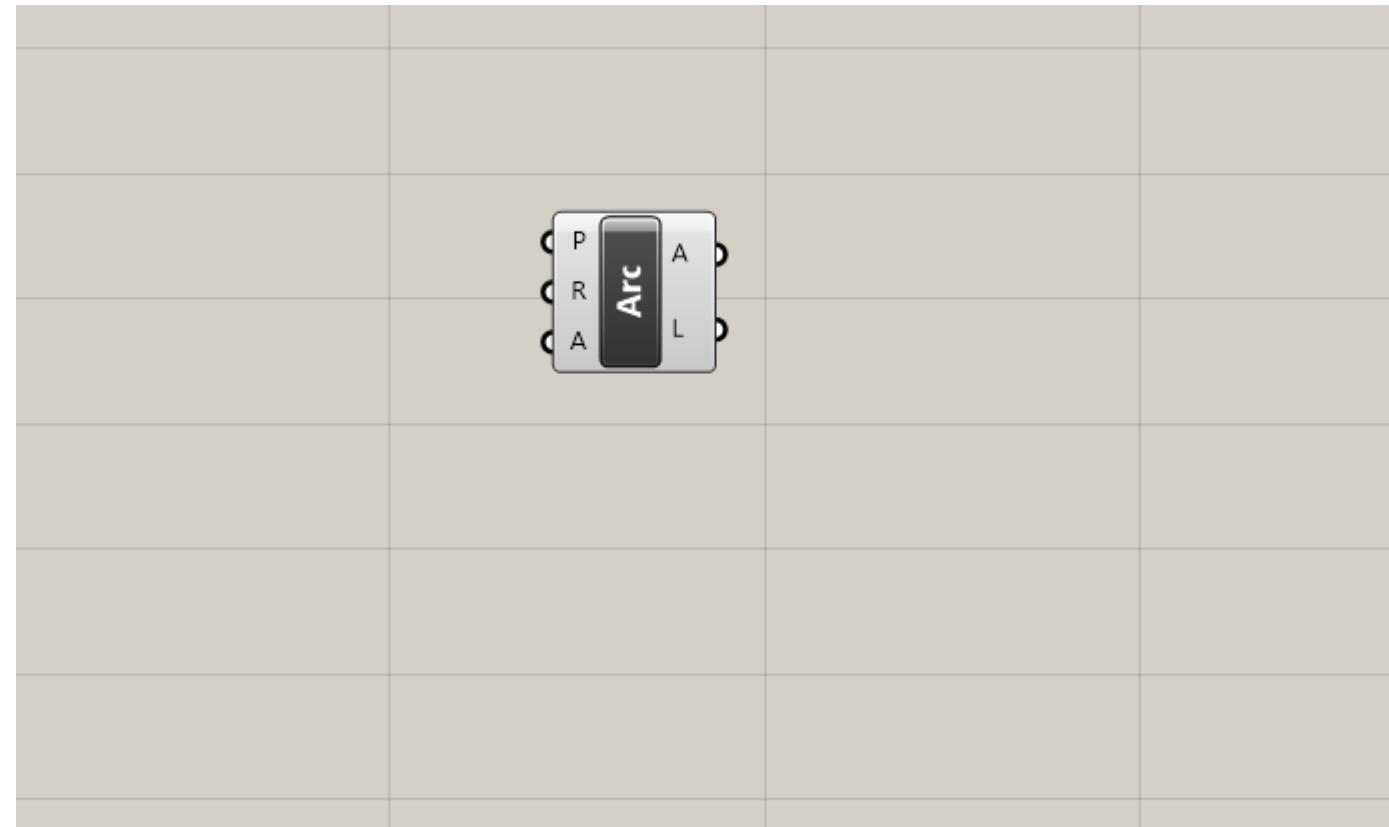
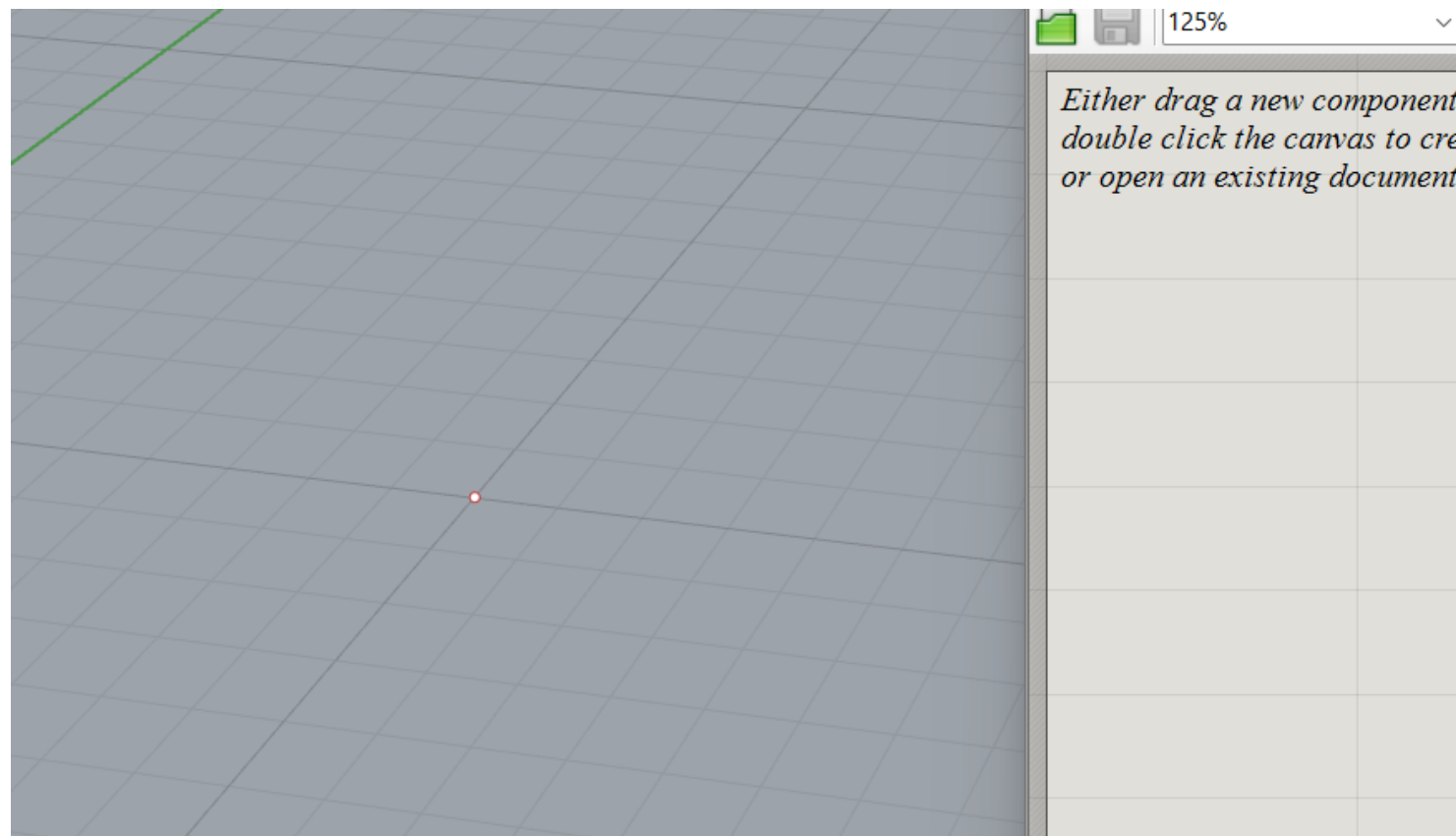
Aula 9- Spirula



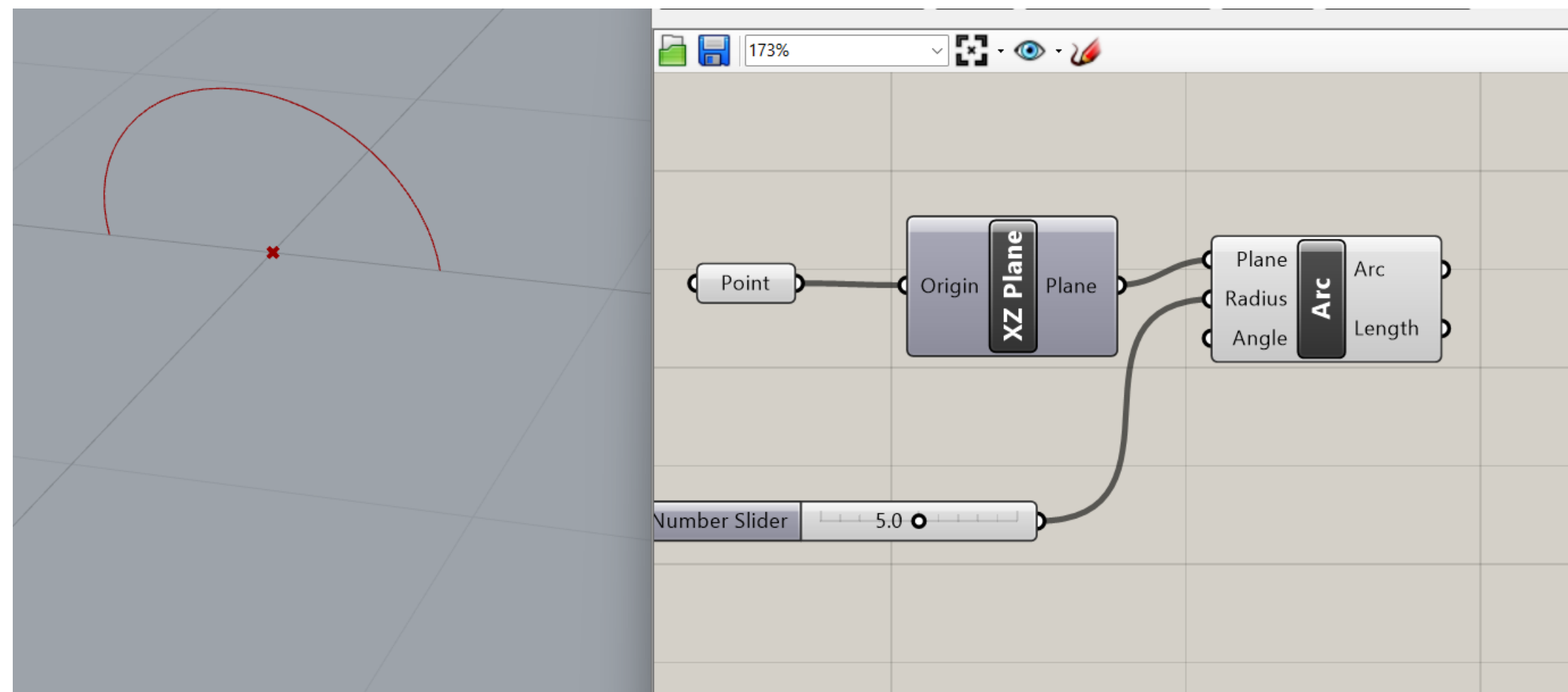
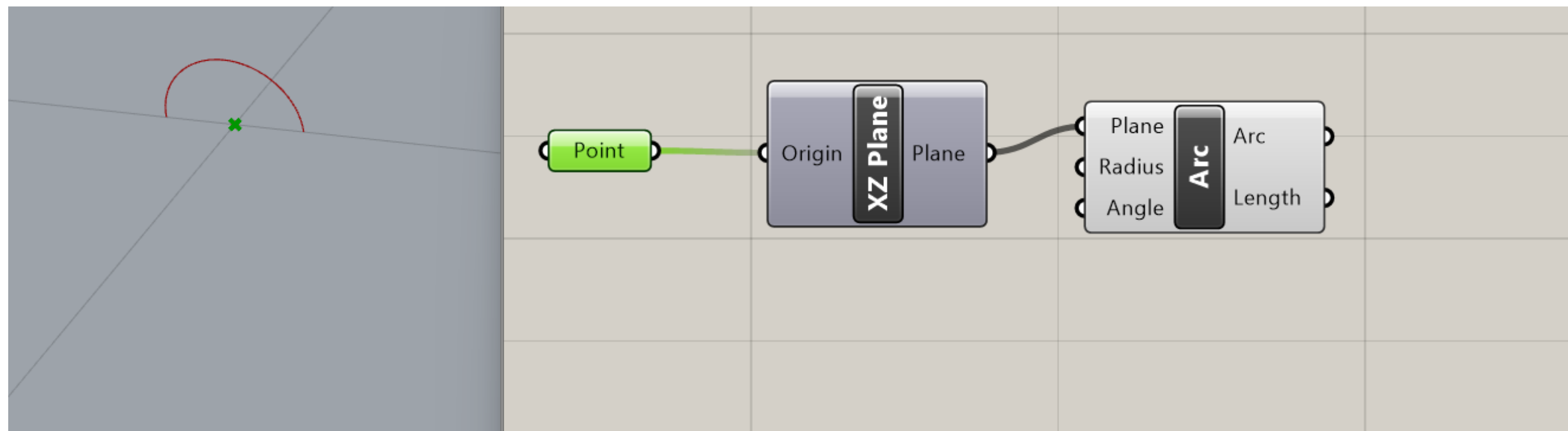
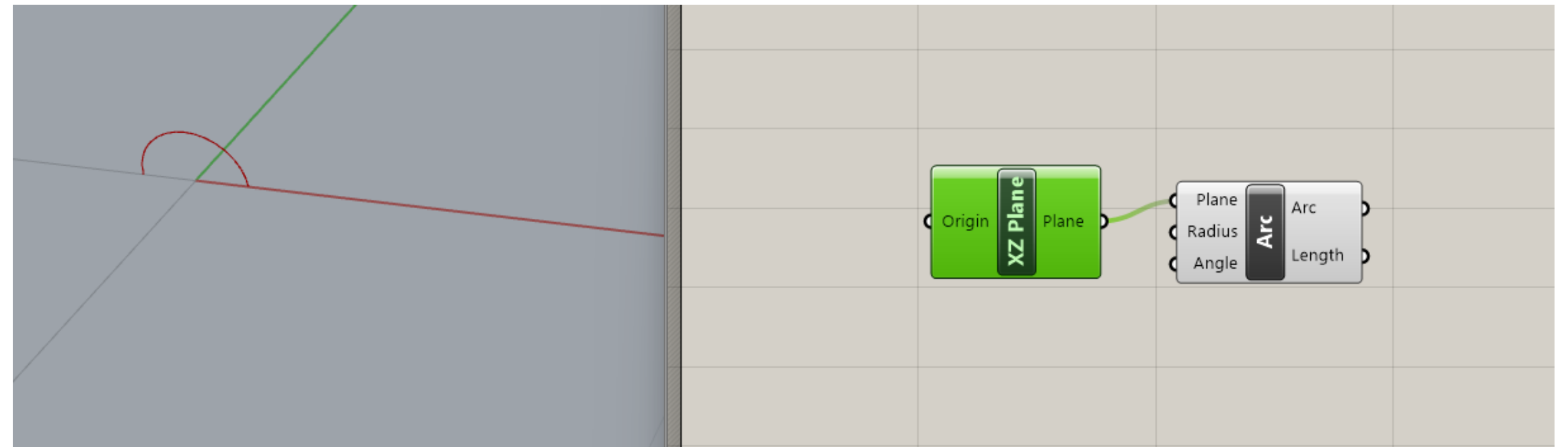
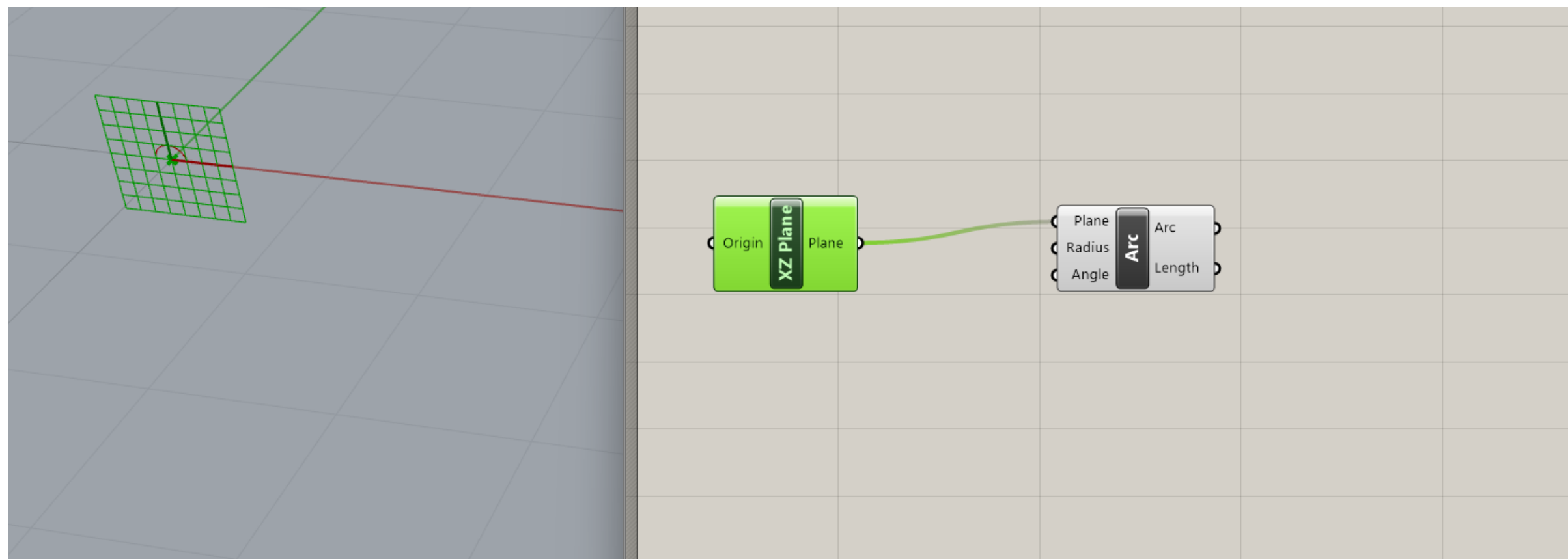
Aula 9- Spirula



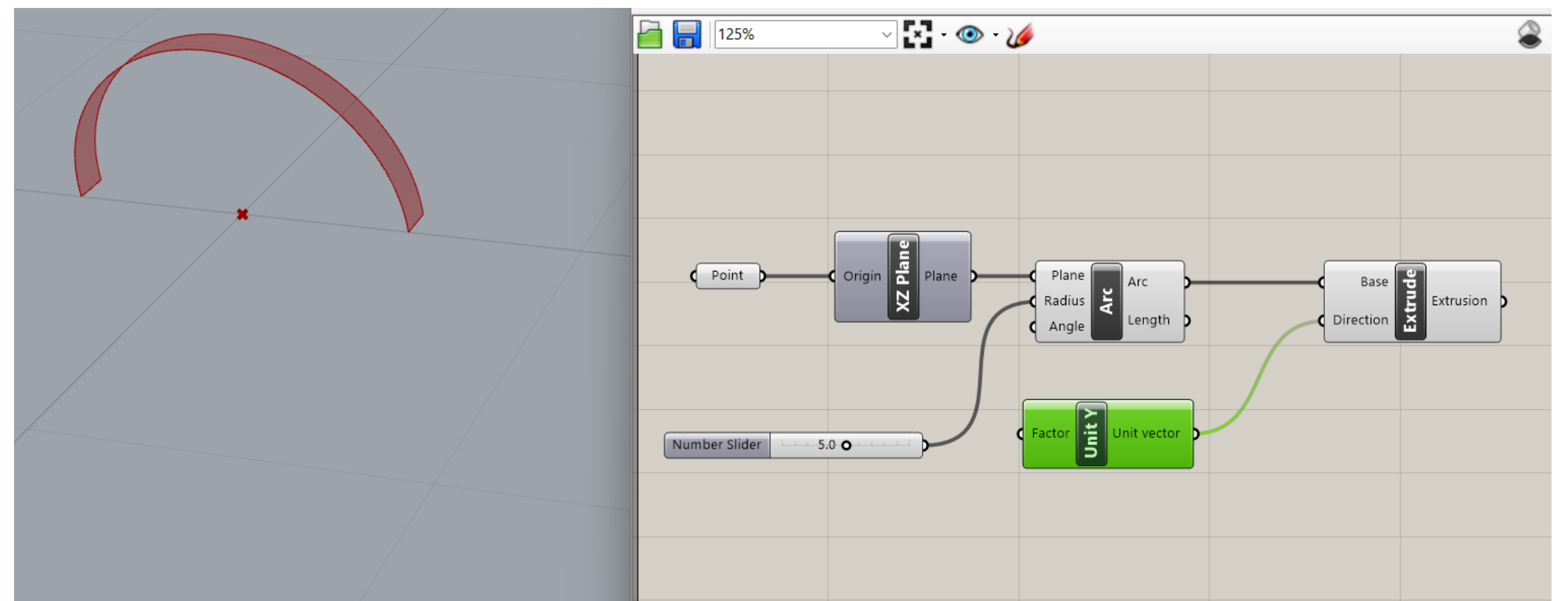
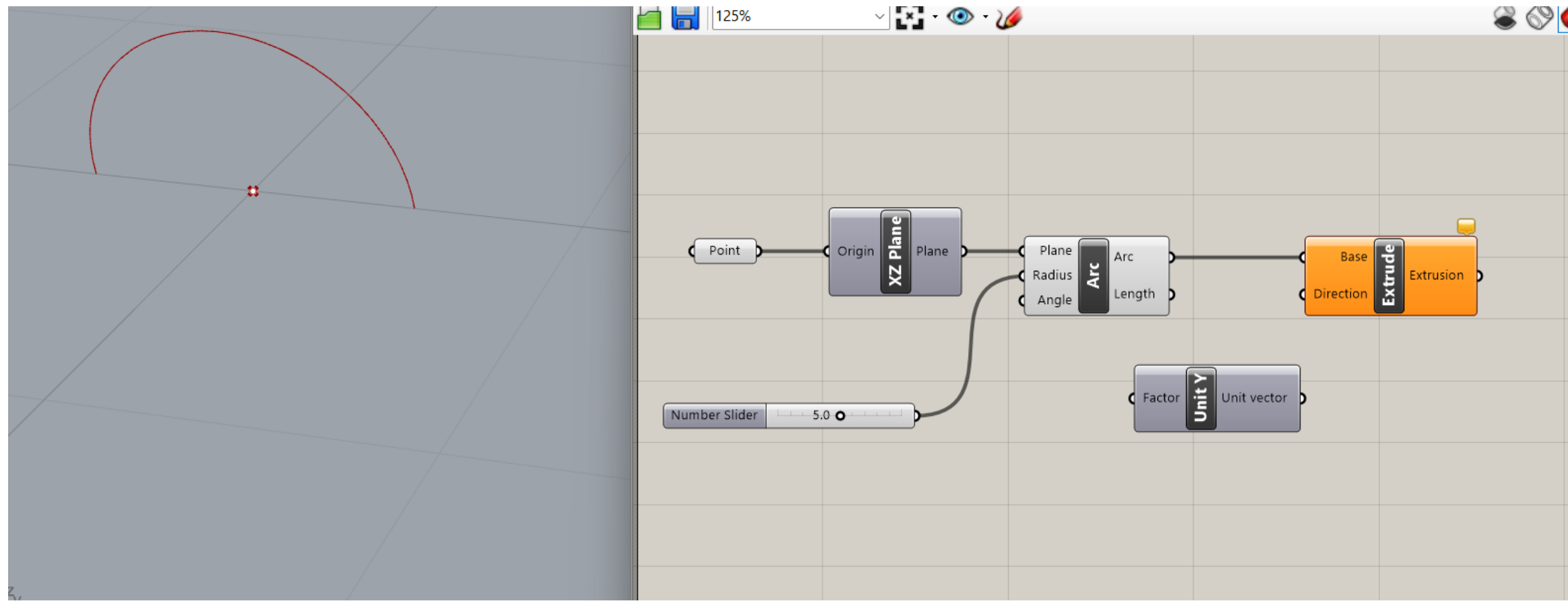
Aula 9- Spirula



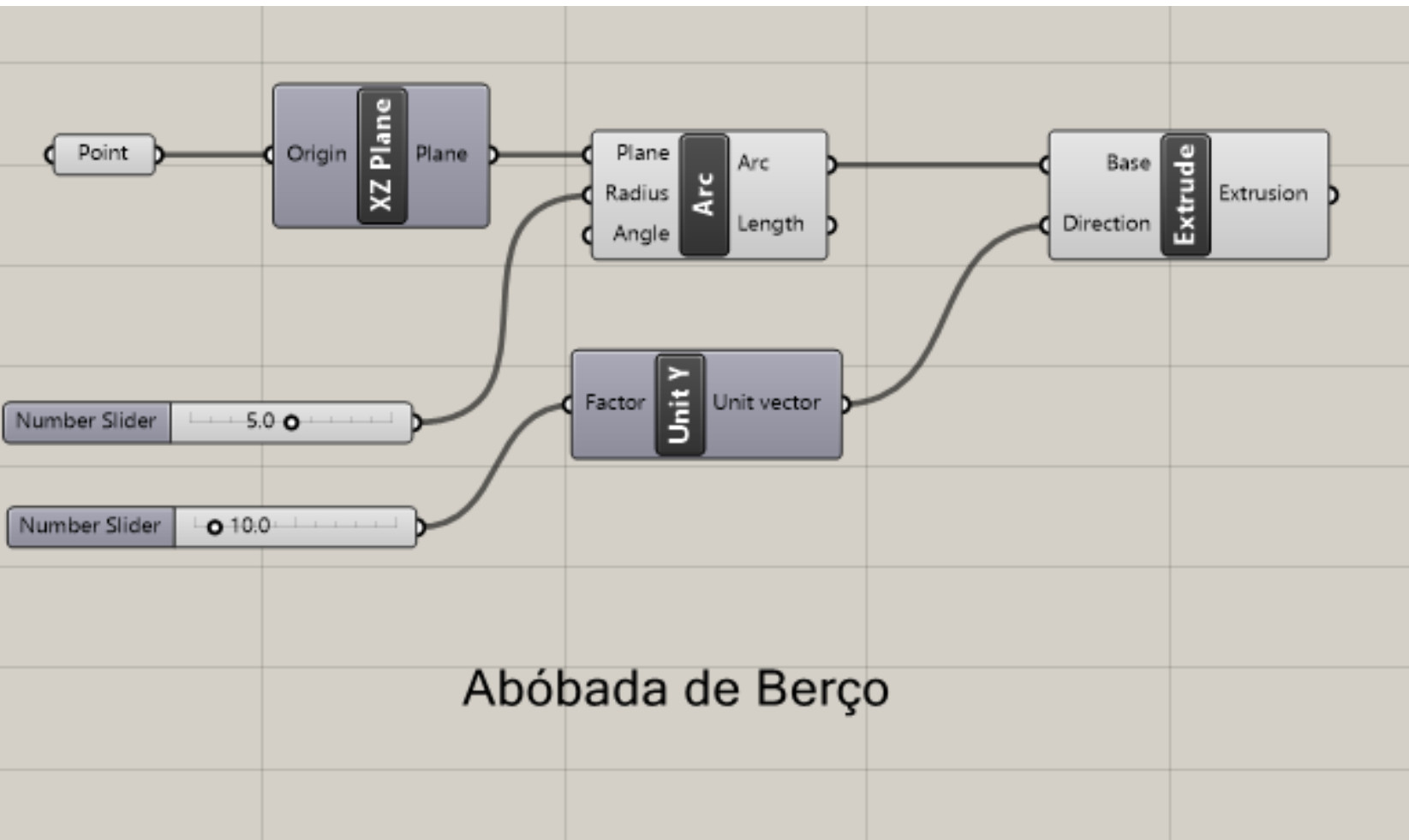
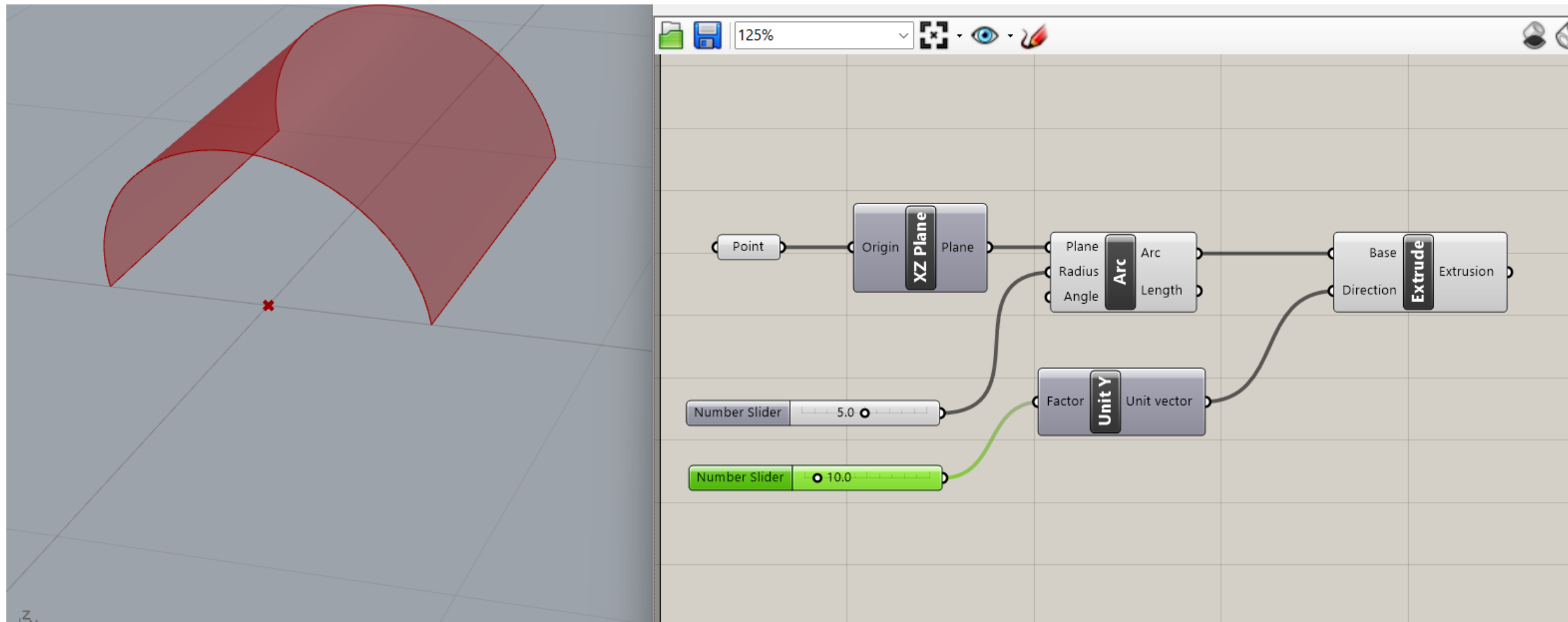
Aula 9- Abóbadas no grasshopper



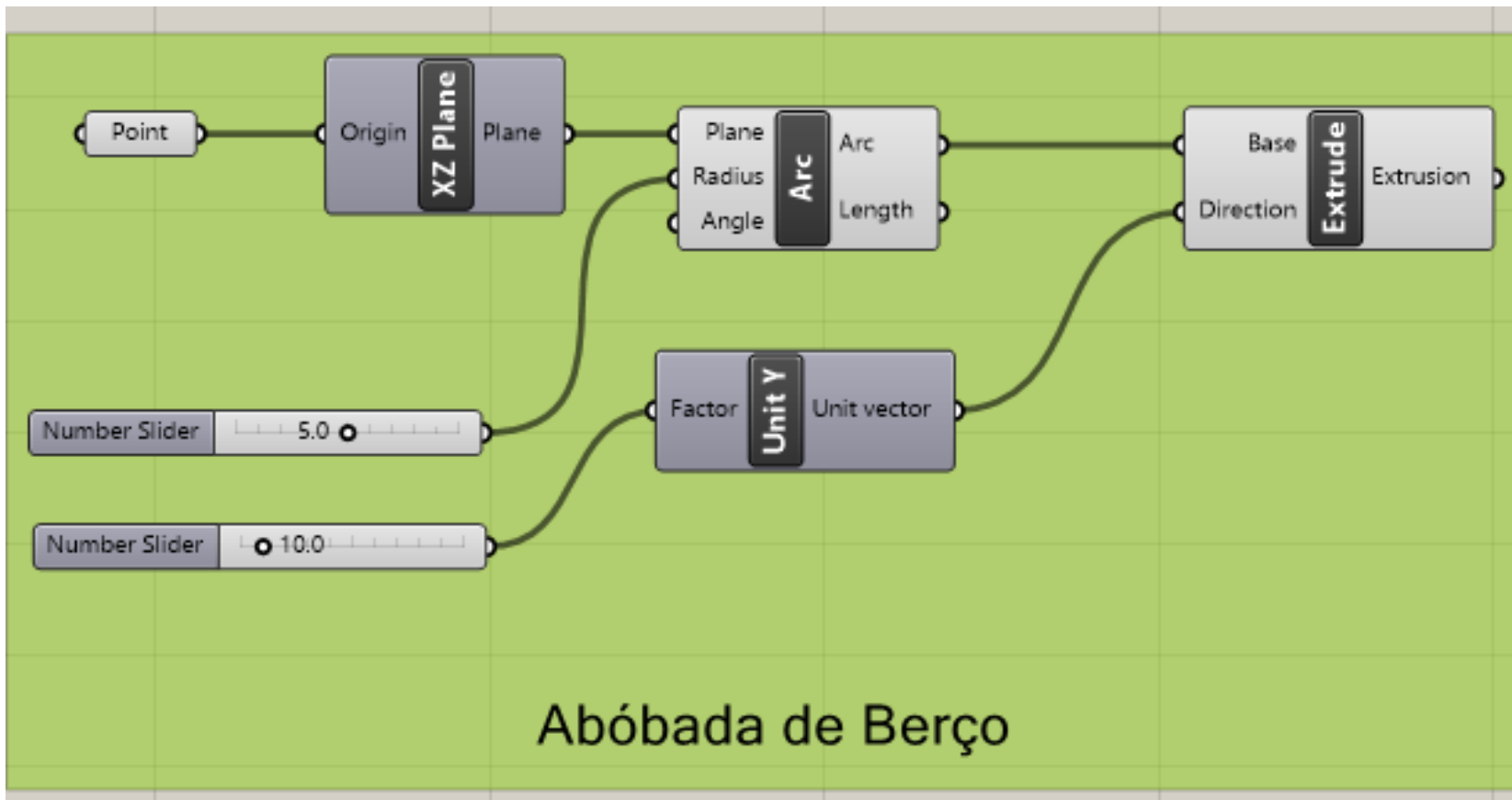
Aula 9- Abóbadas no grasshopper



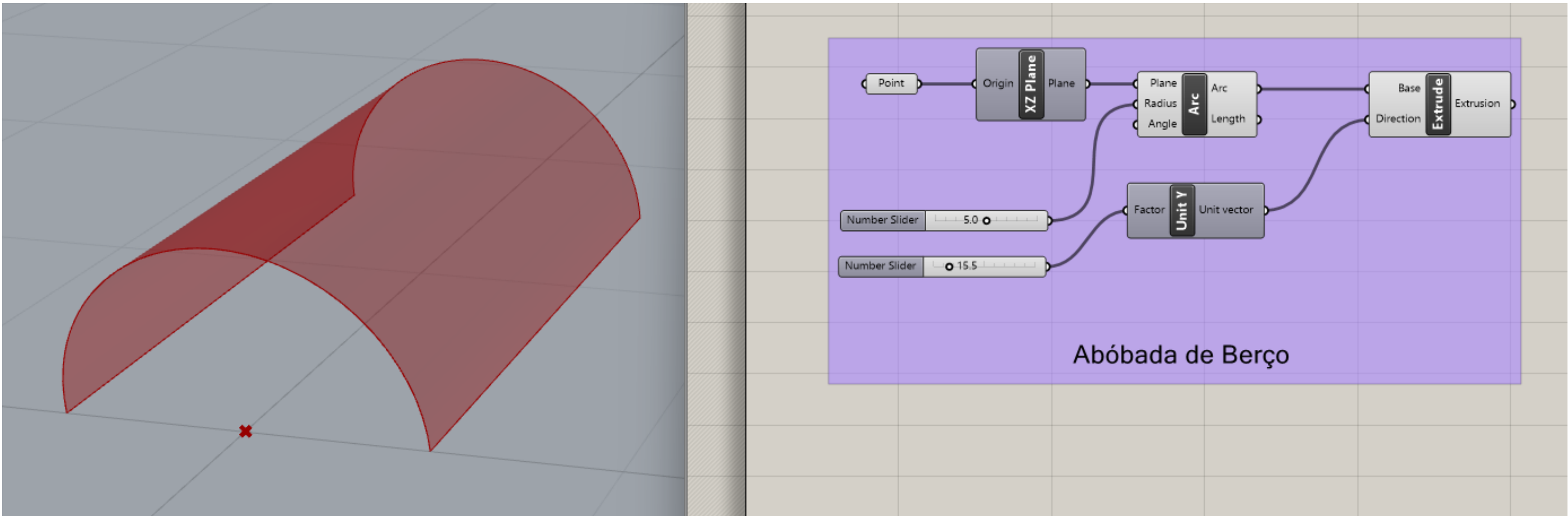
Aula 9- Abóbadas no grasshopper



Abóbada de Berço

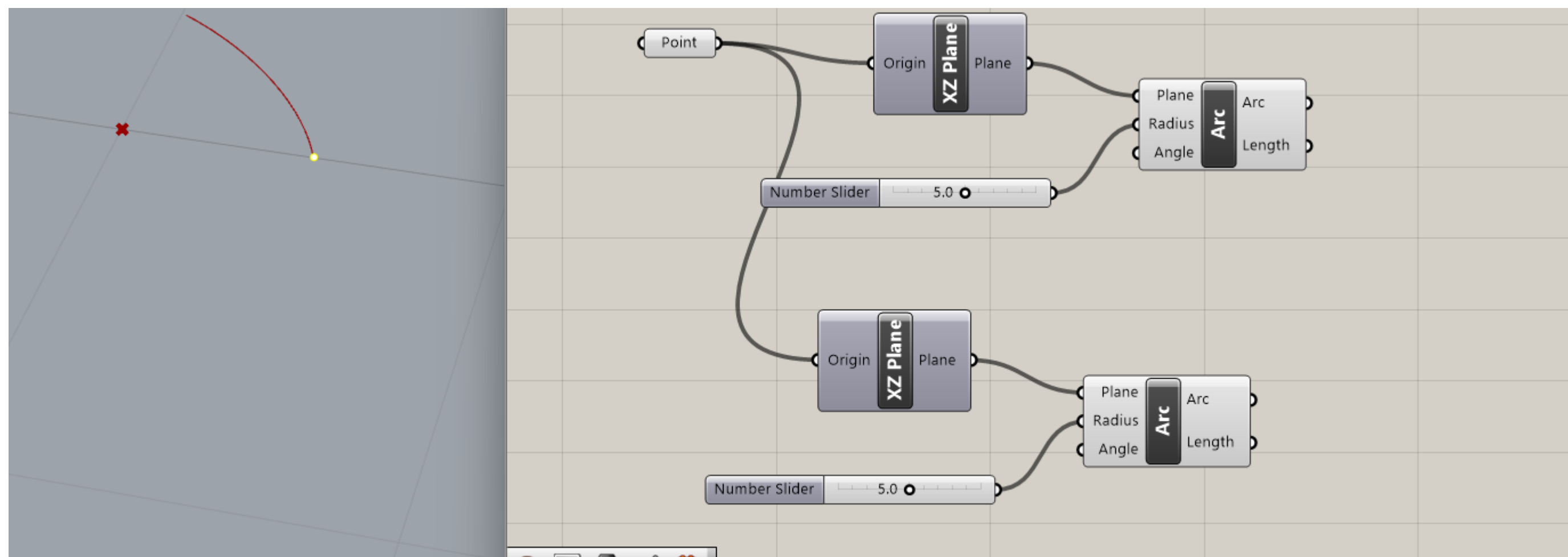
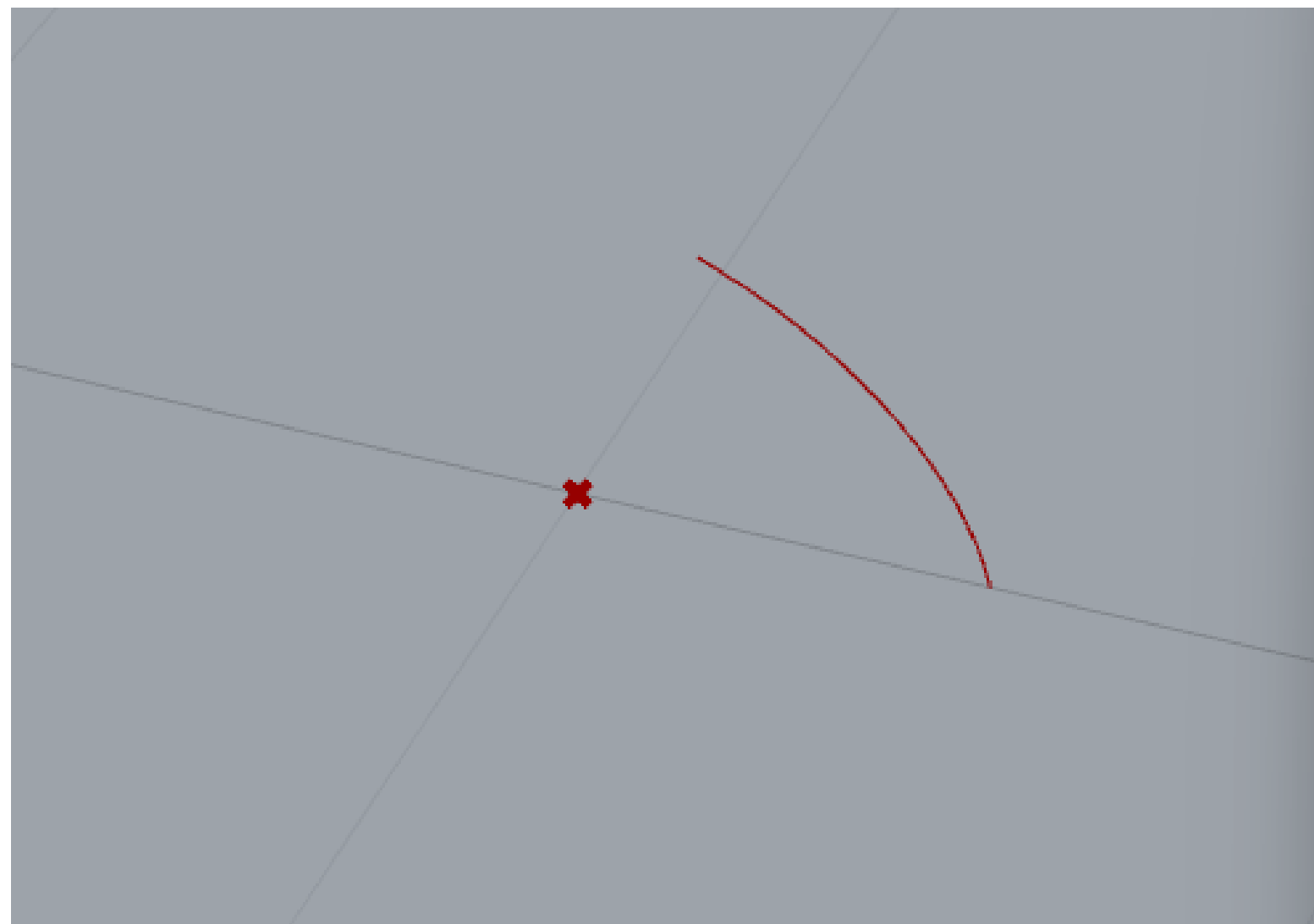
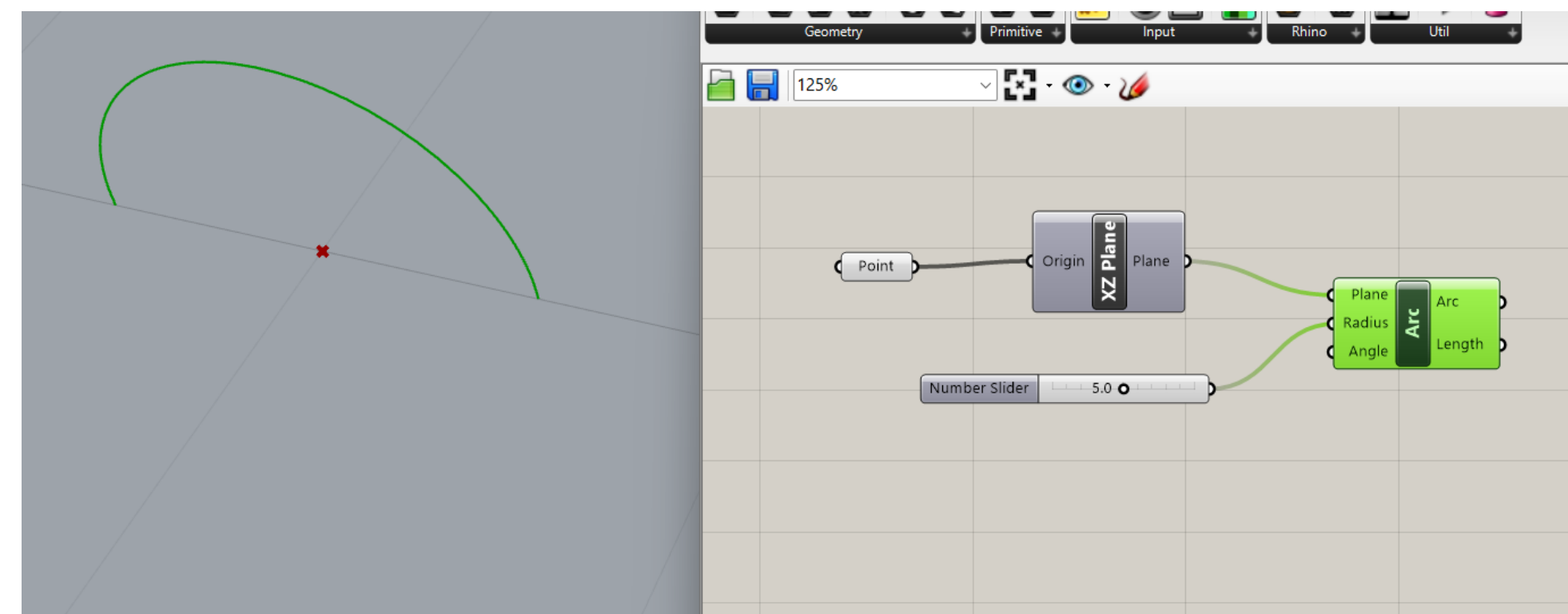
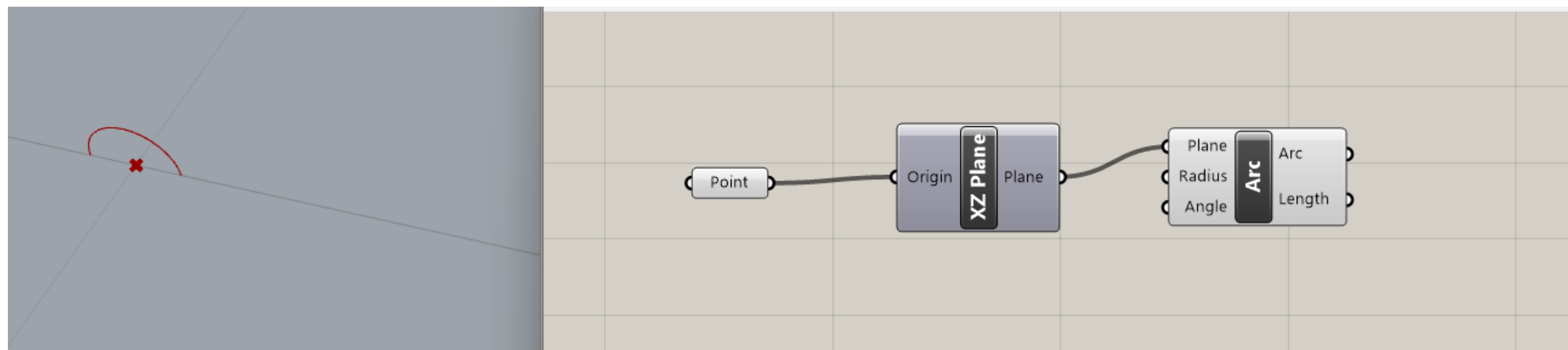


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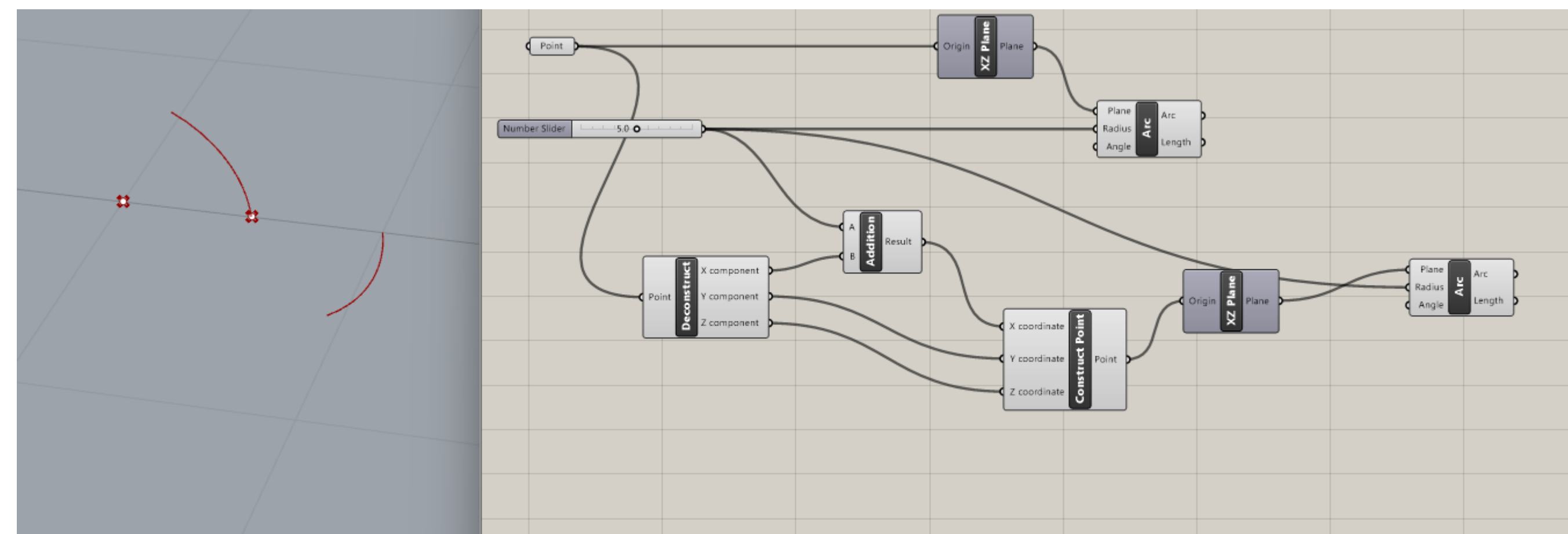
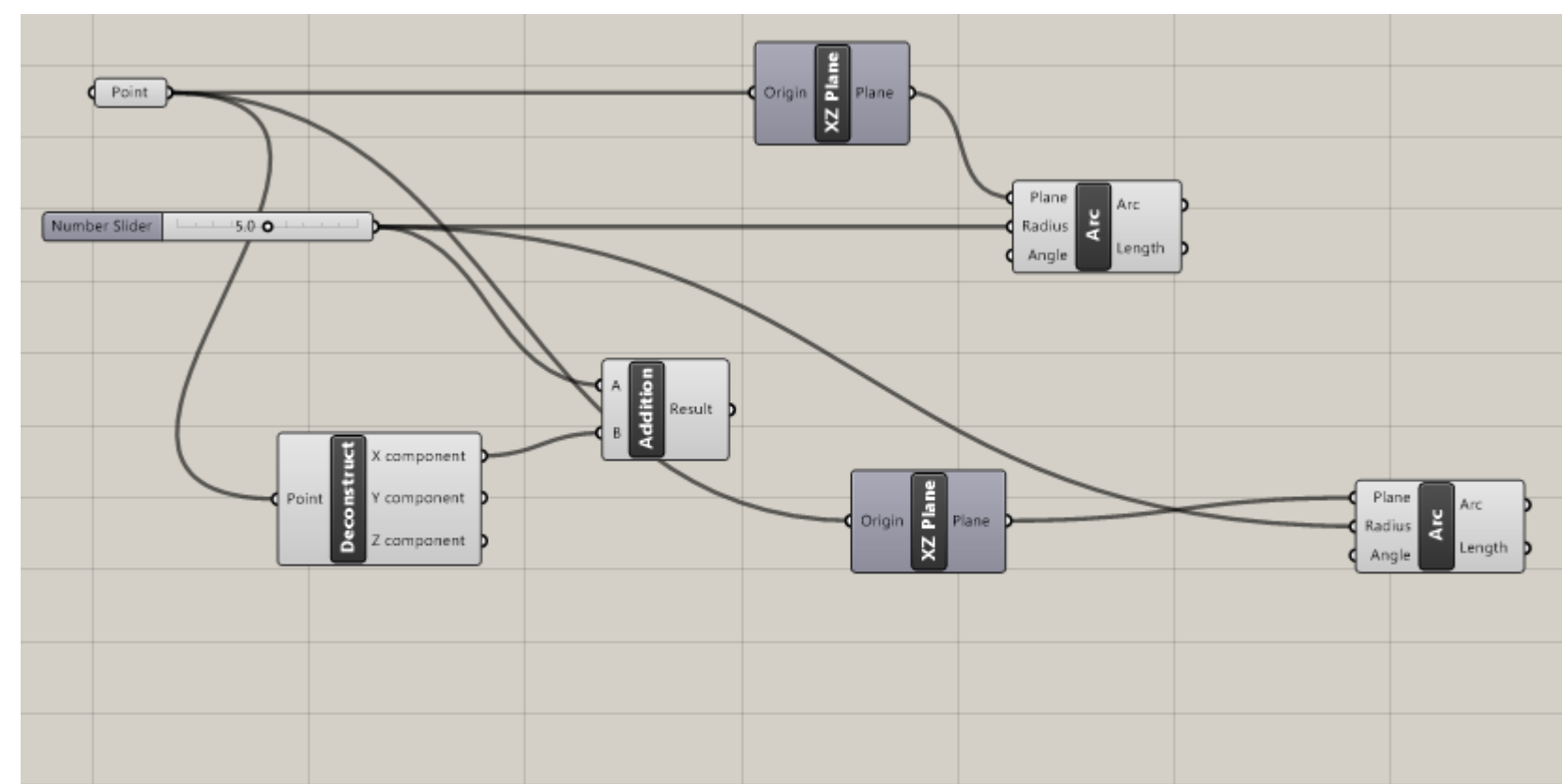
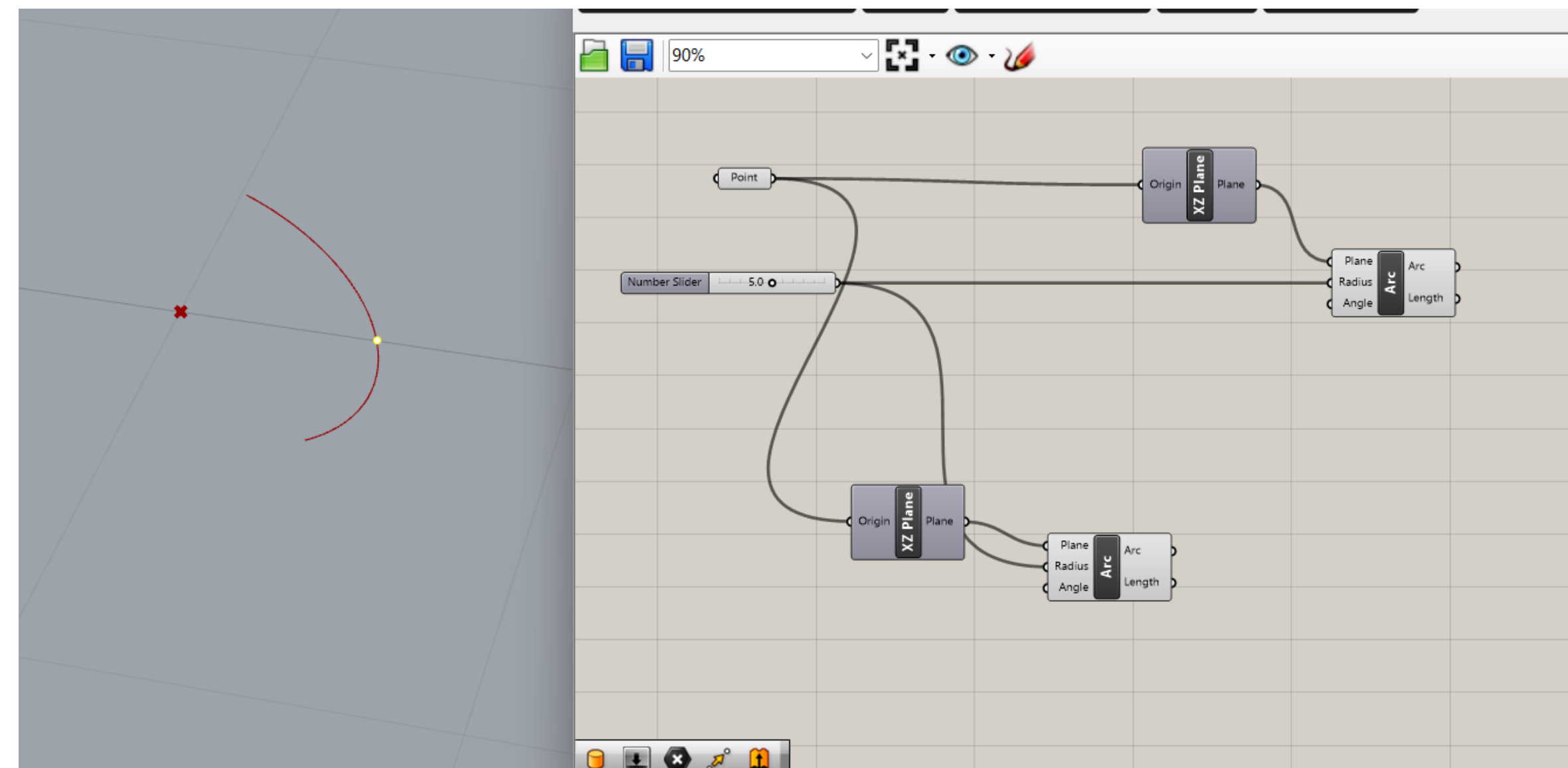
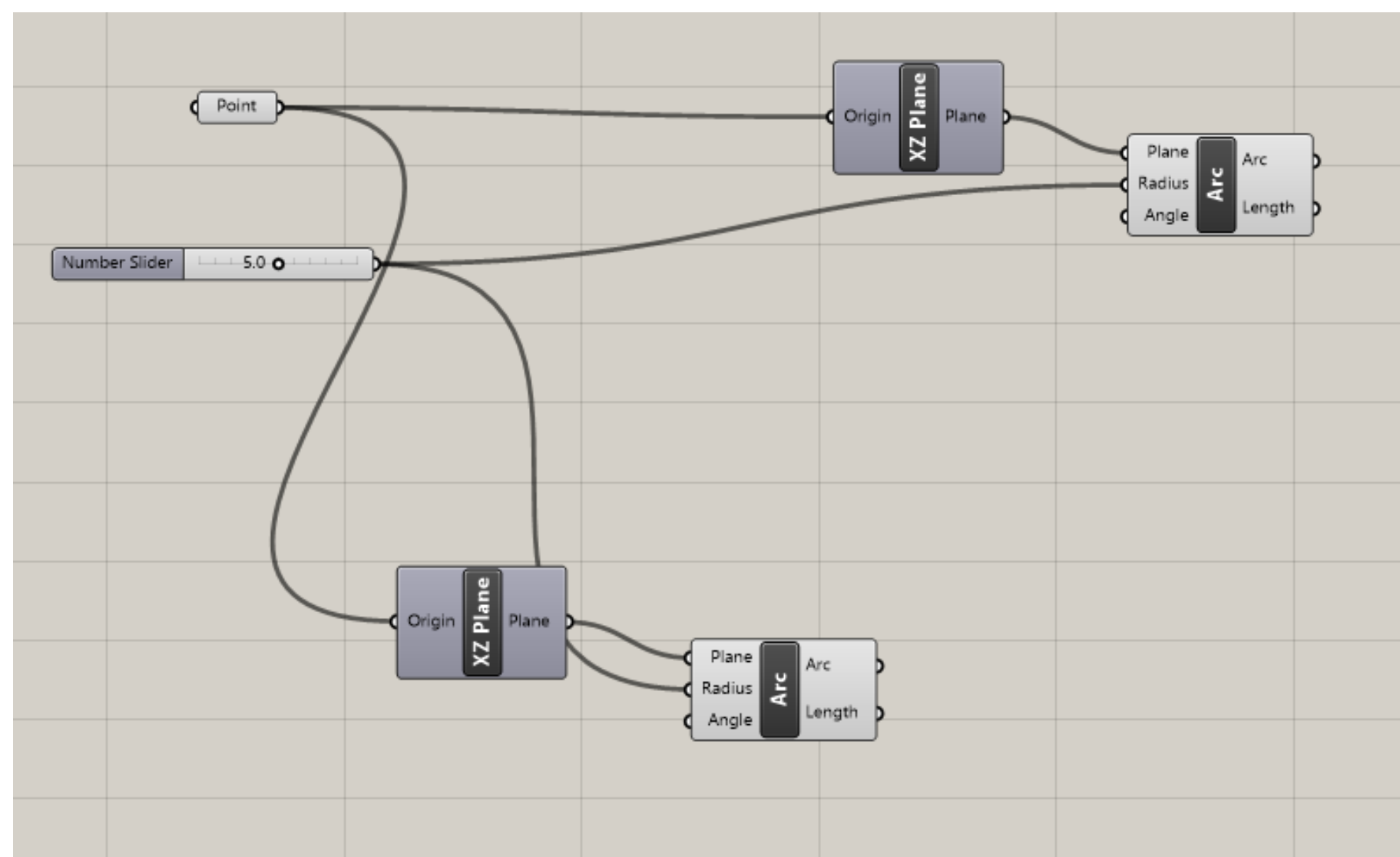


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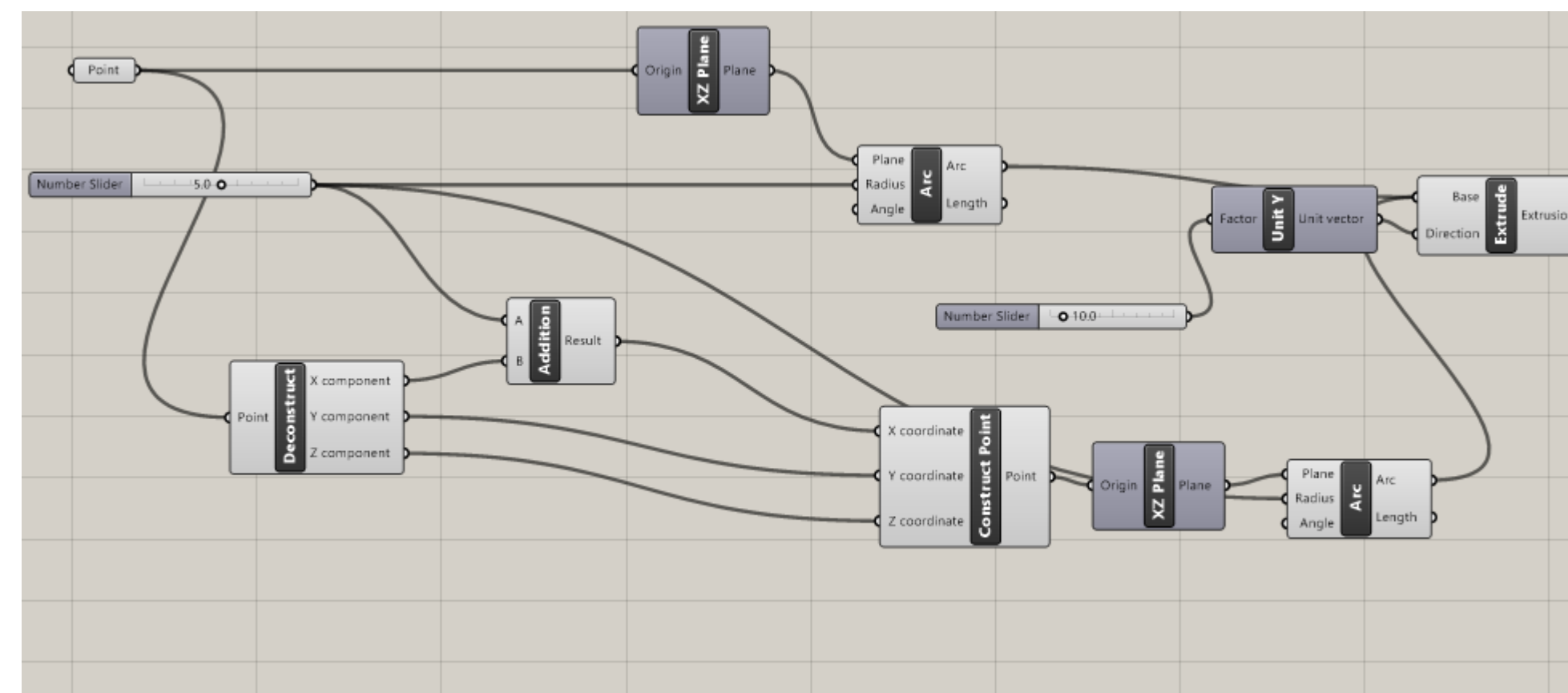
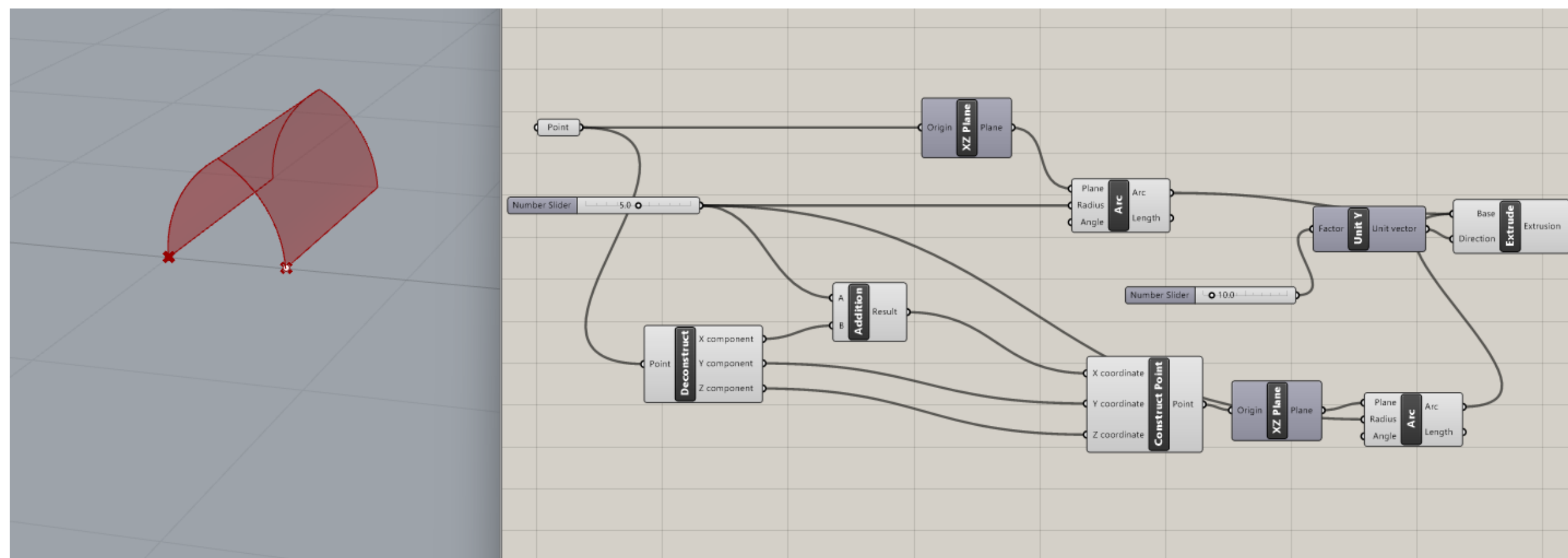
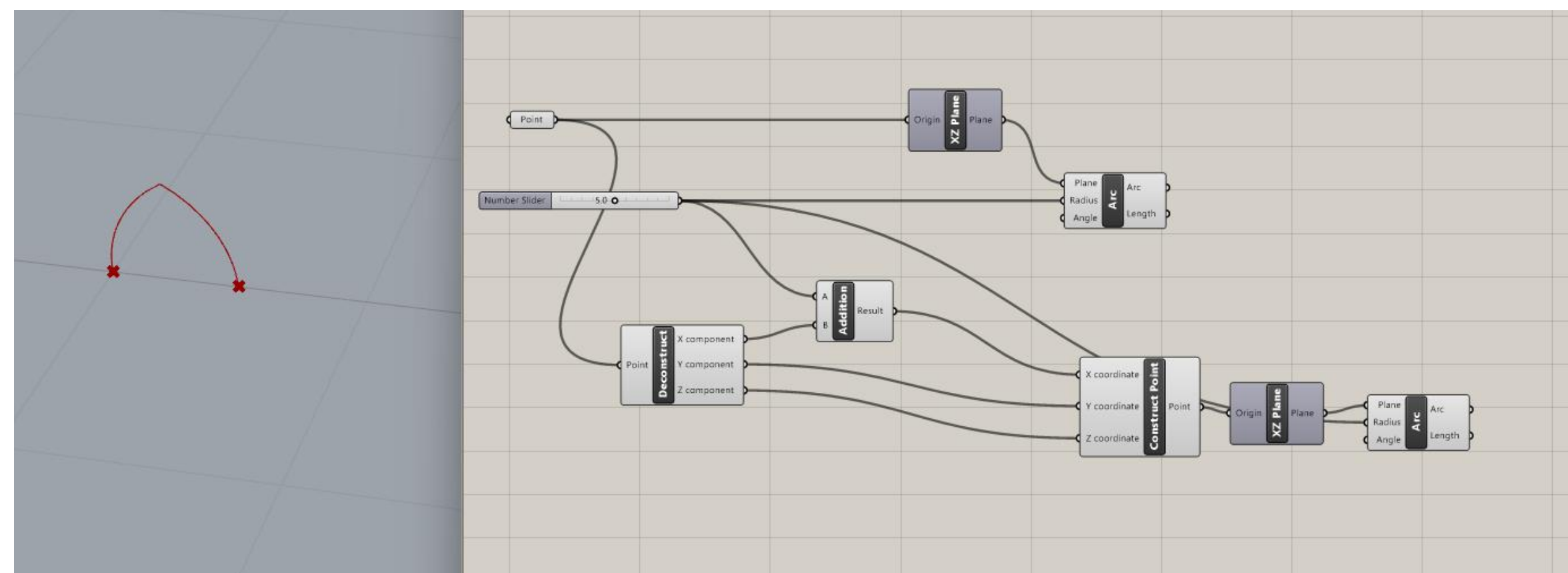
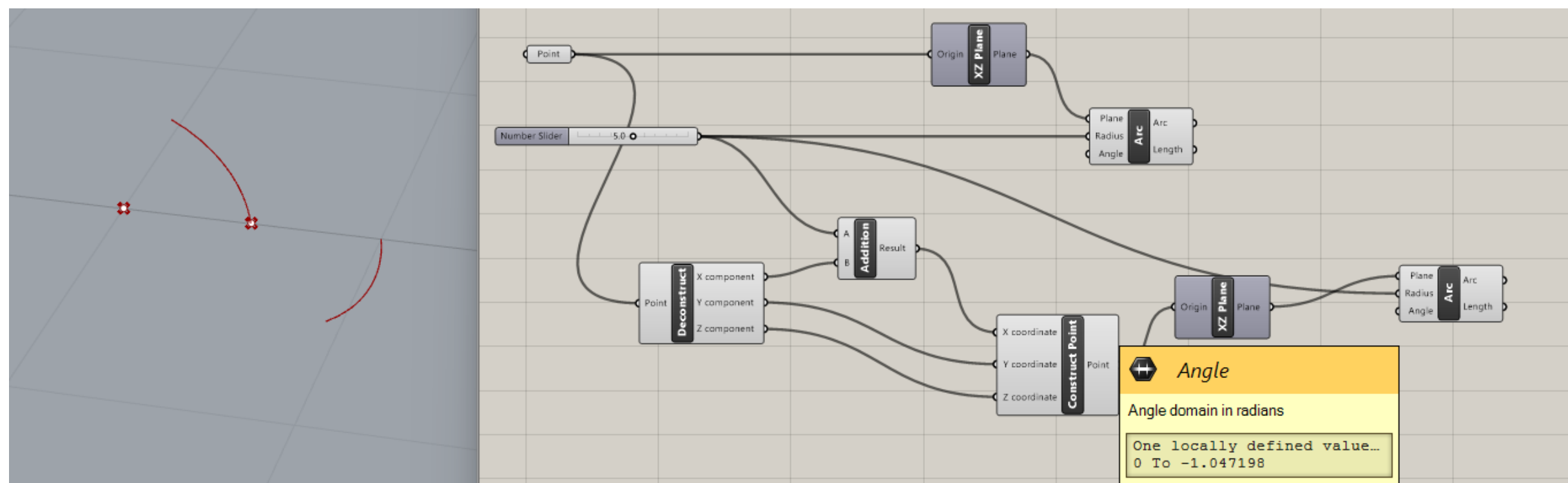
Aula 9- Abóbadas no grasshopper



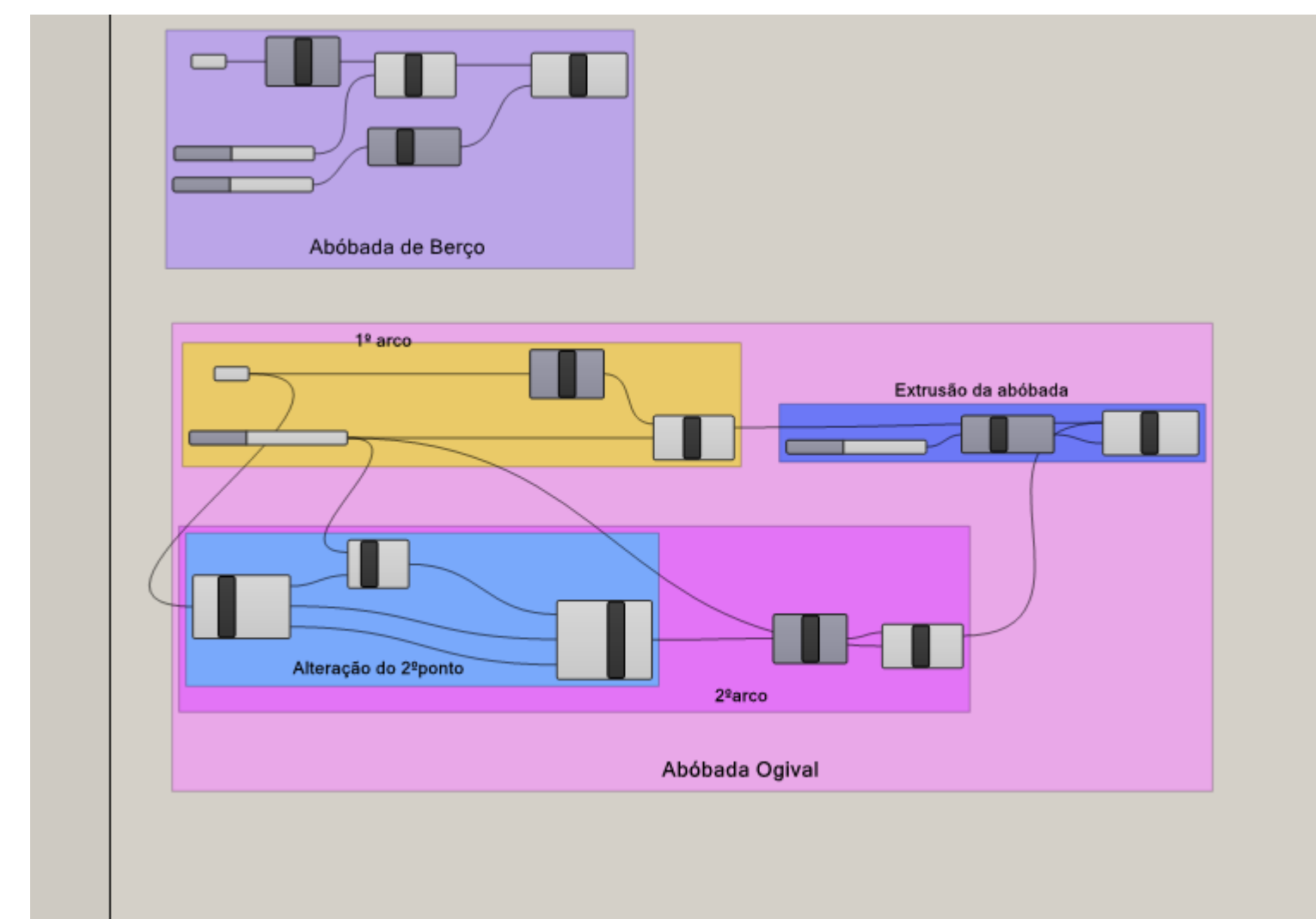
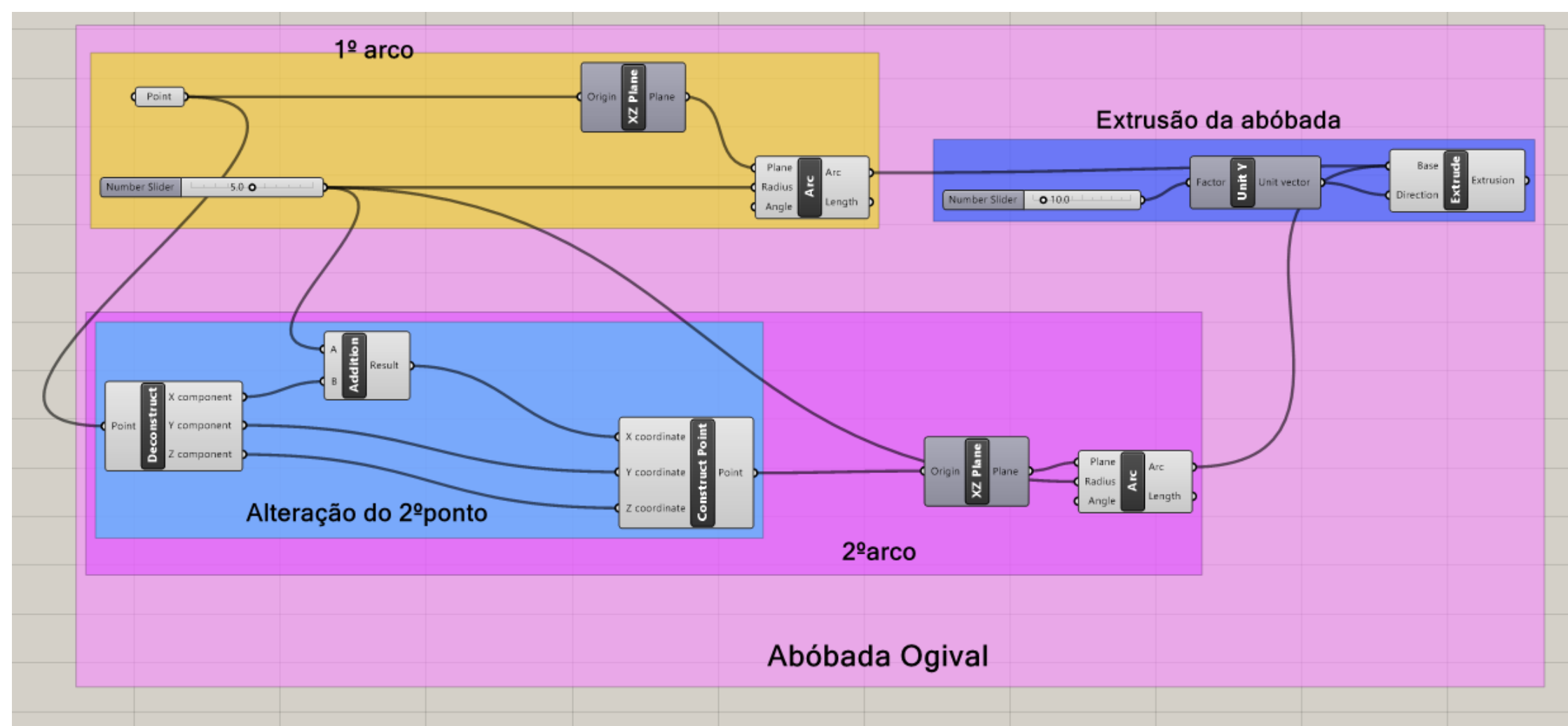
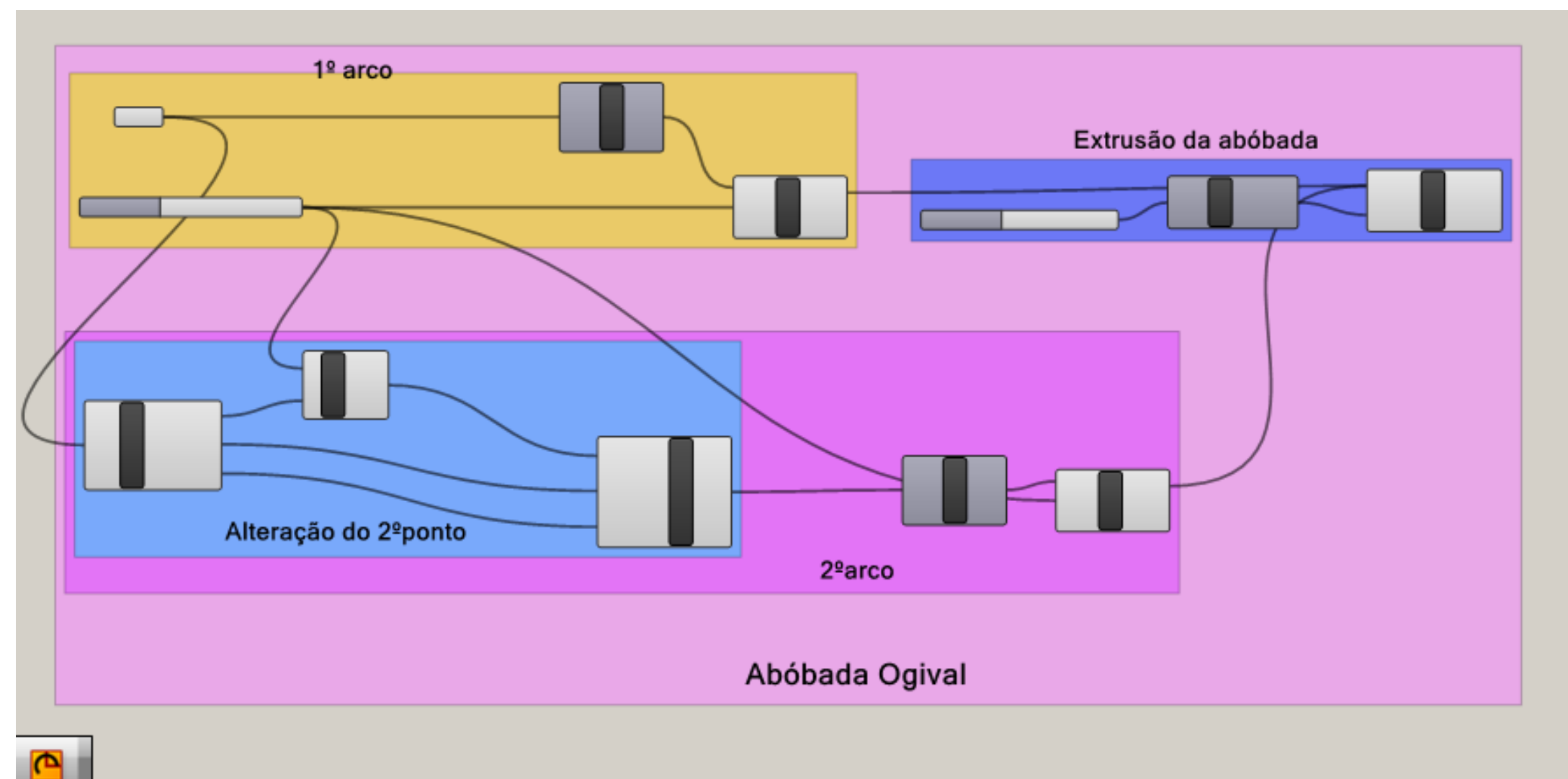
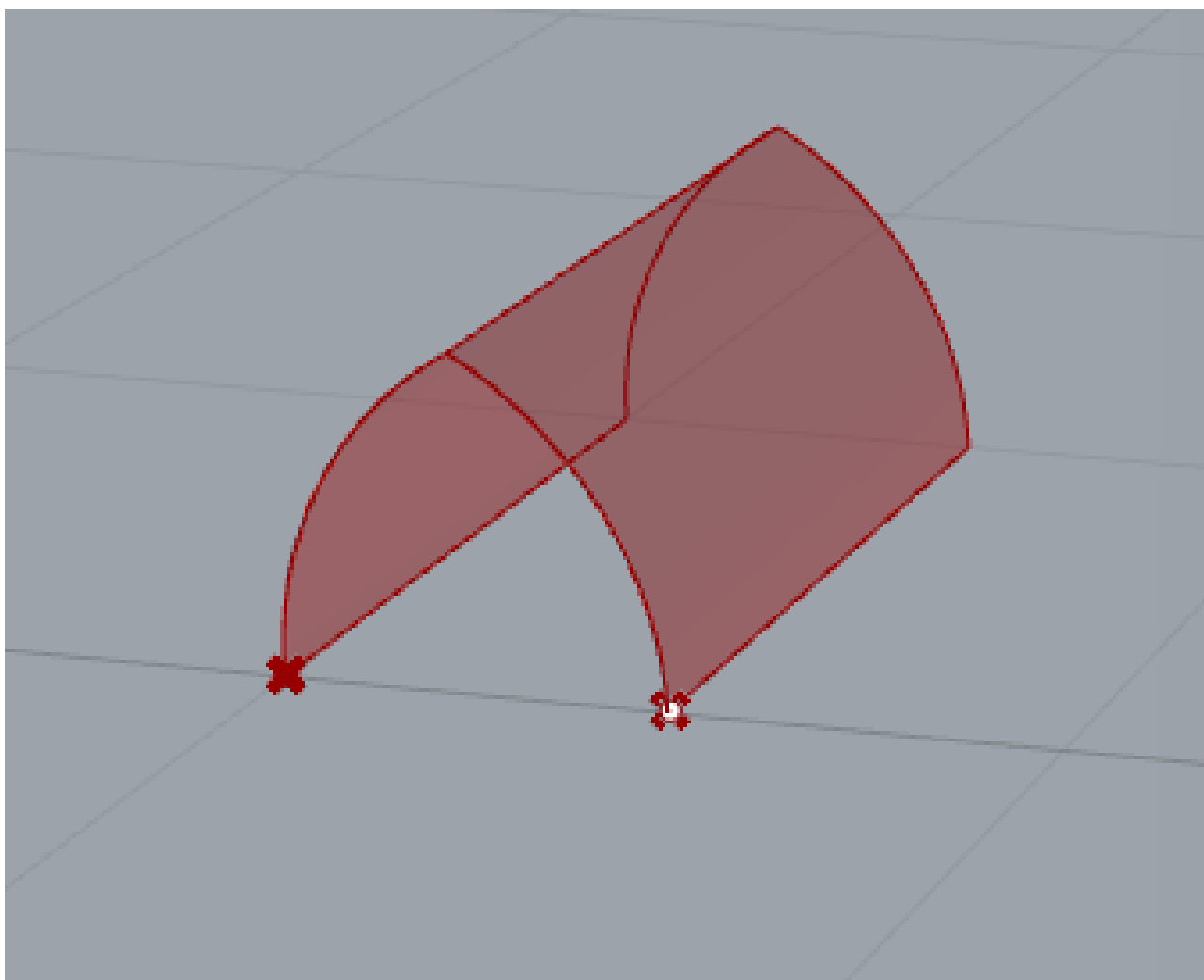
Aula 9- Abóbadas no grasshopper



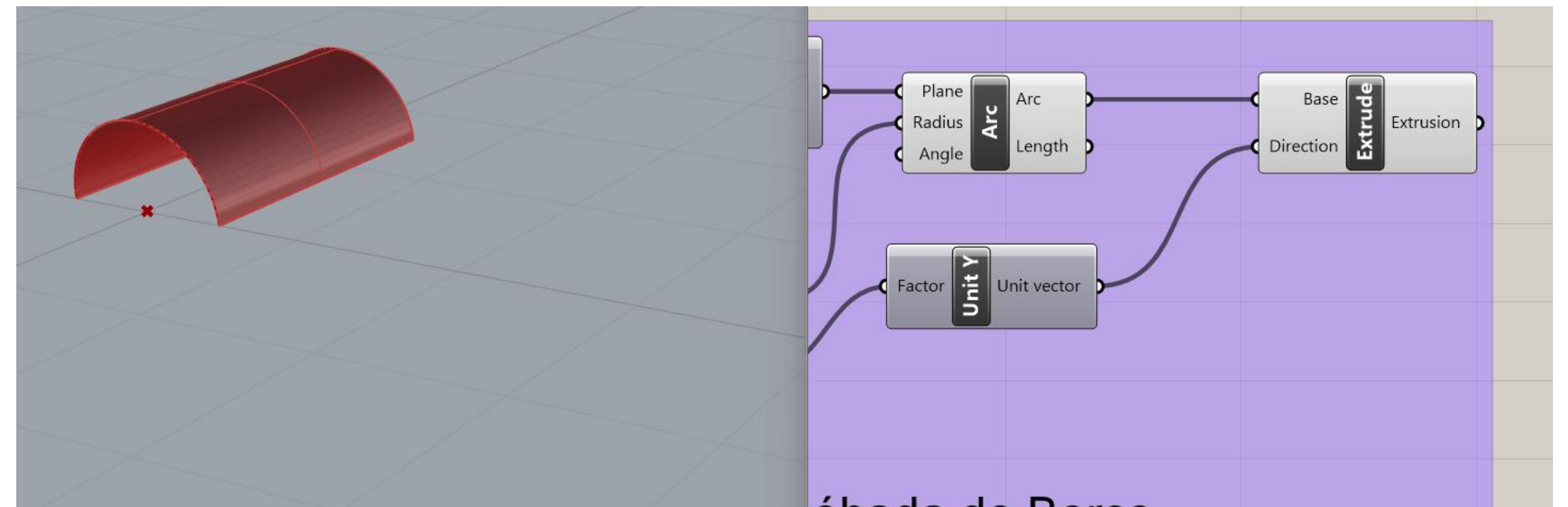
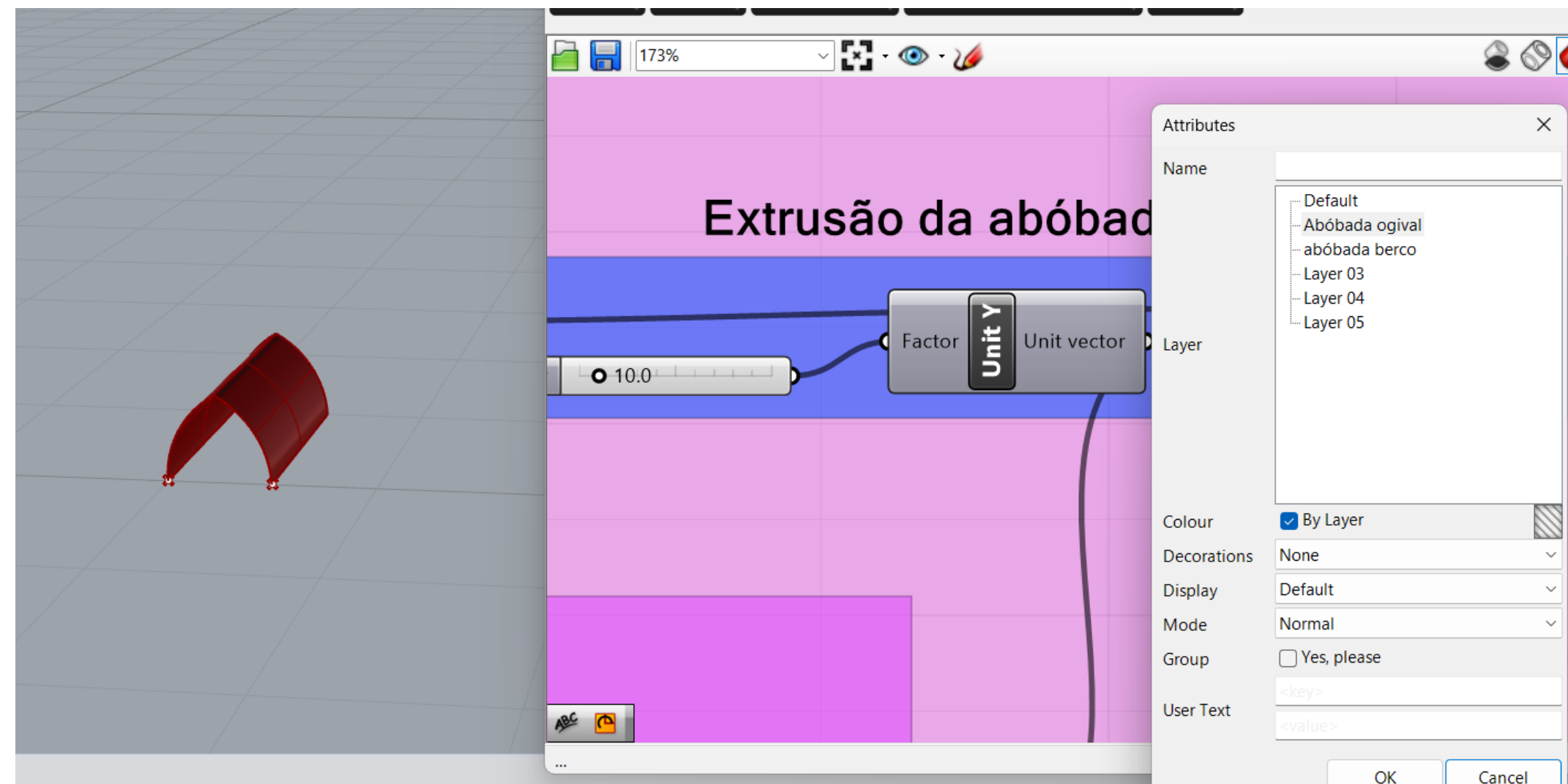
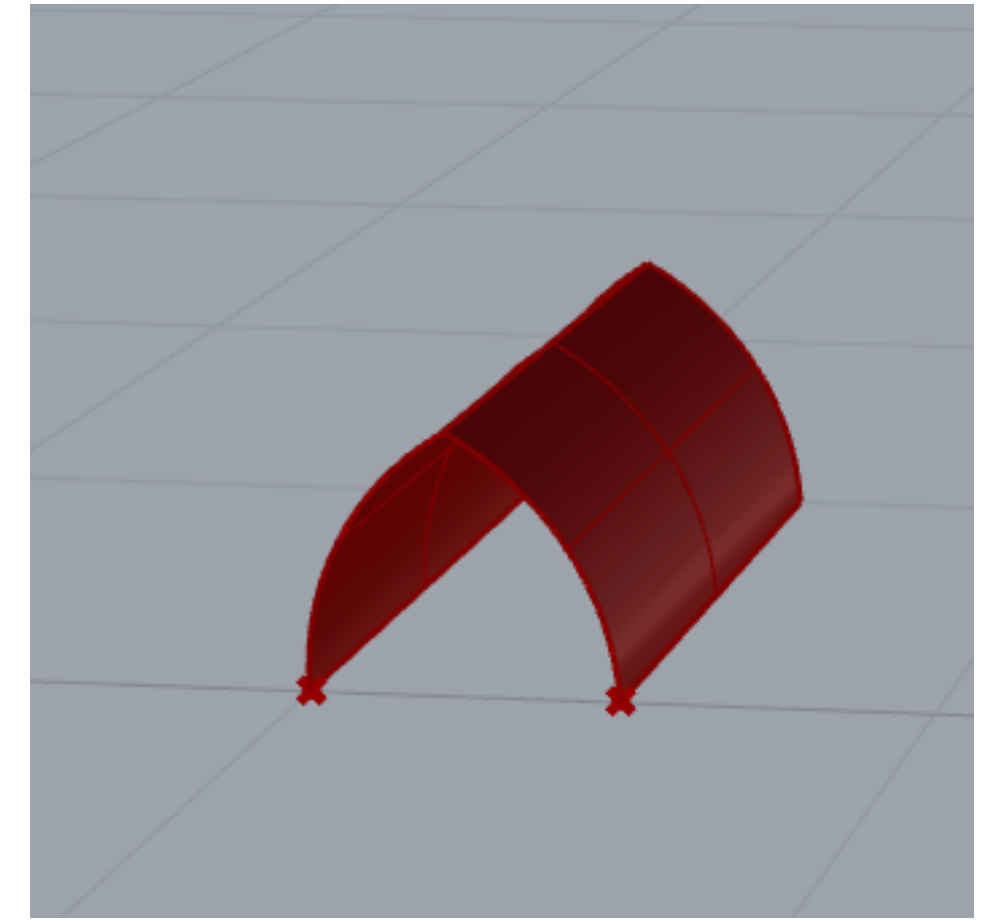
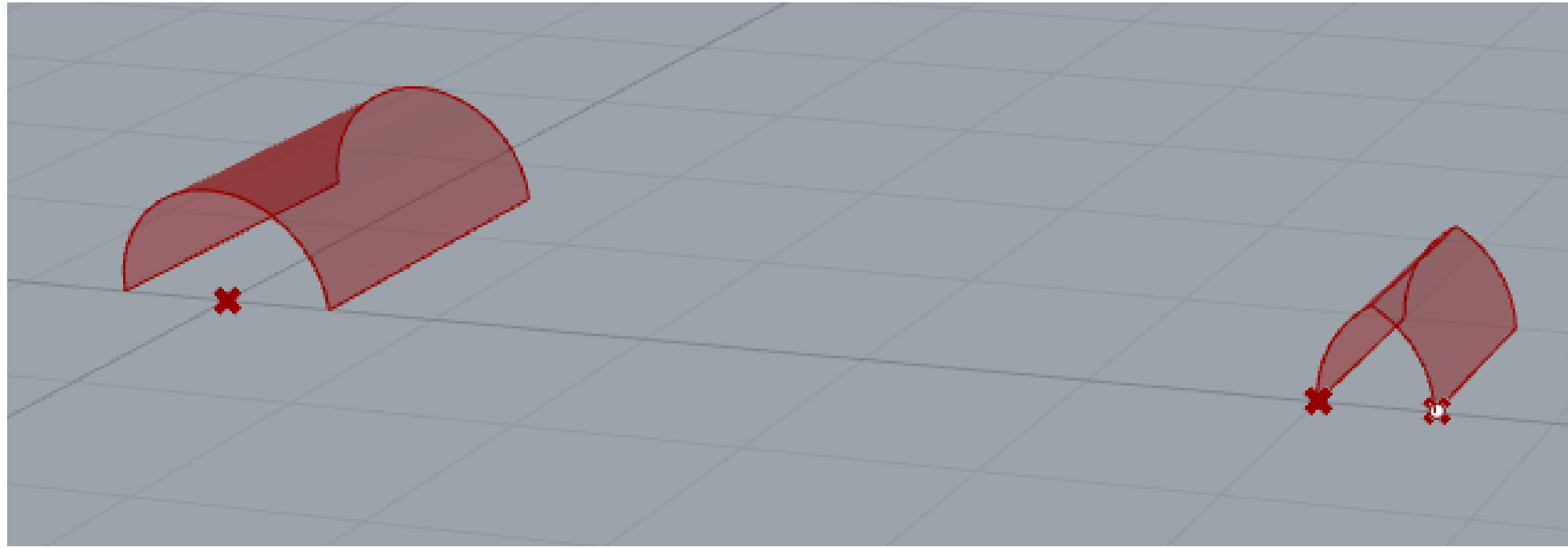
Aula 9- Abóbadas no grasshopper



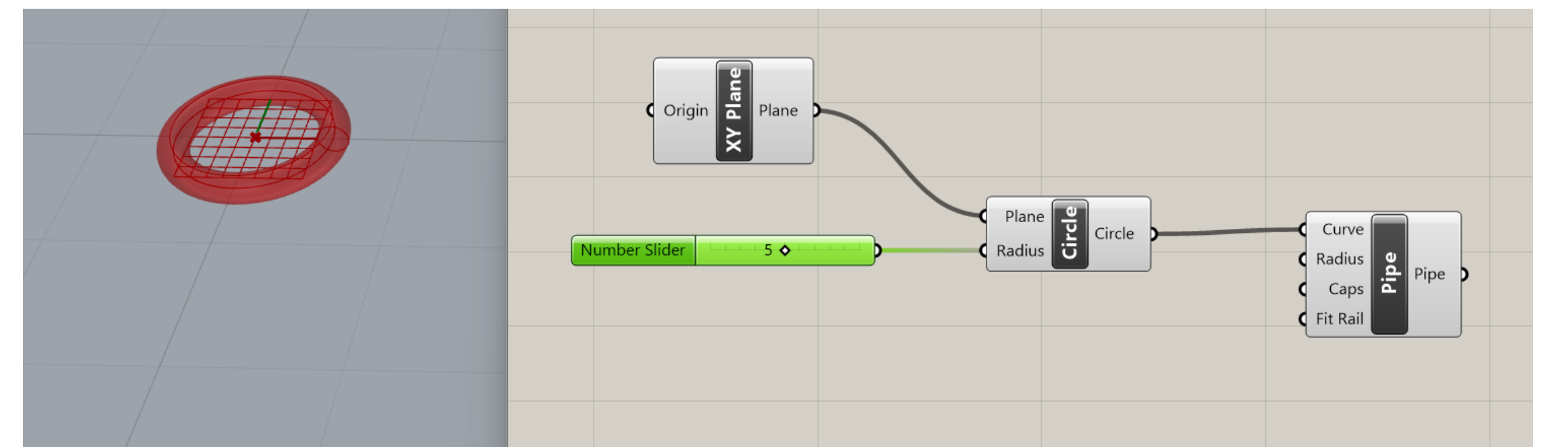
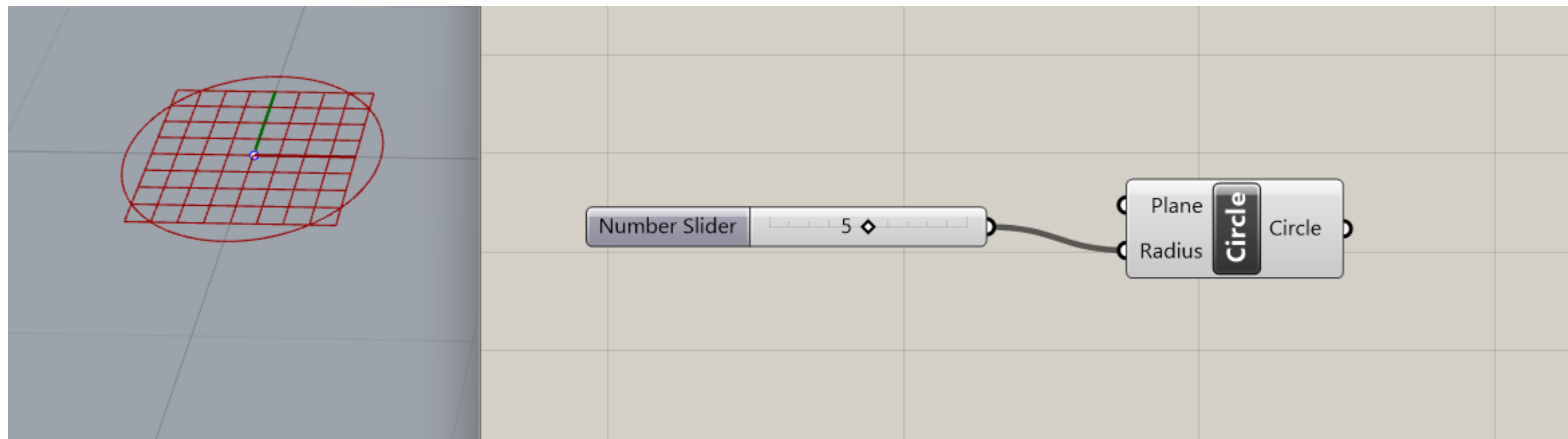
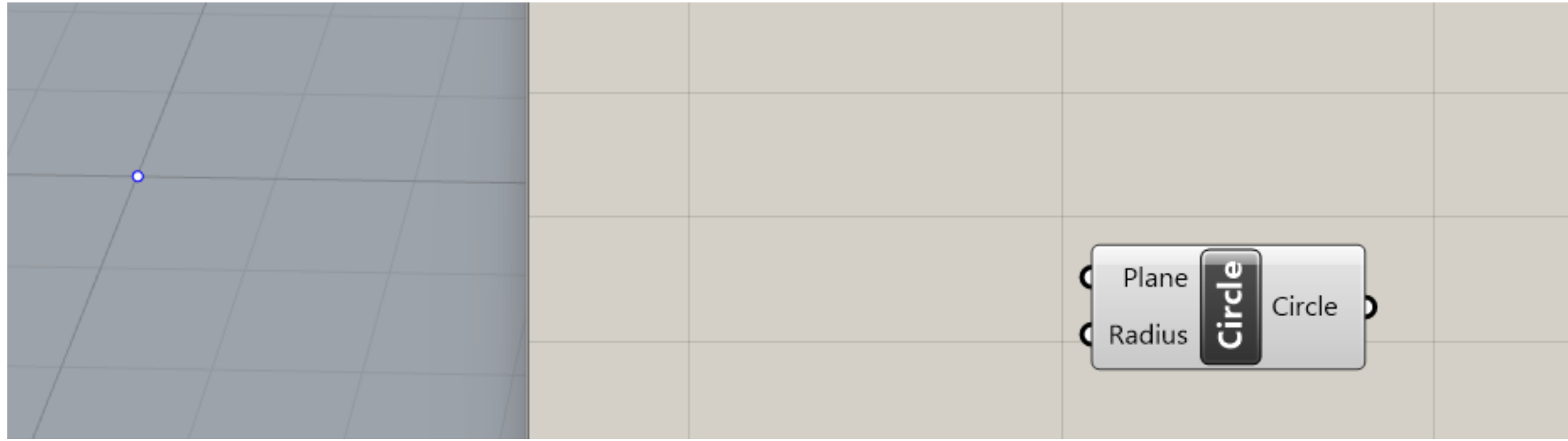
Aula 9- Abóbadas no grasshopper



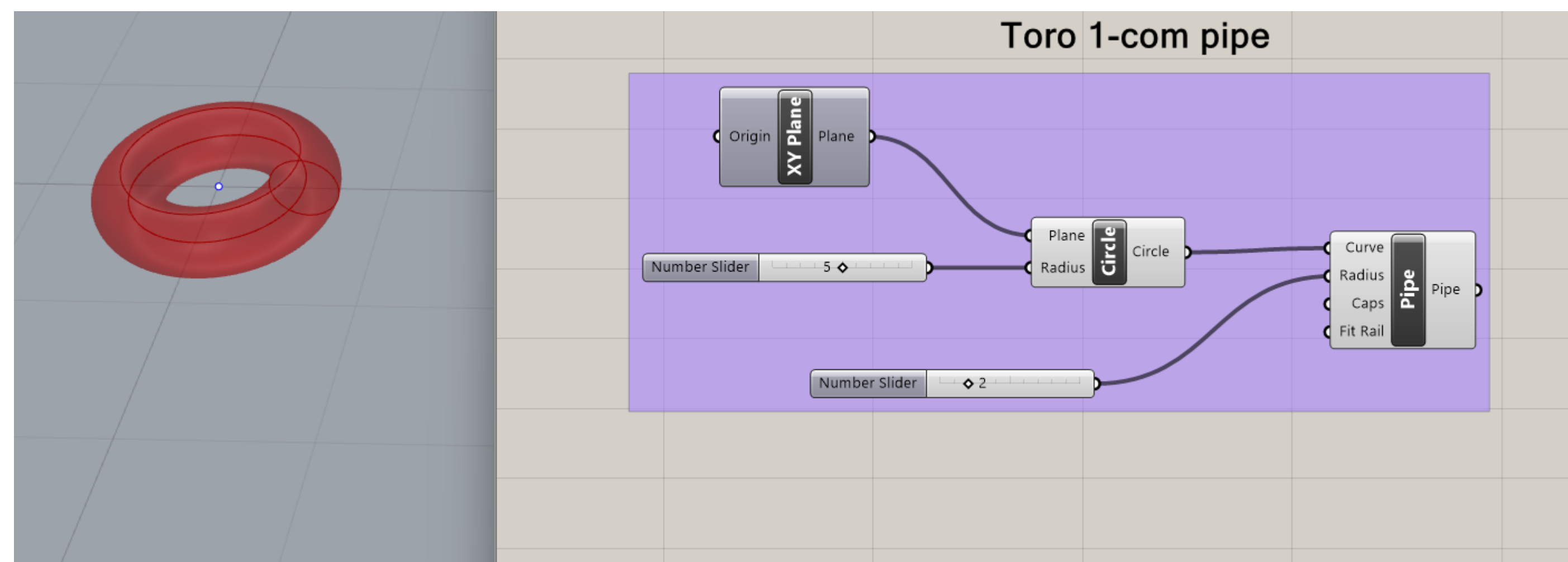
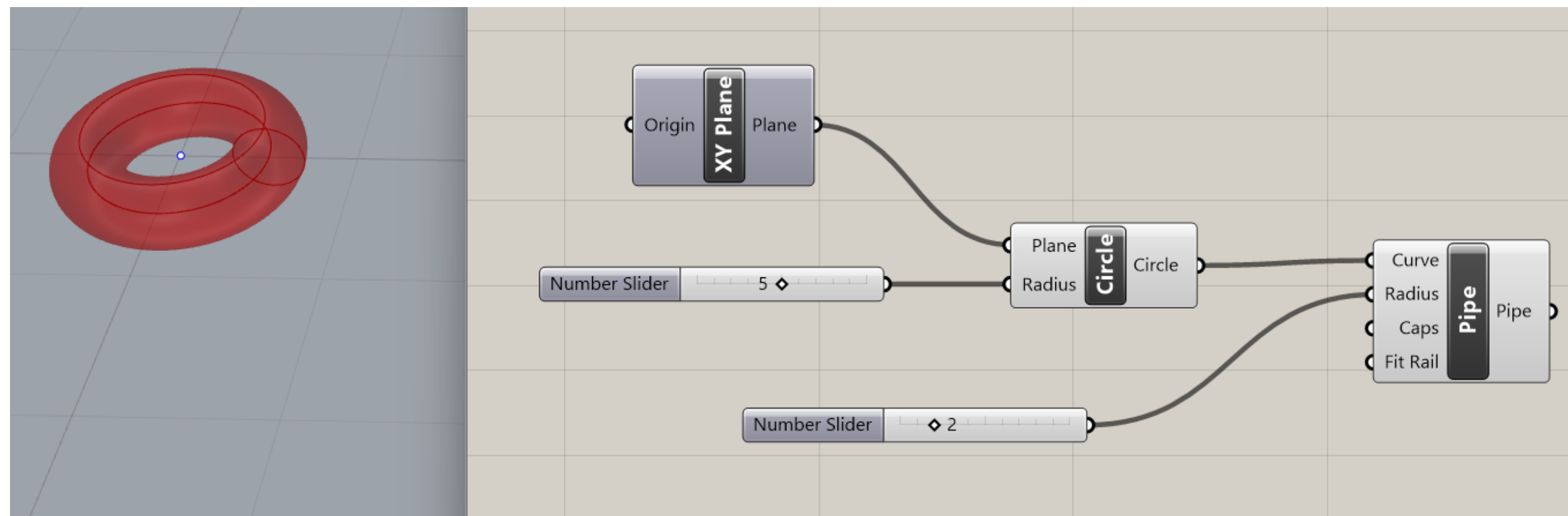
Aula 9- Abóbadas no grasshopper



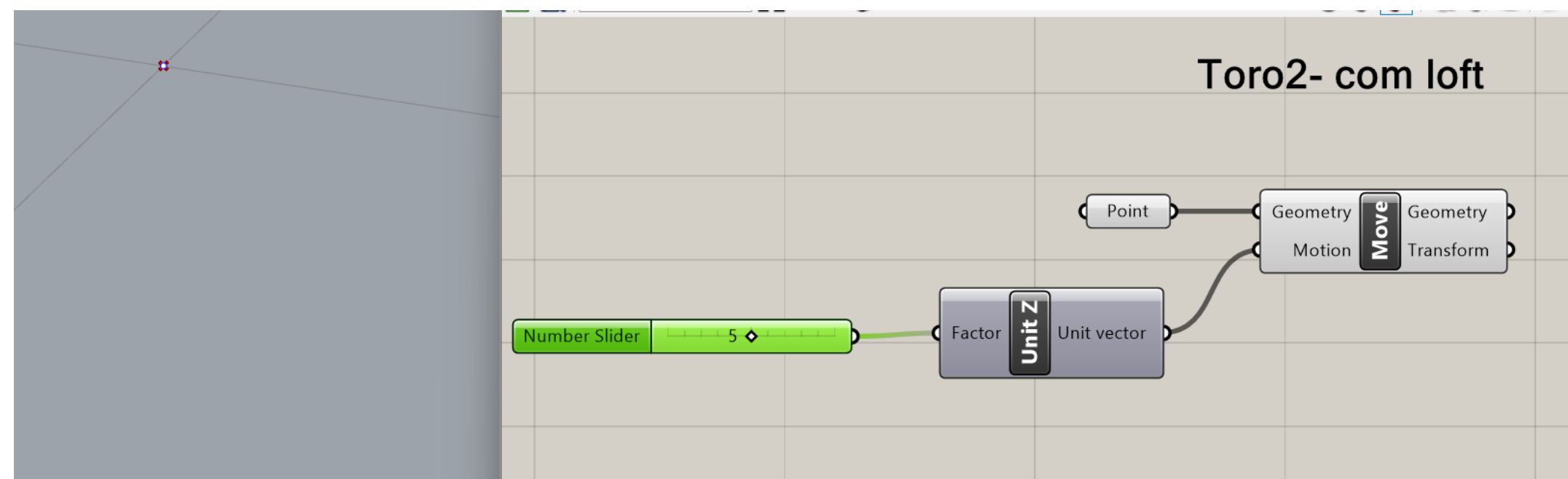
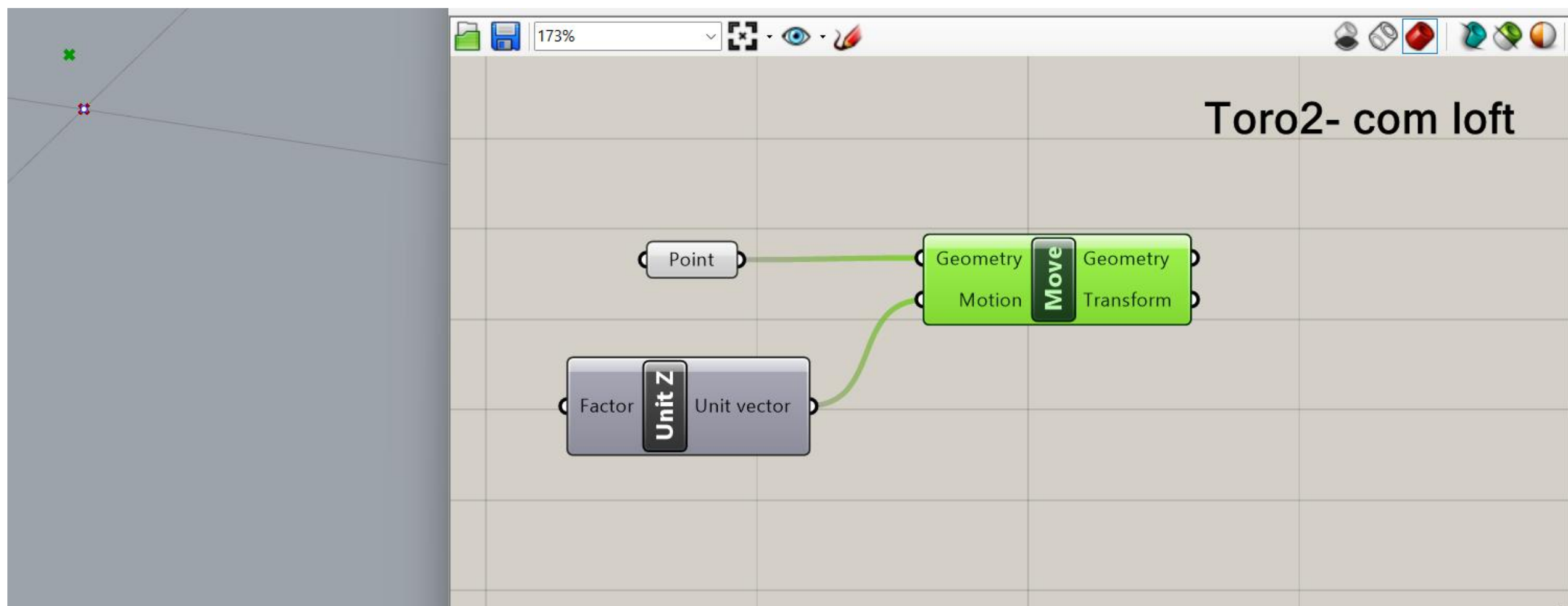
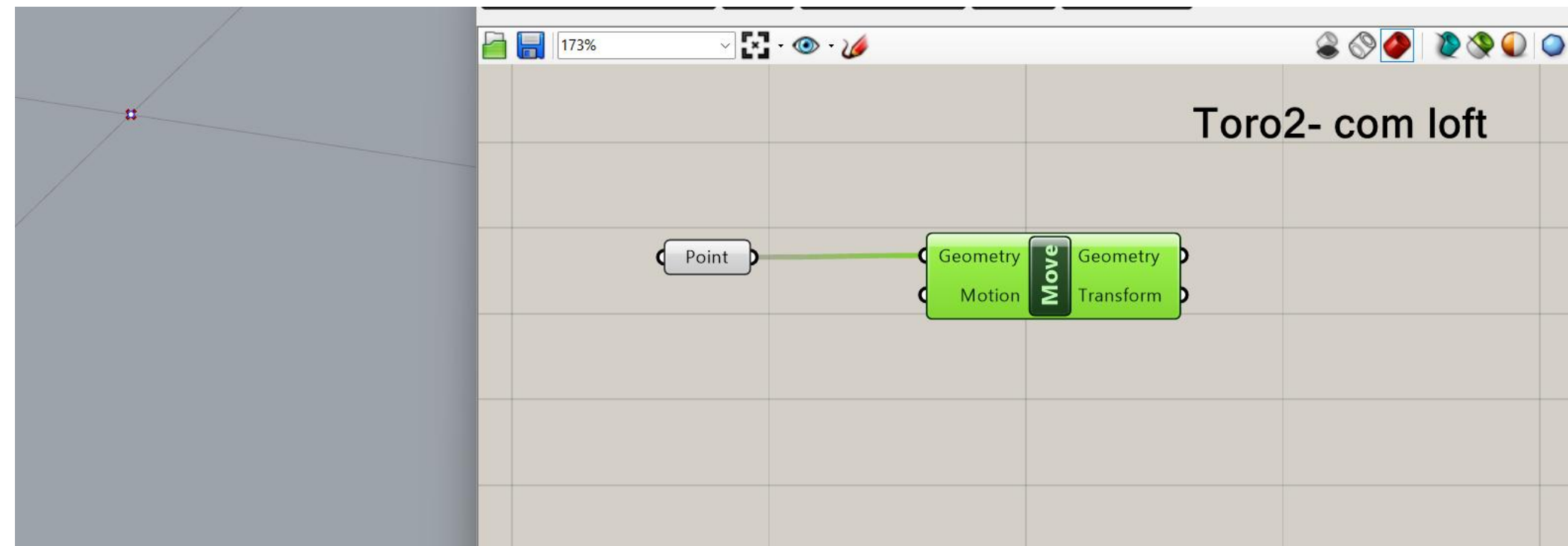
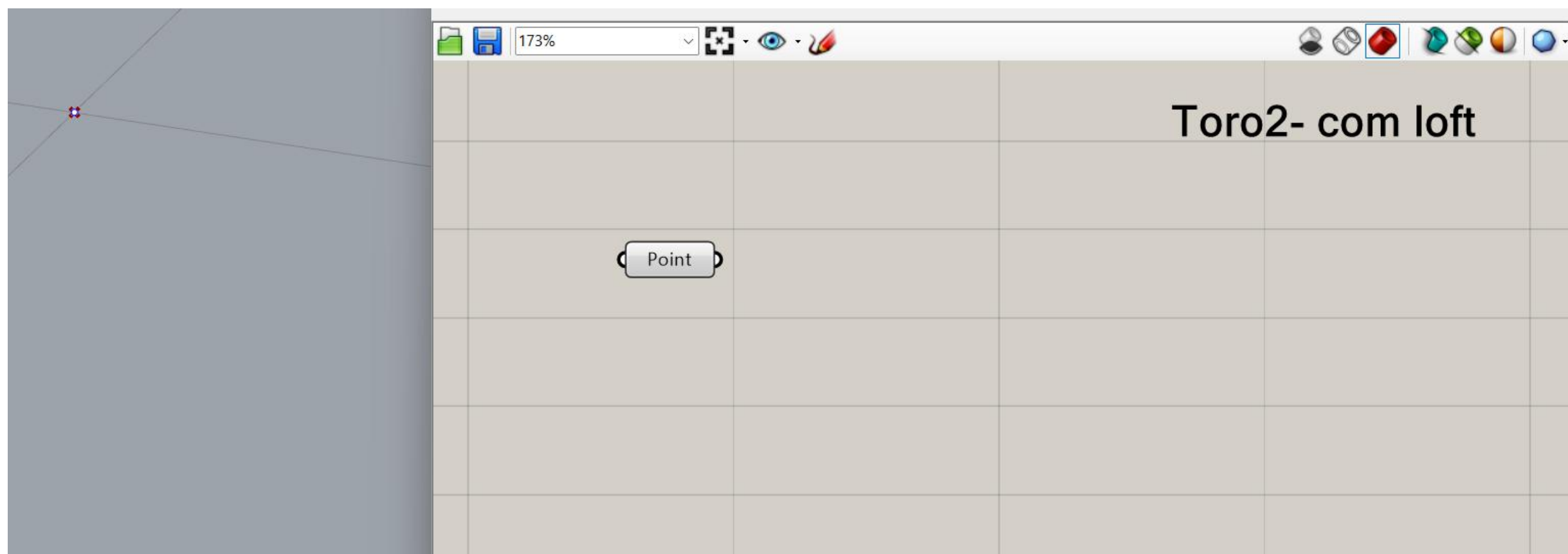
Aula 9- Abóbadas no grasshopper



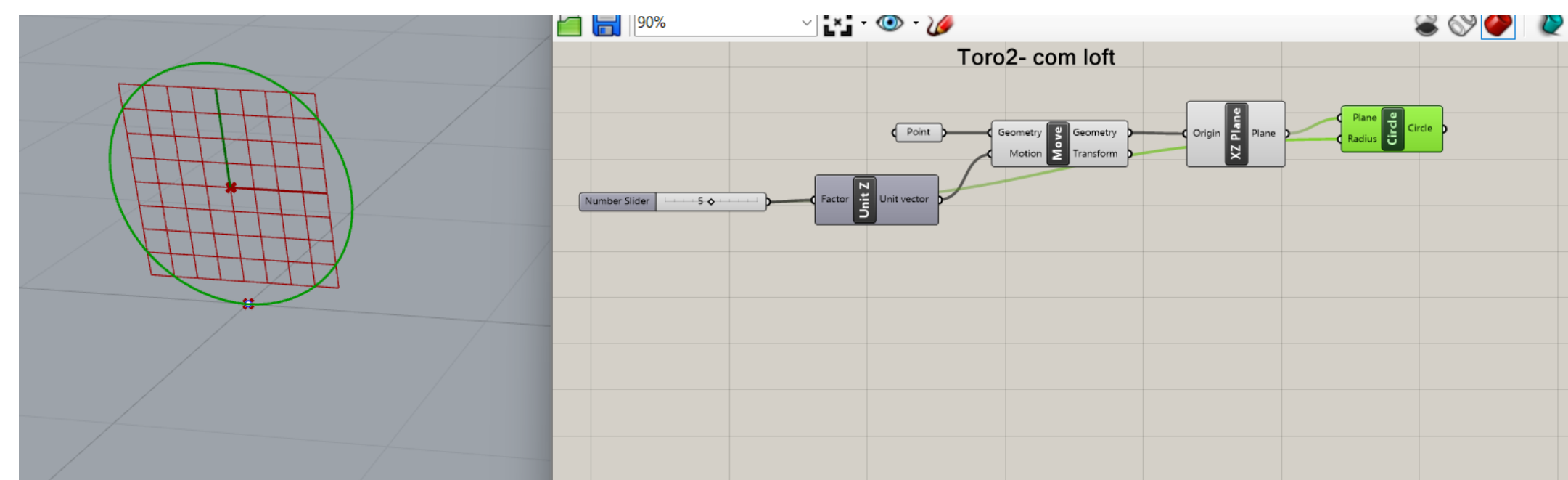
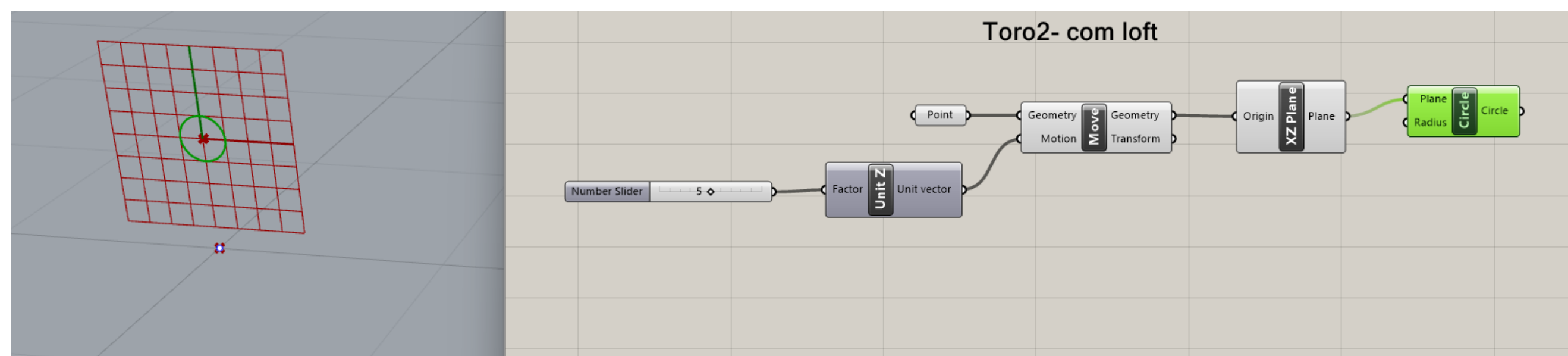
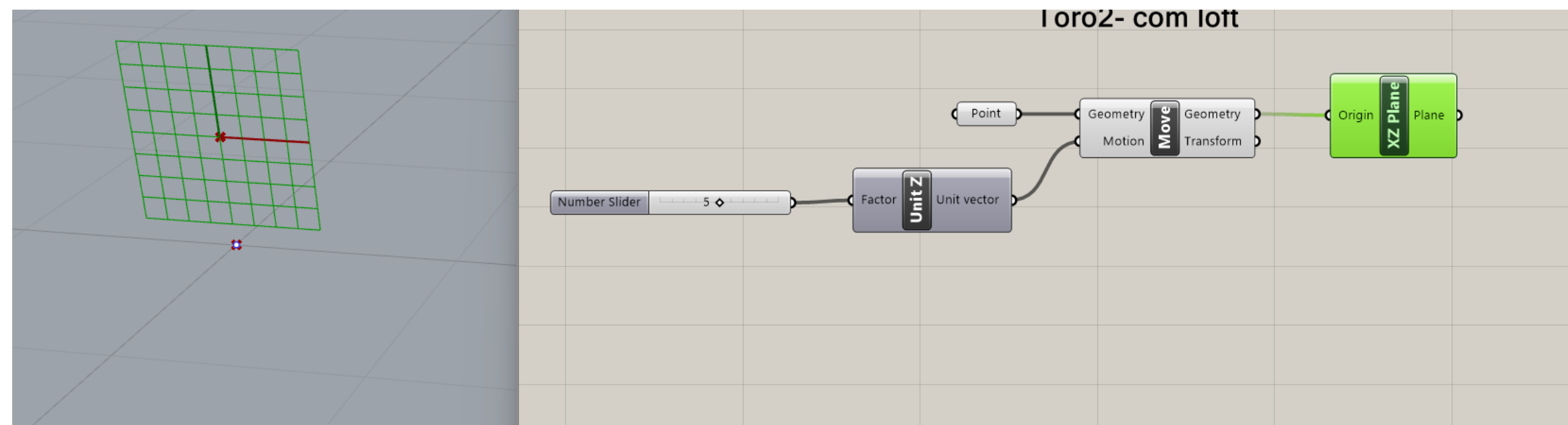
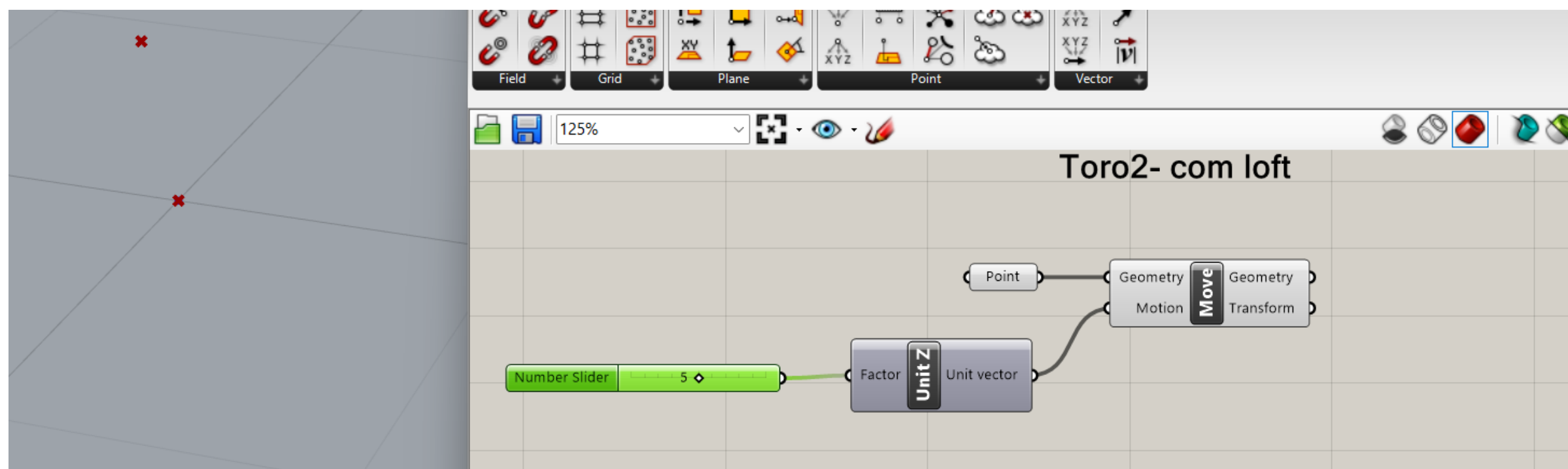
Aula 10- Tórus no grasshopper



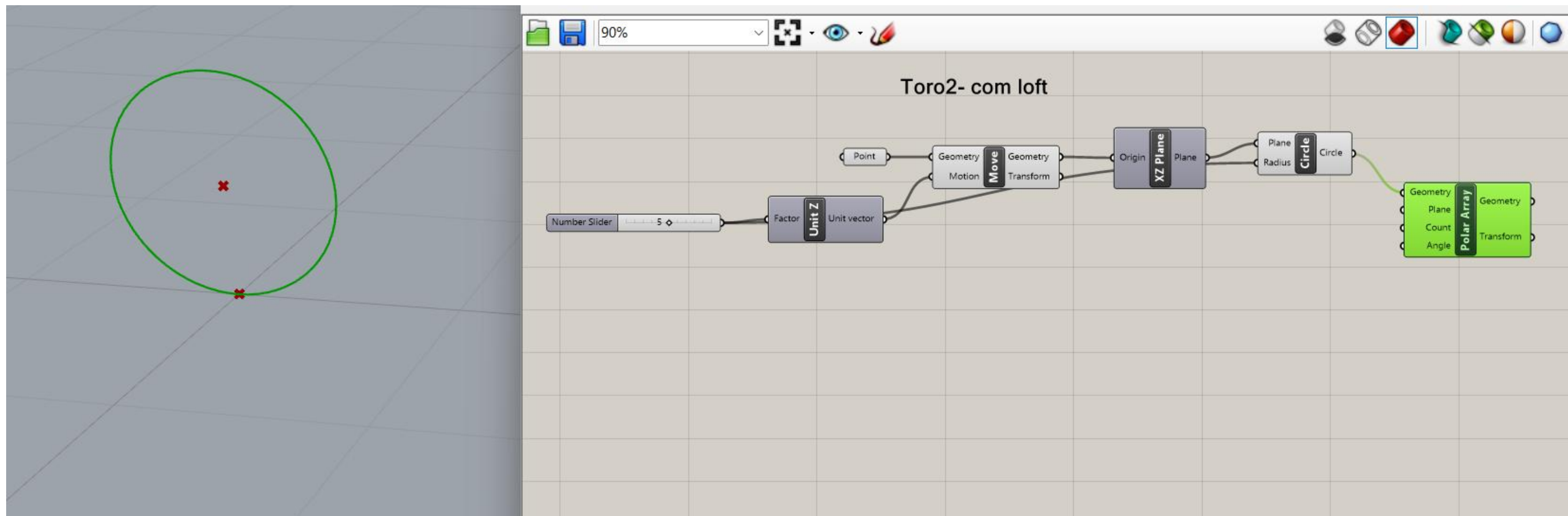
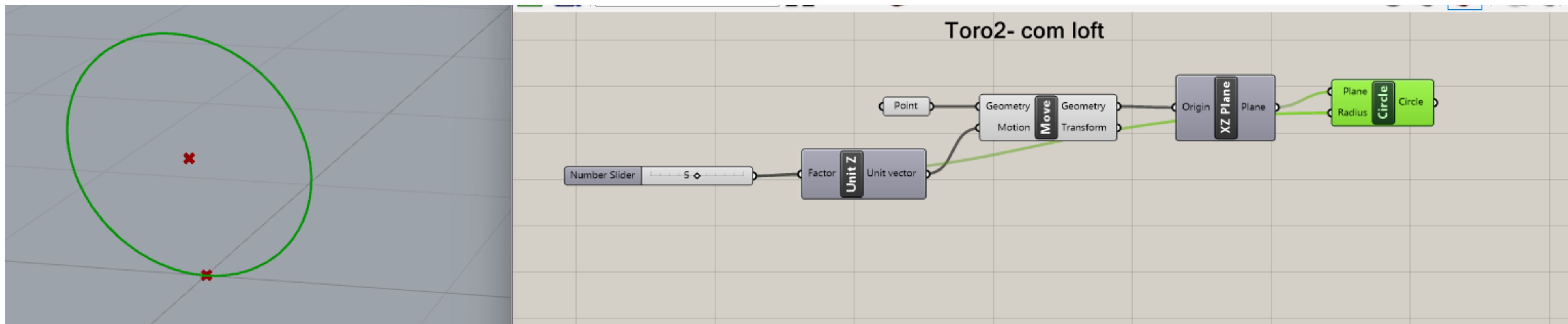
Aula 10- Tórus no grasshopper



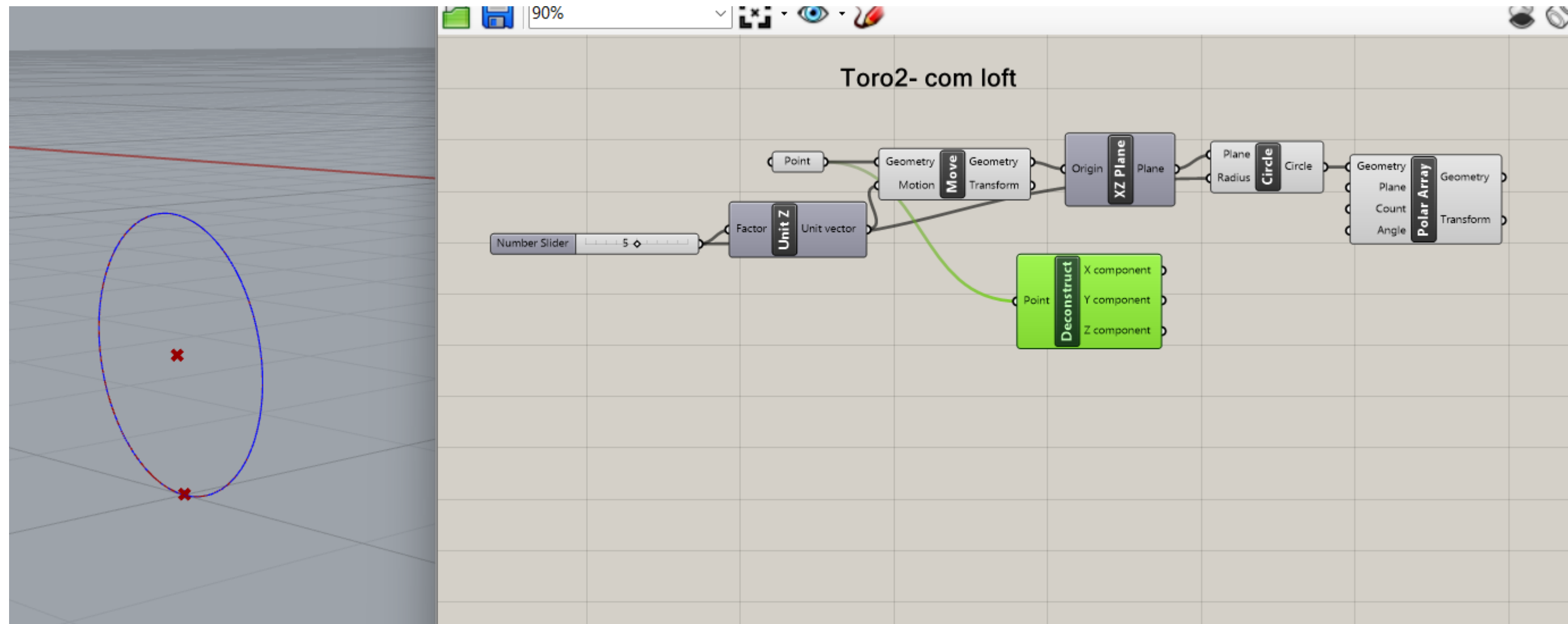
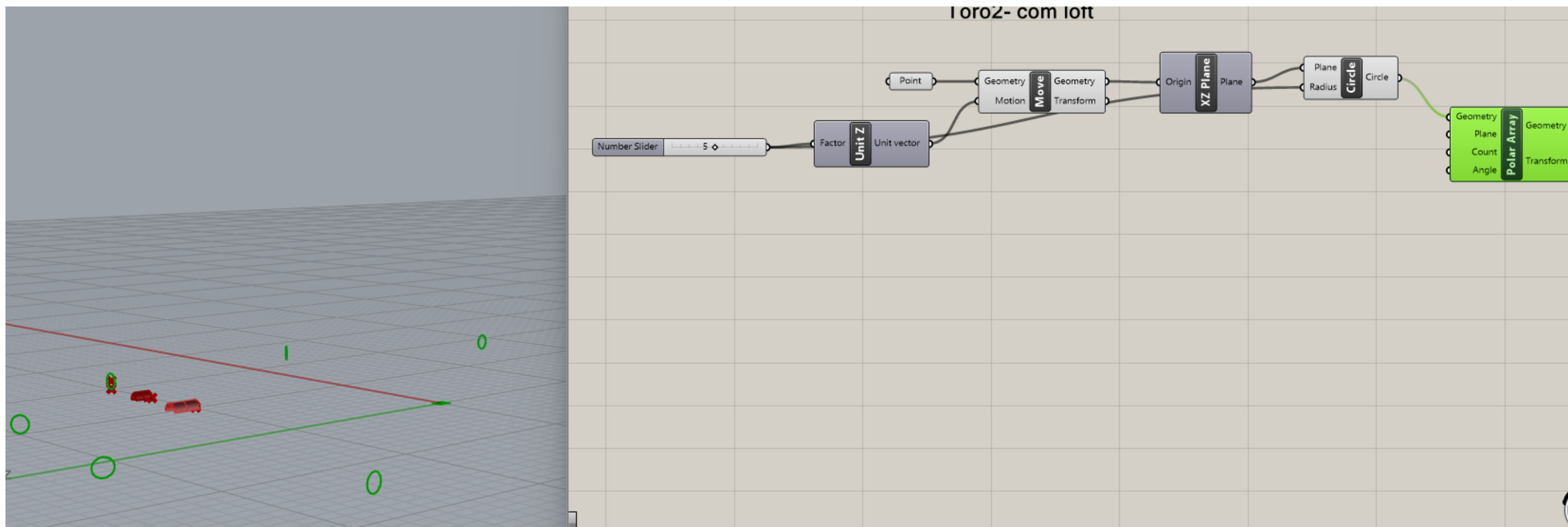
Aula 10- Tórus no grasshopper



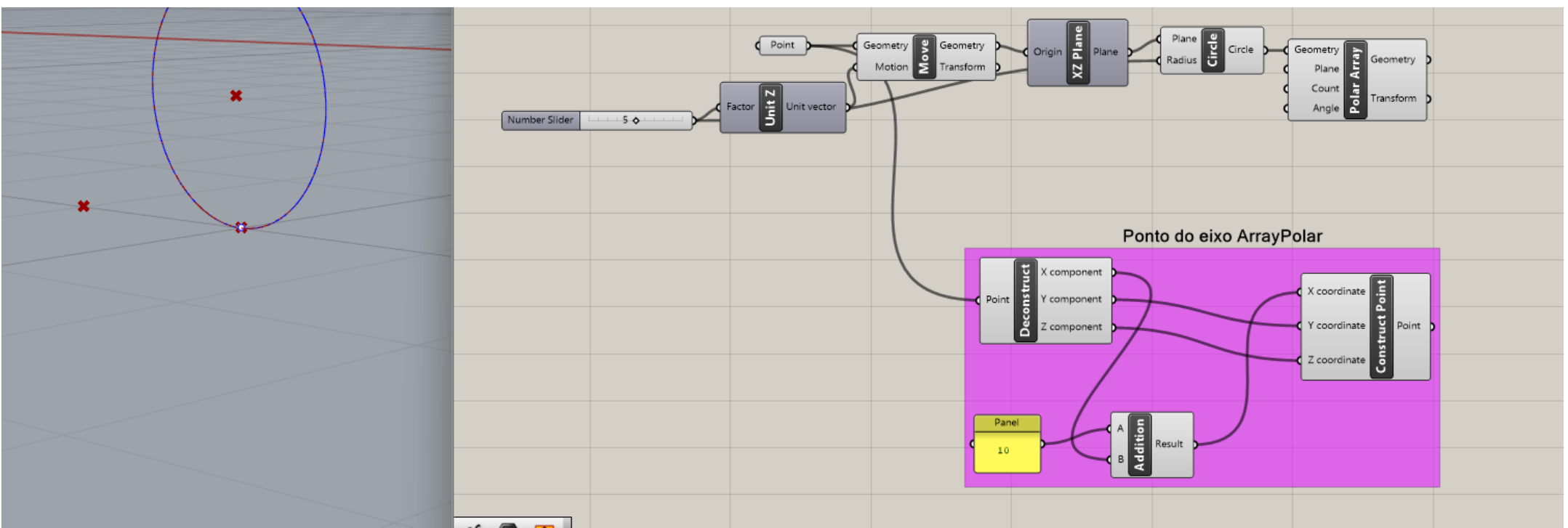
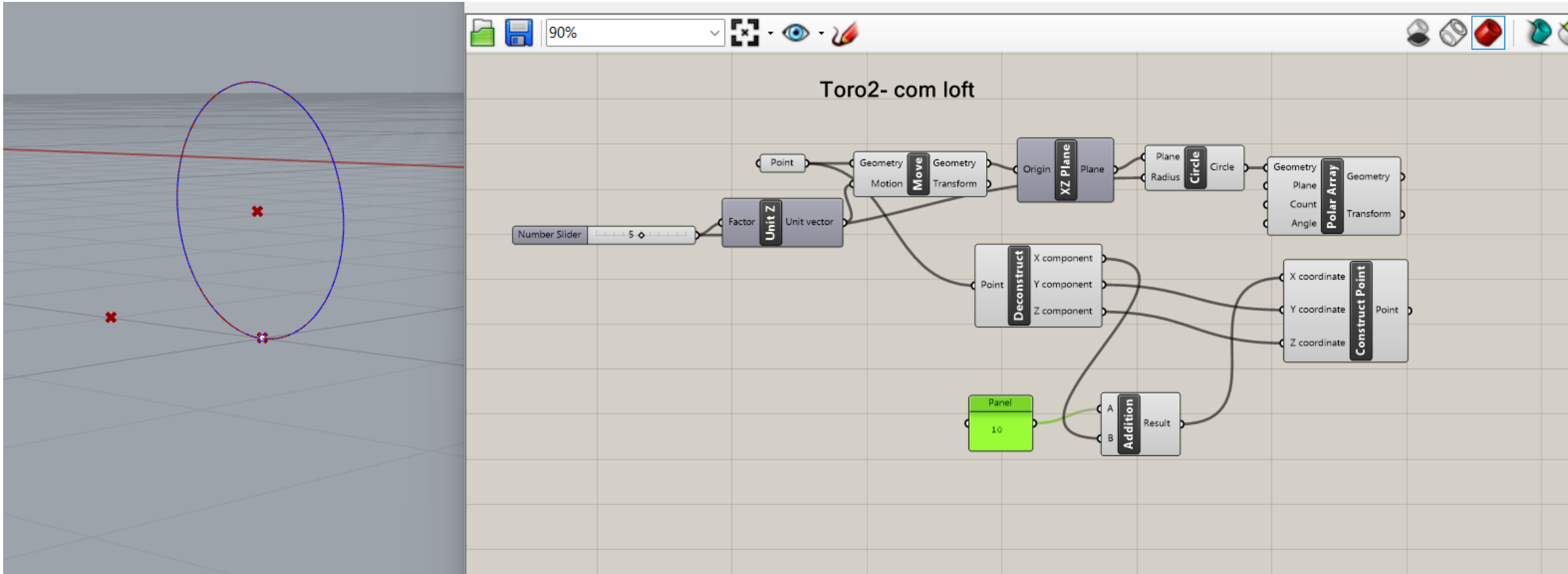
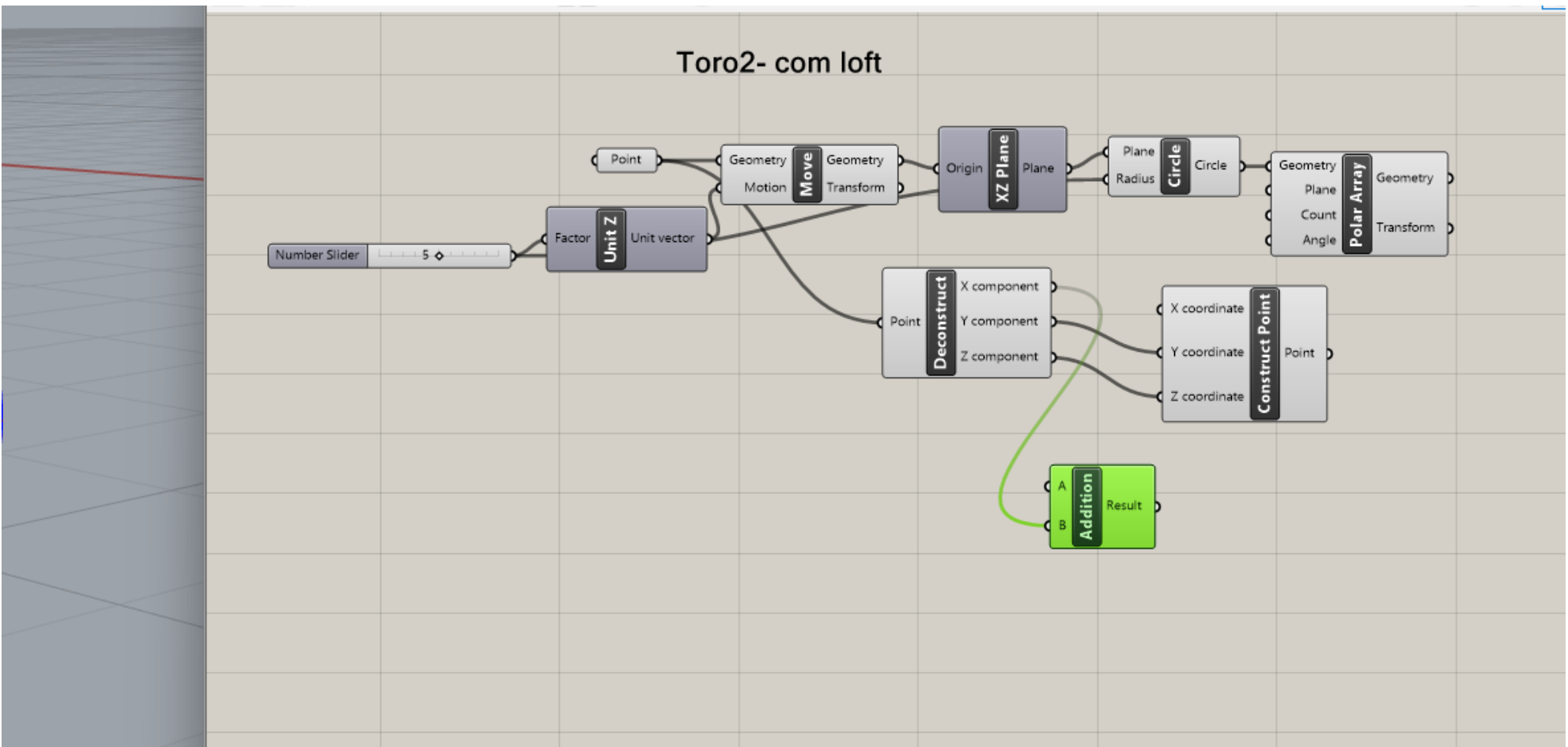
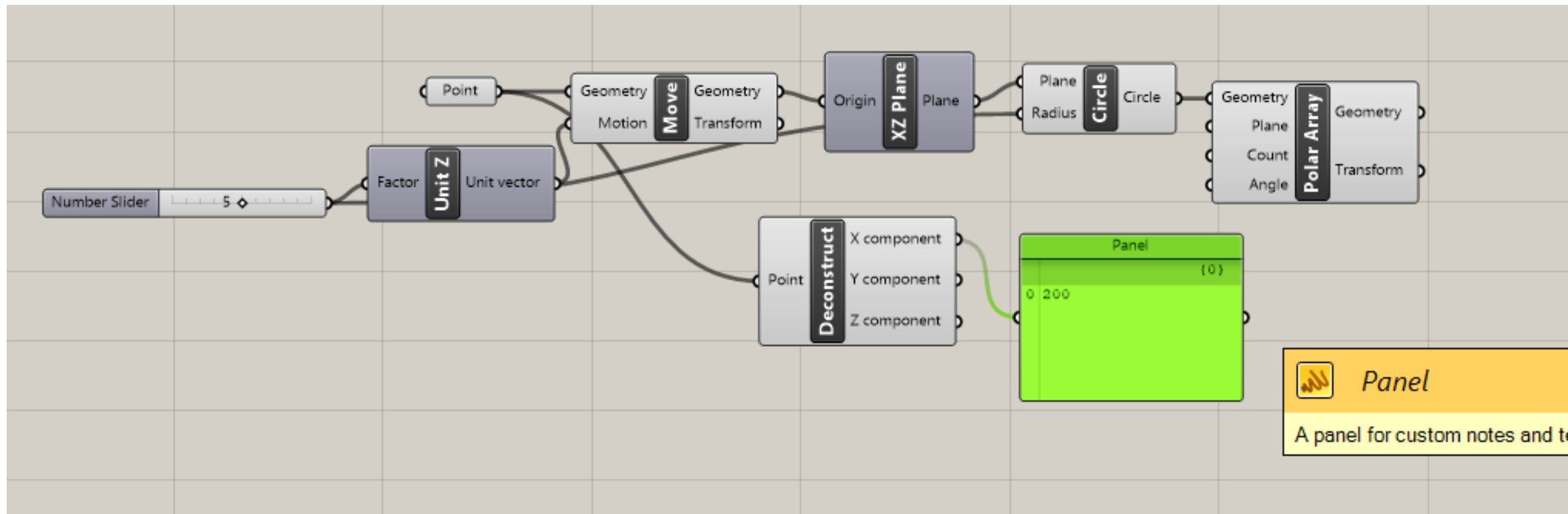
Aula 10- Tórus no grasshopper



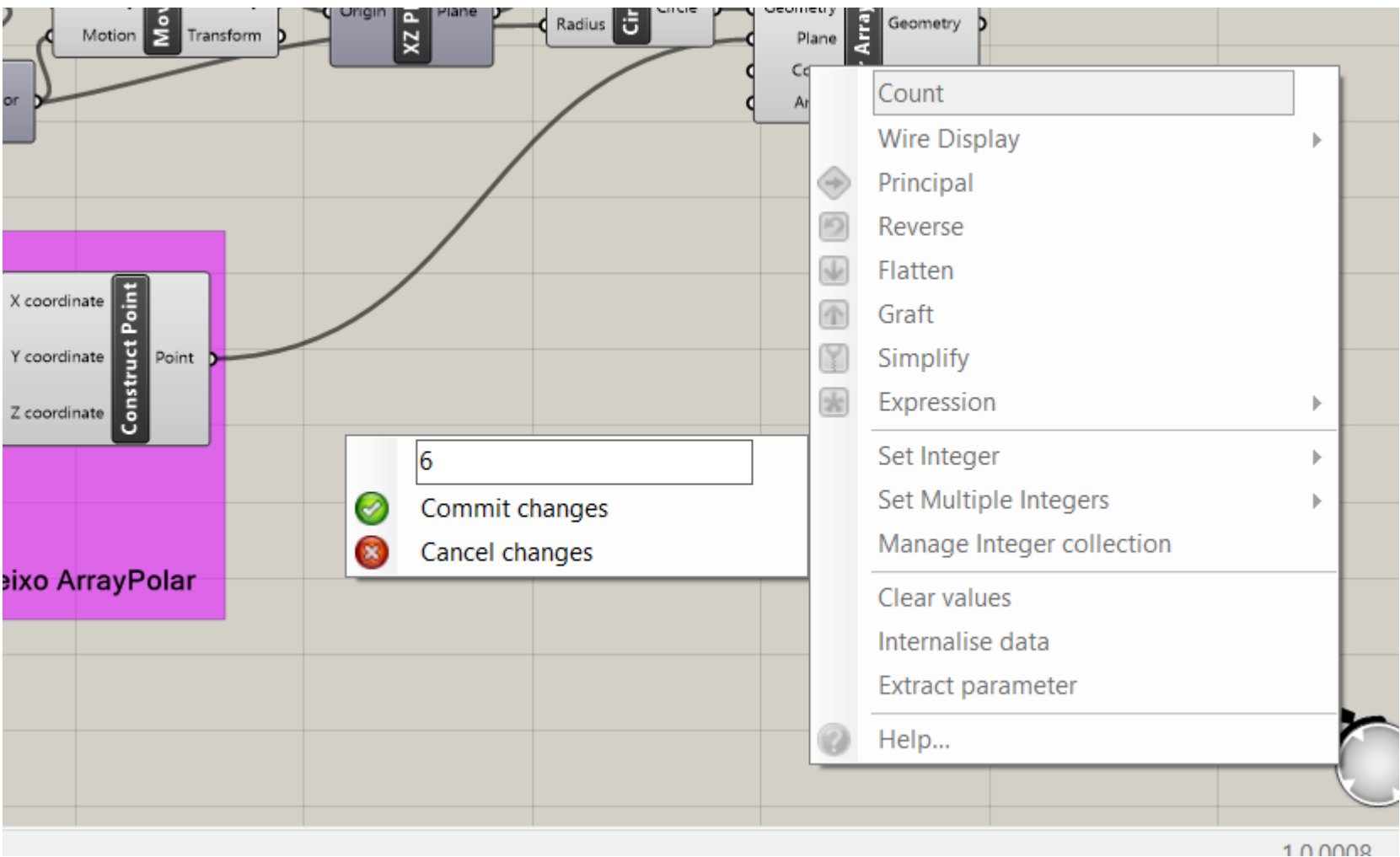
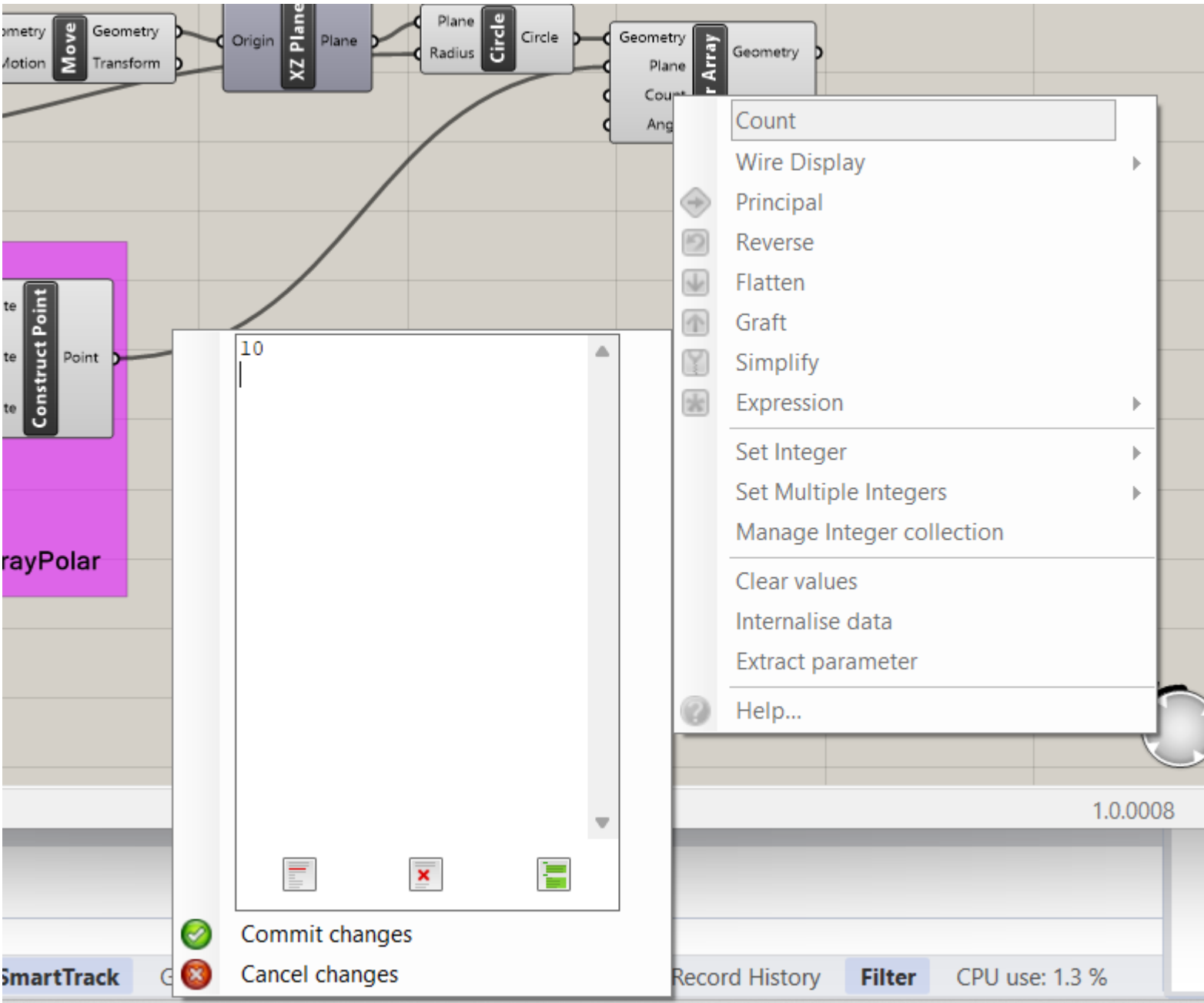
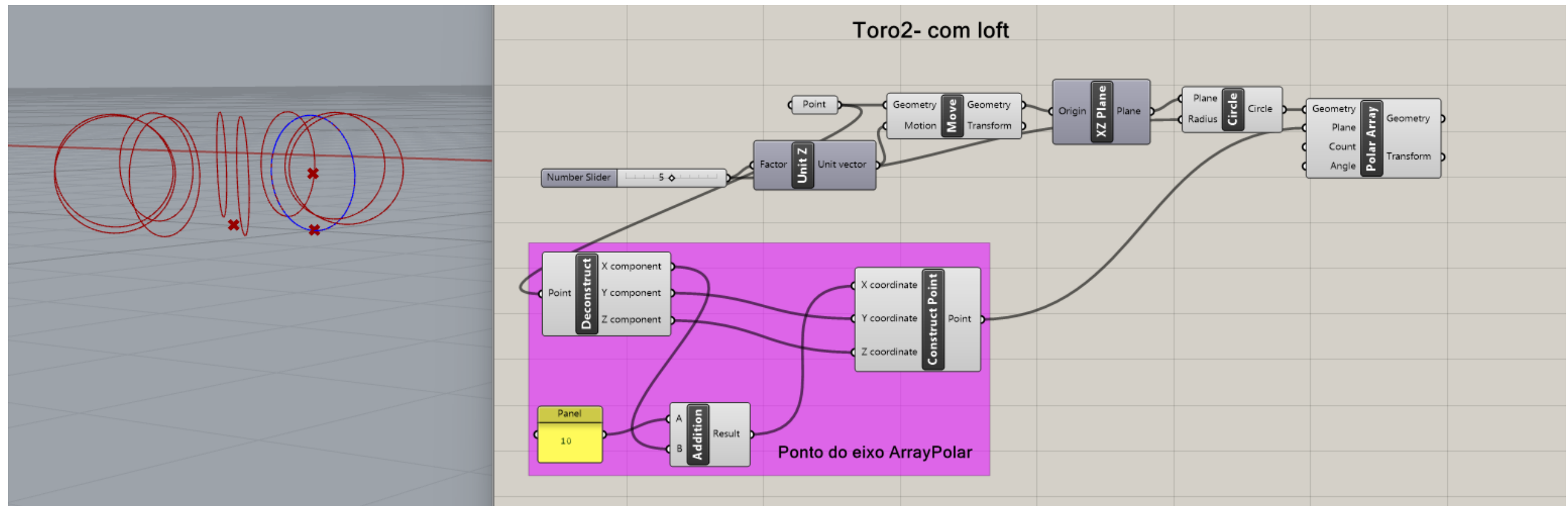
Aula 10- Tórus no grasshopper



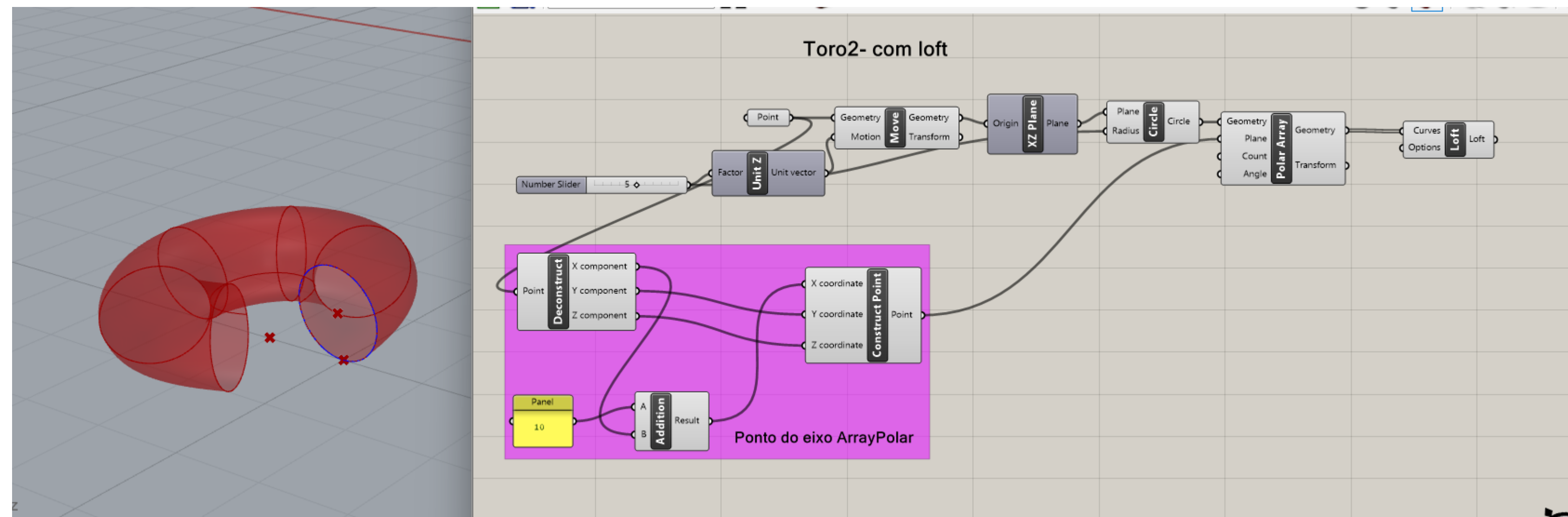
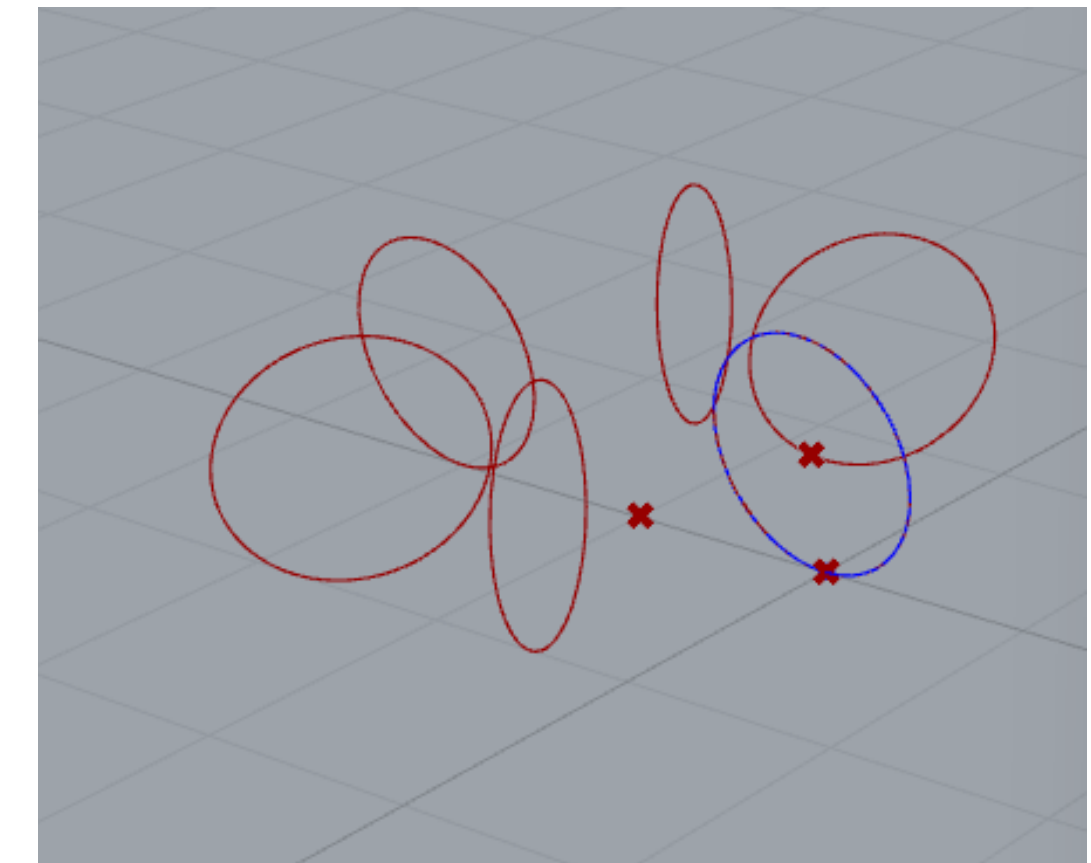
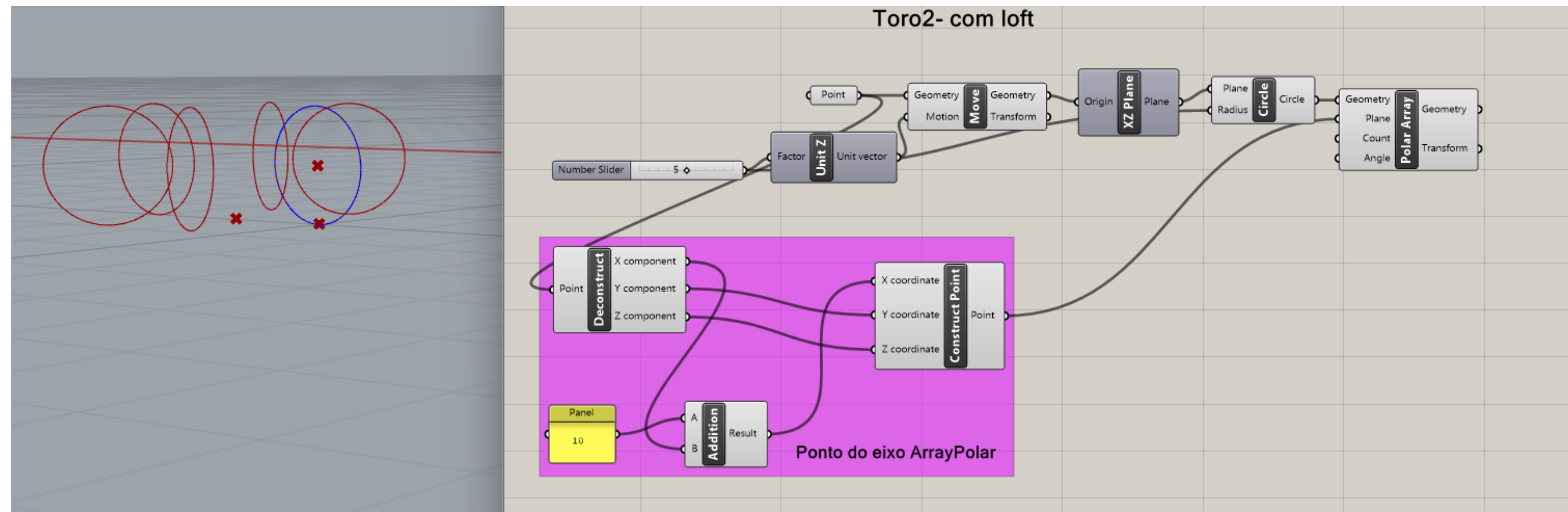
Aula 10- Tórus no grasshopper

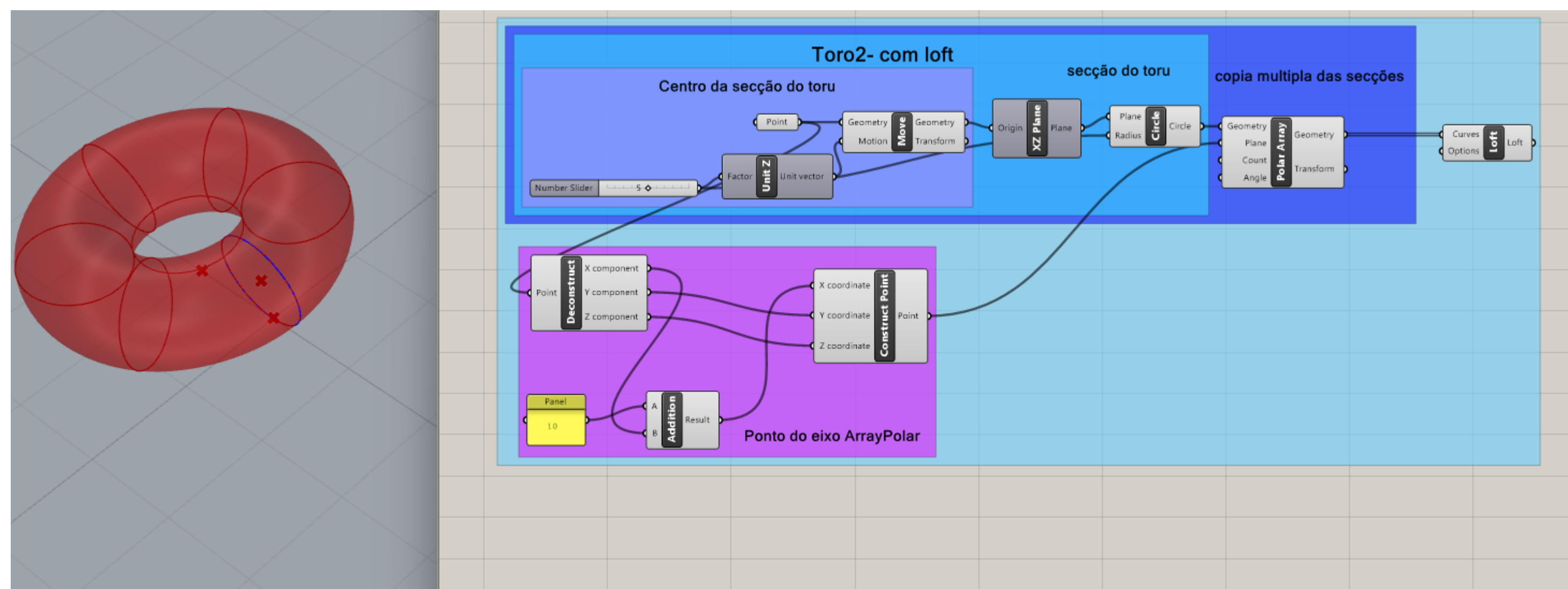
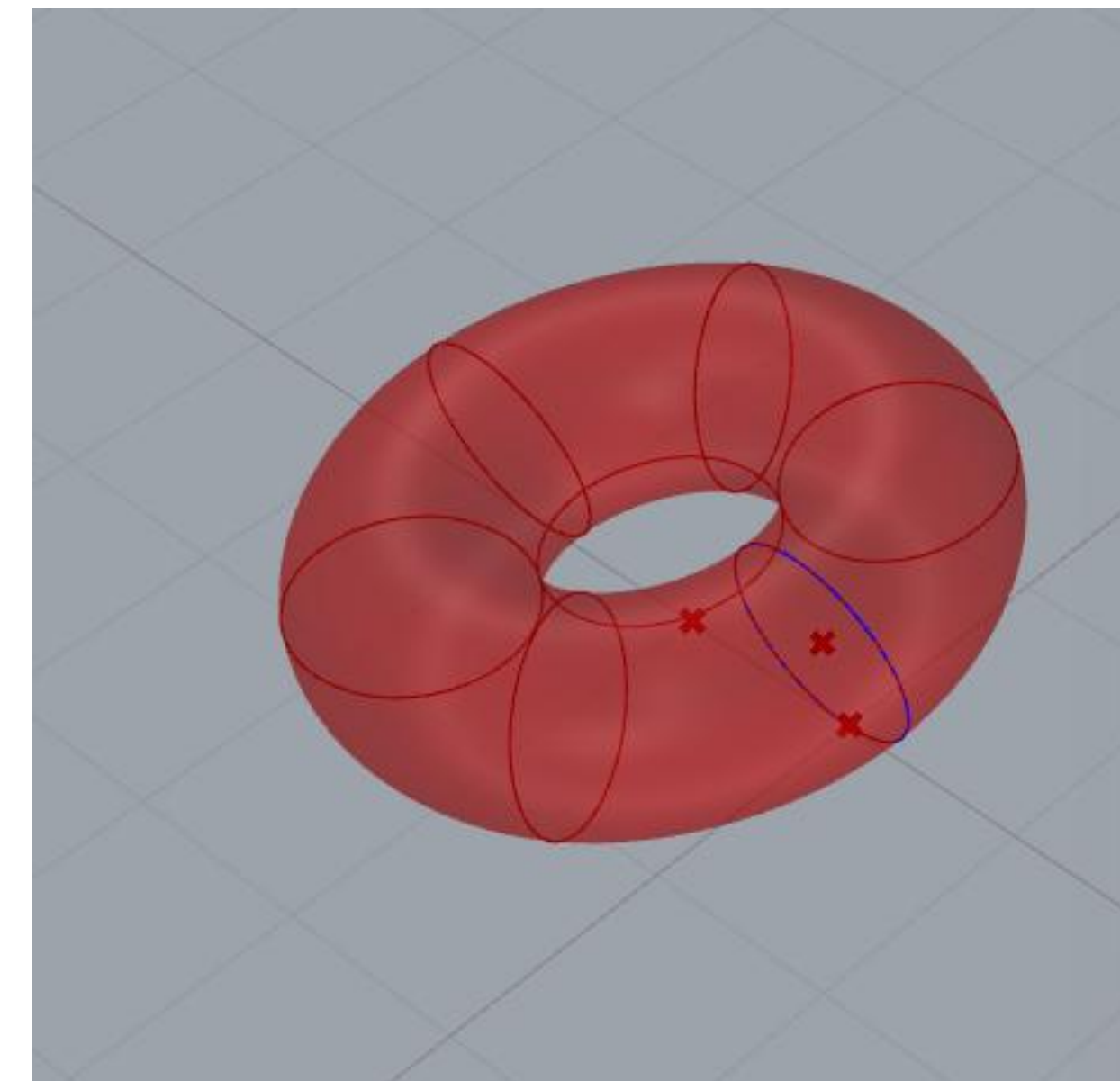
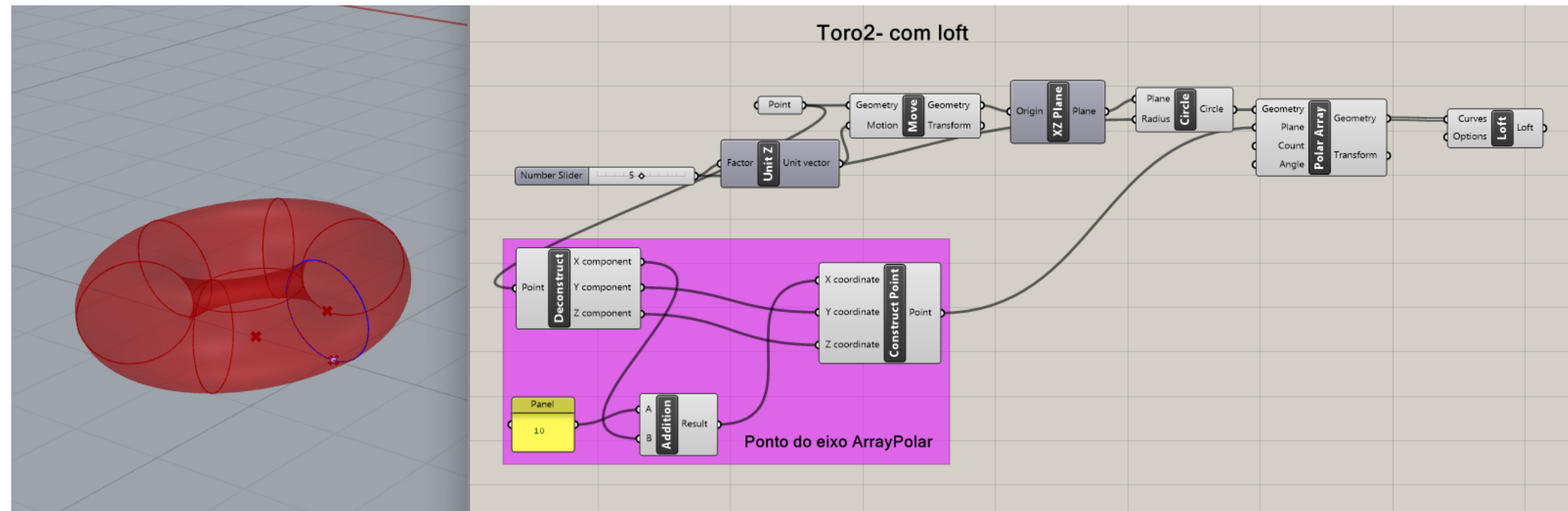


Aula 10- Tórus no grasshopper

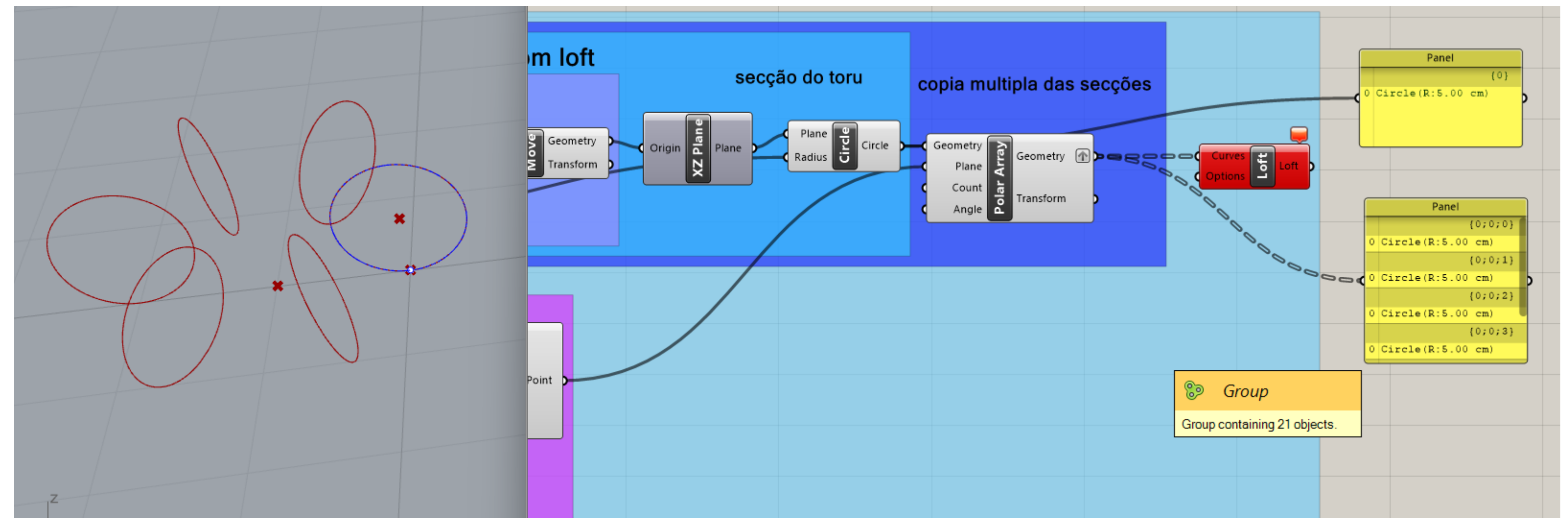
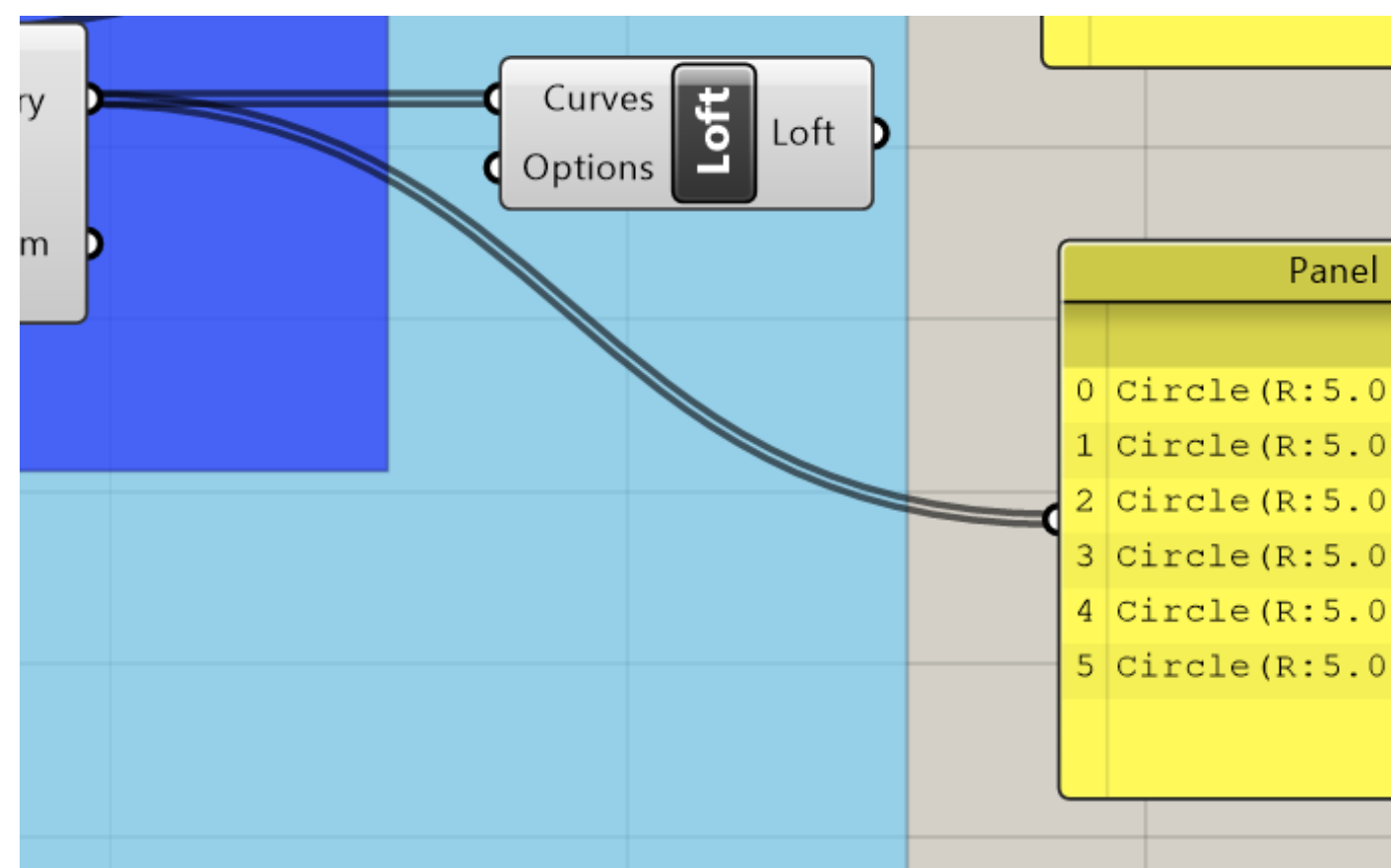
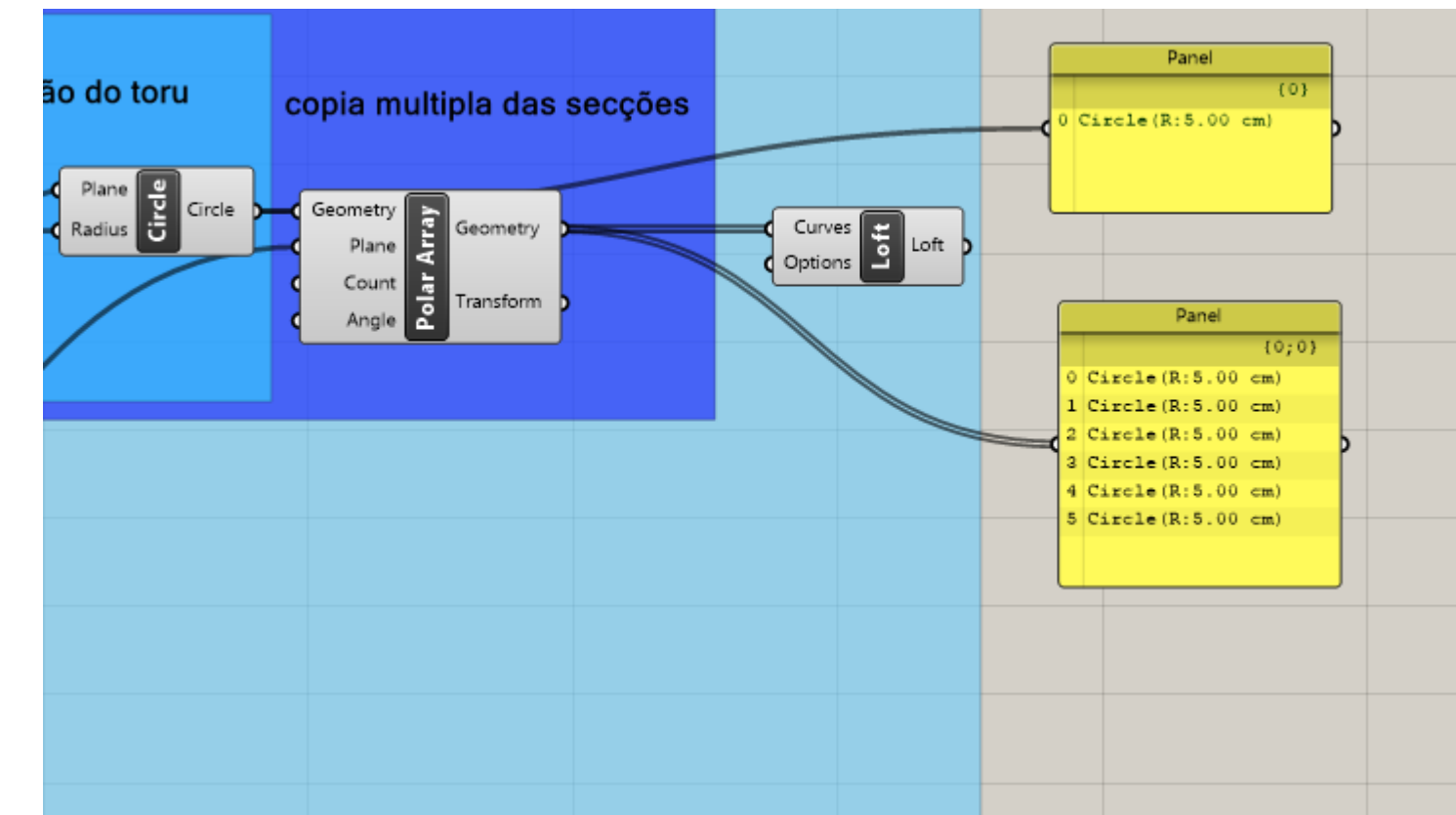
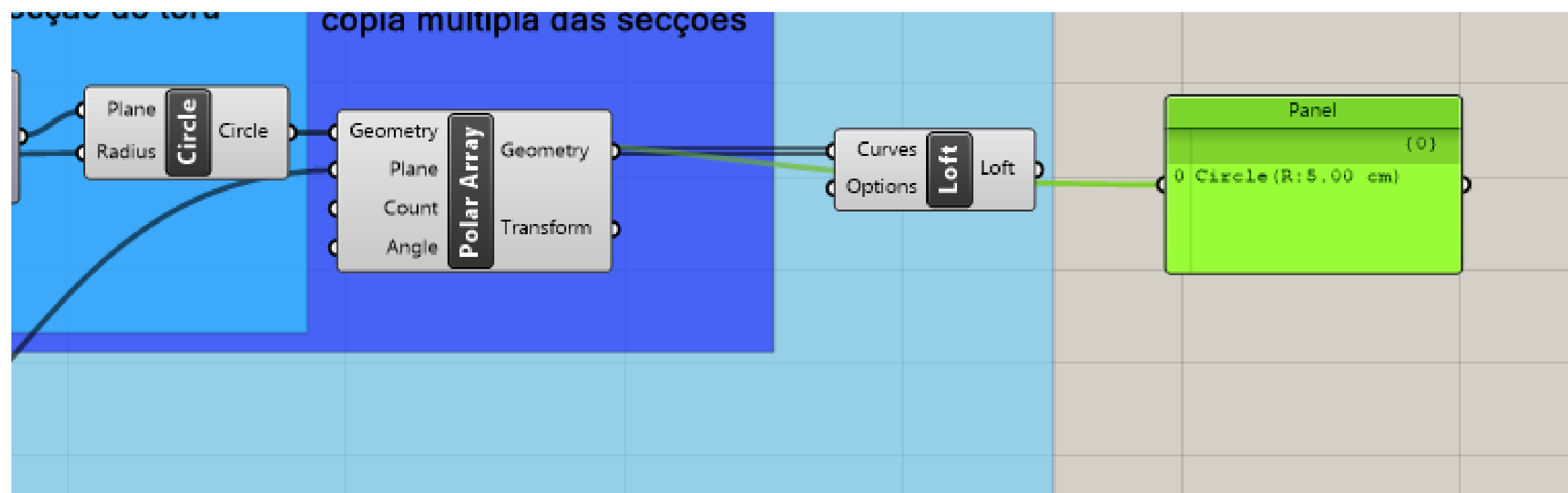


Aula 10- Tórus no grasshopper

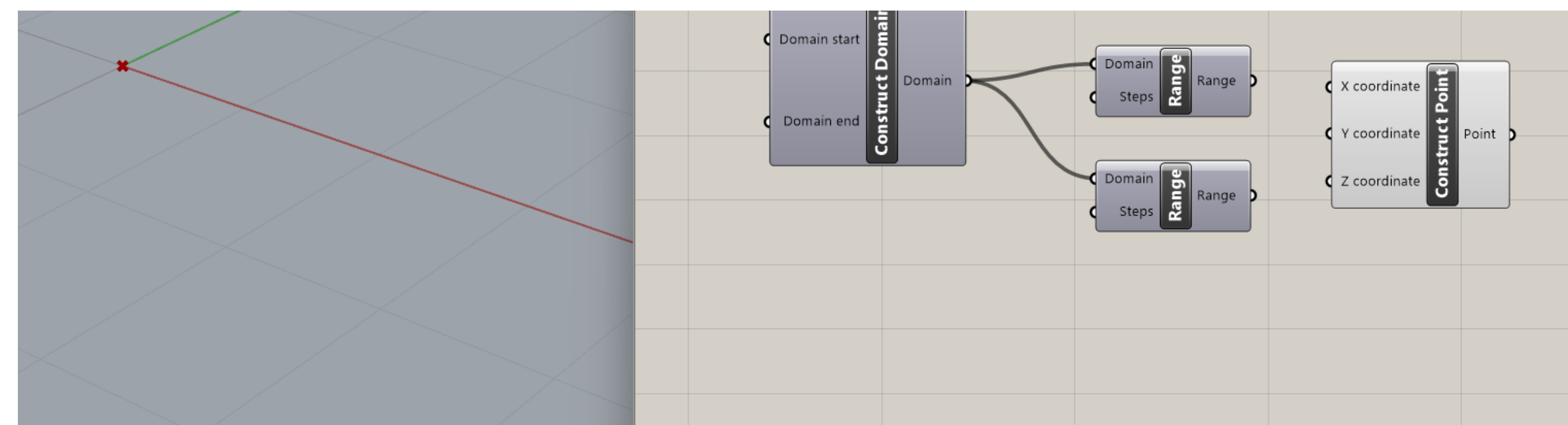
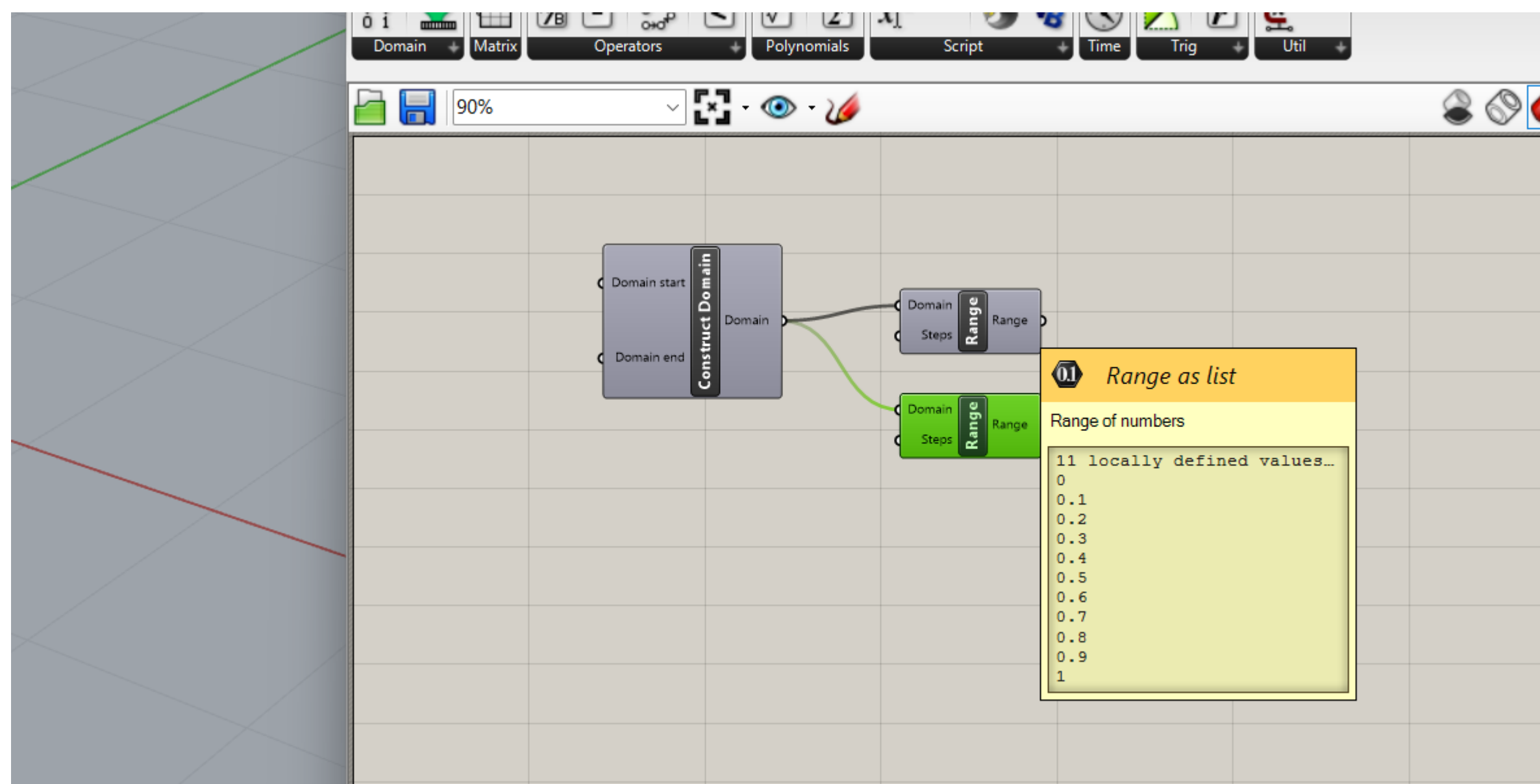
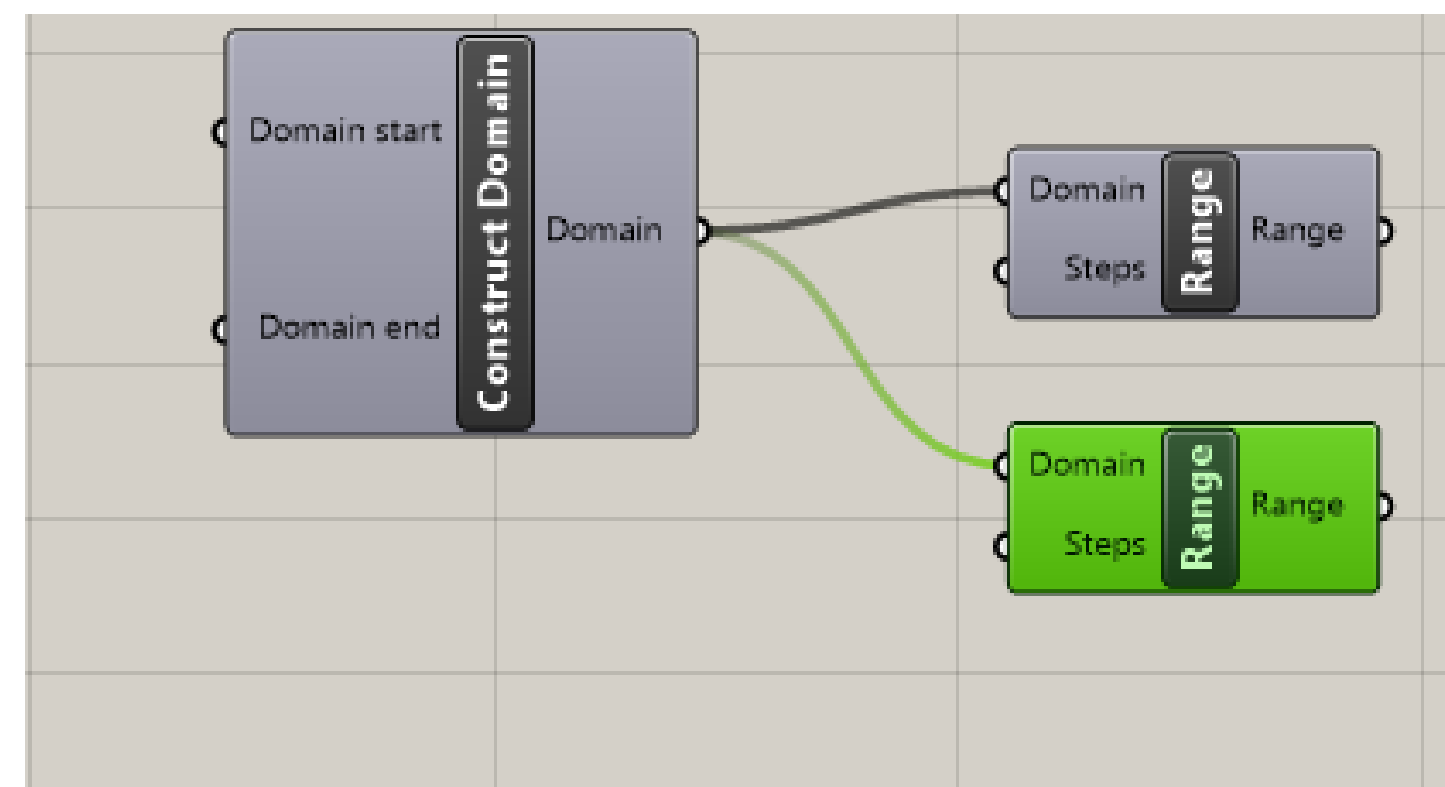
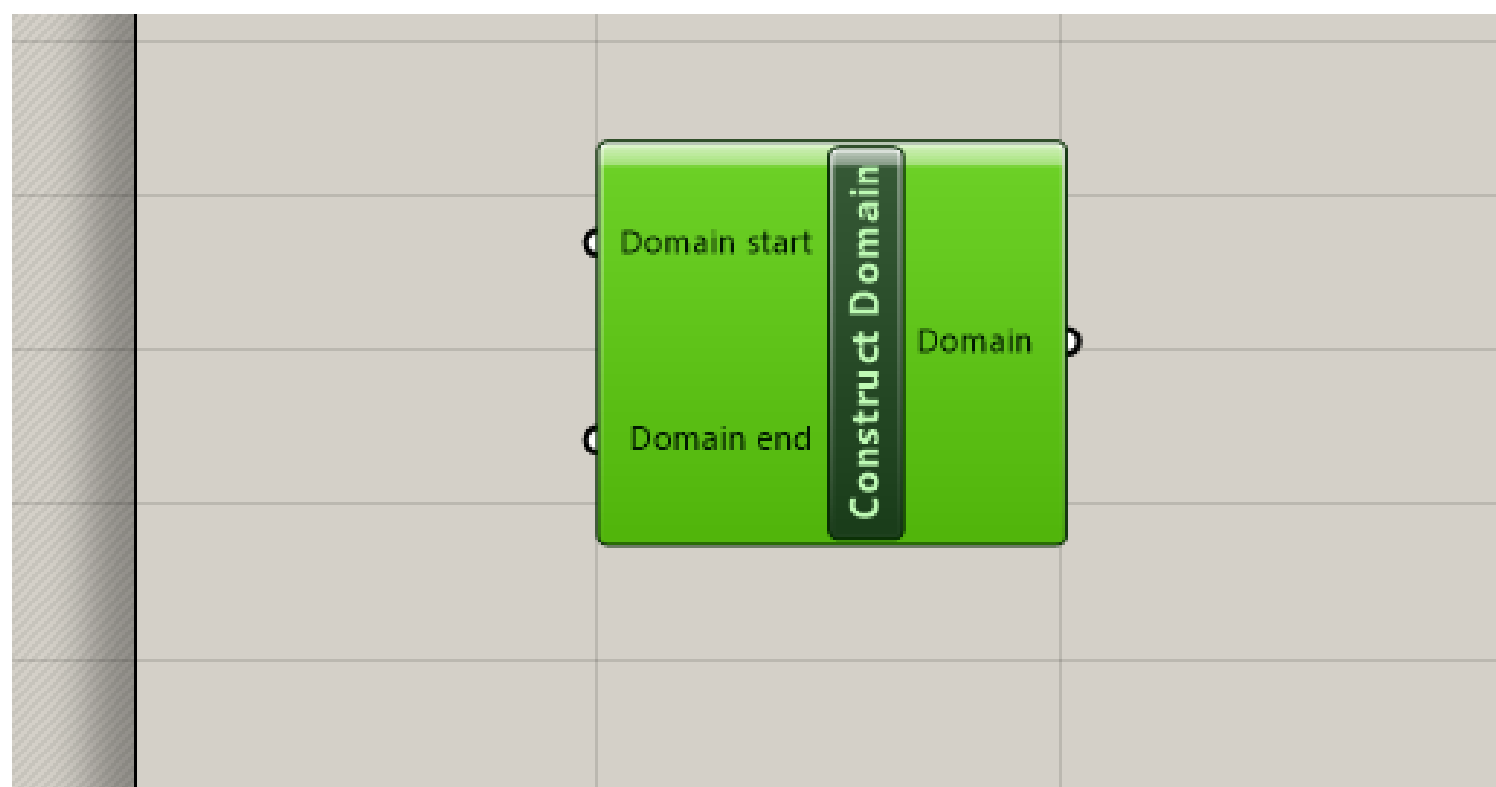




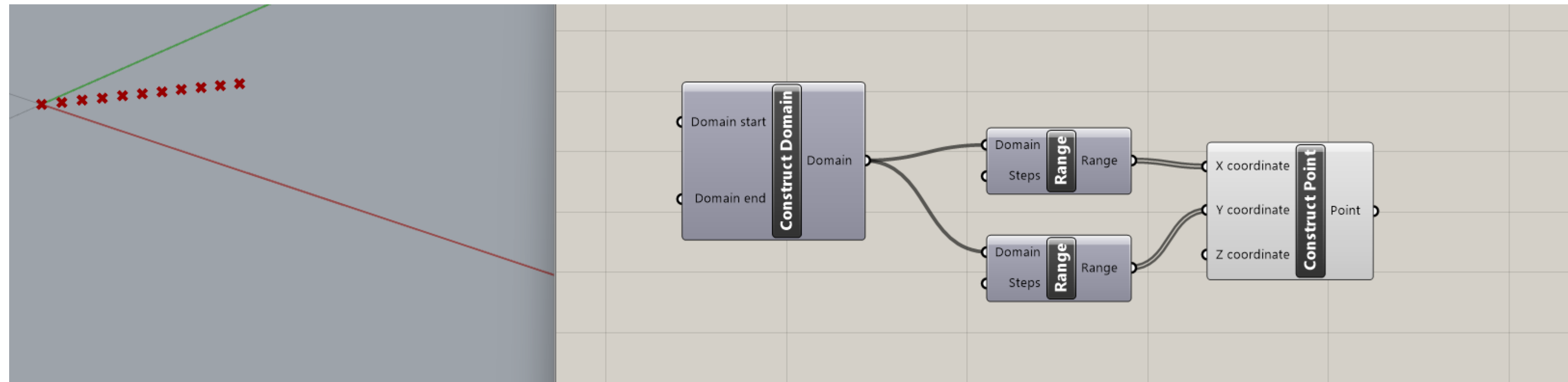
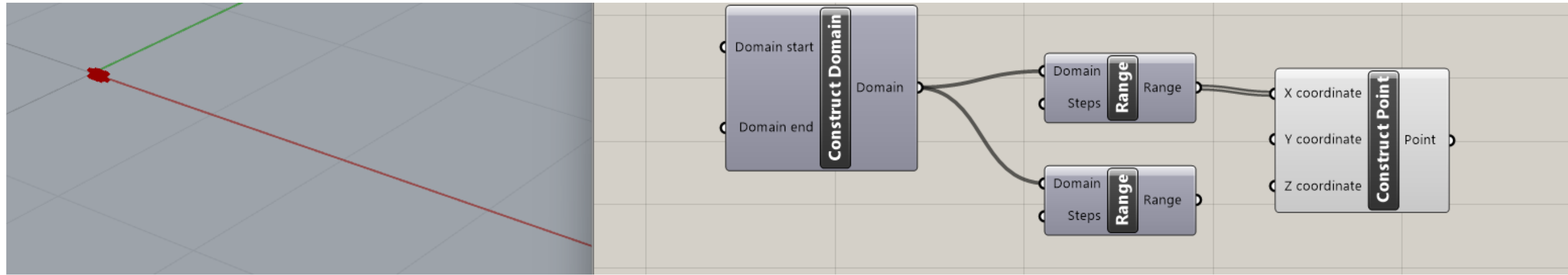
Aula 10- Tórus no grasshopper



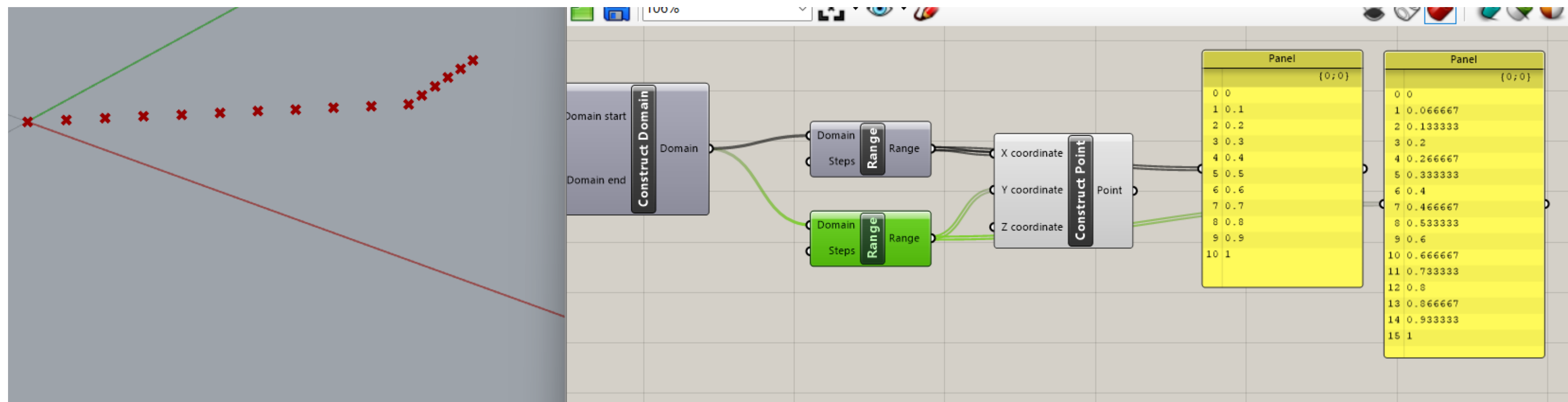
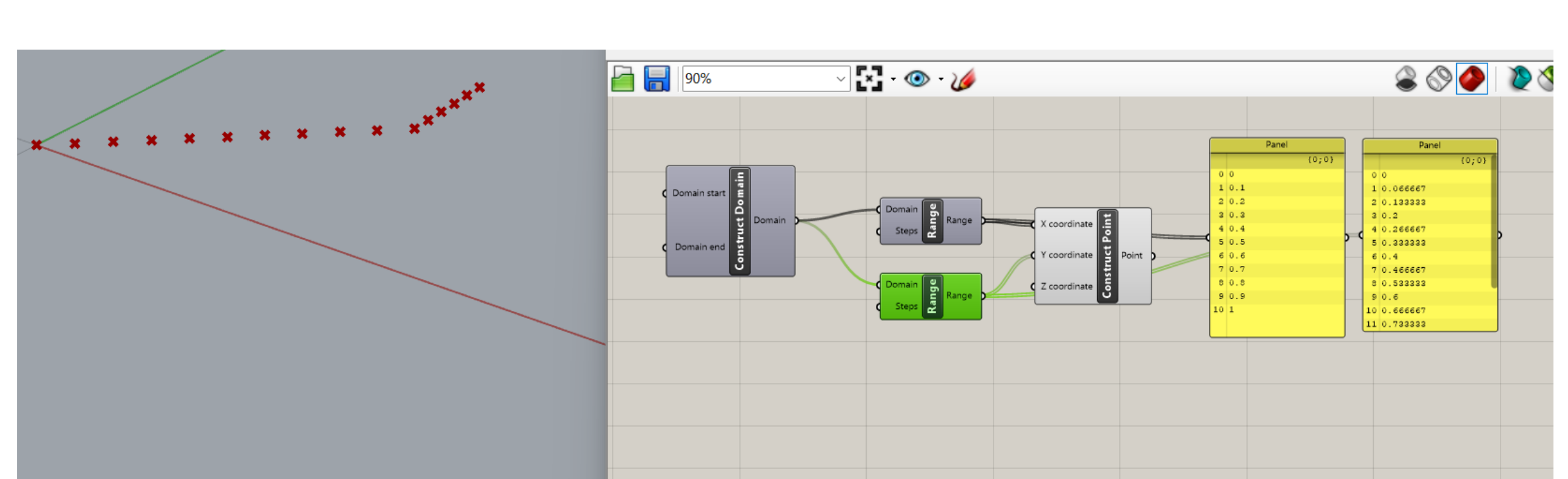
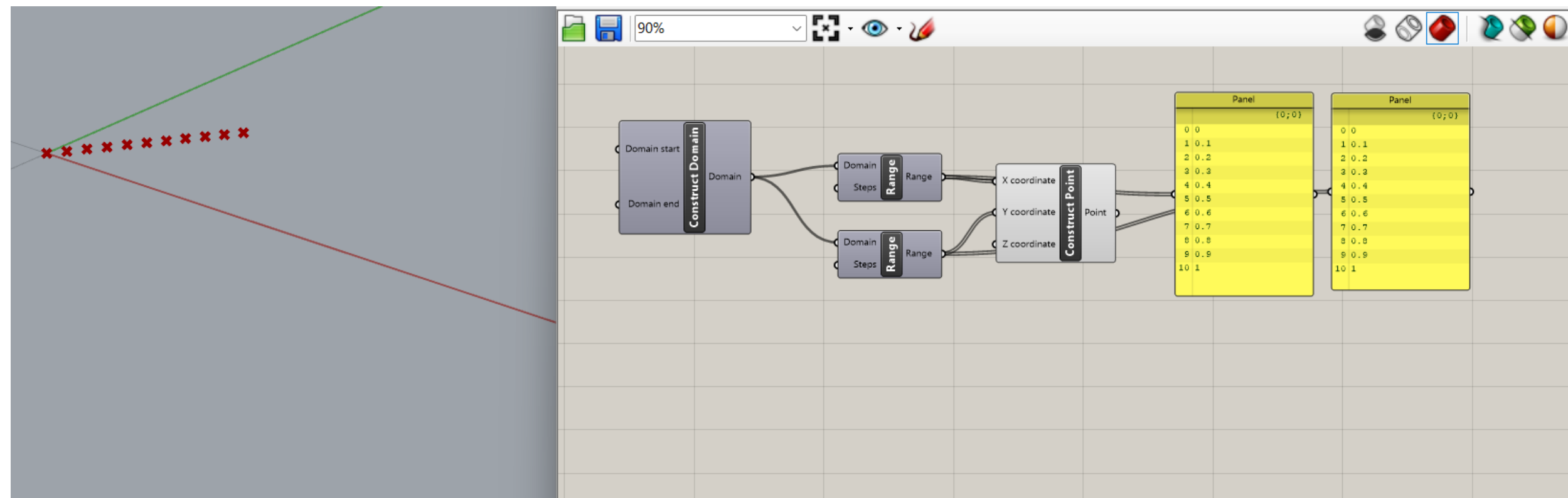
Aula 10- Tórus no grasshopper



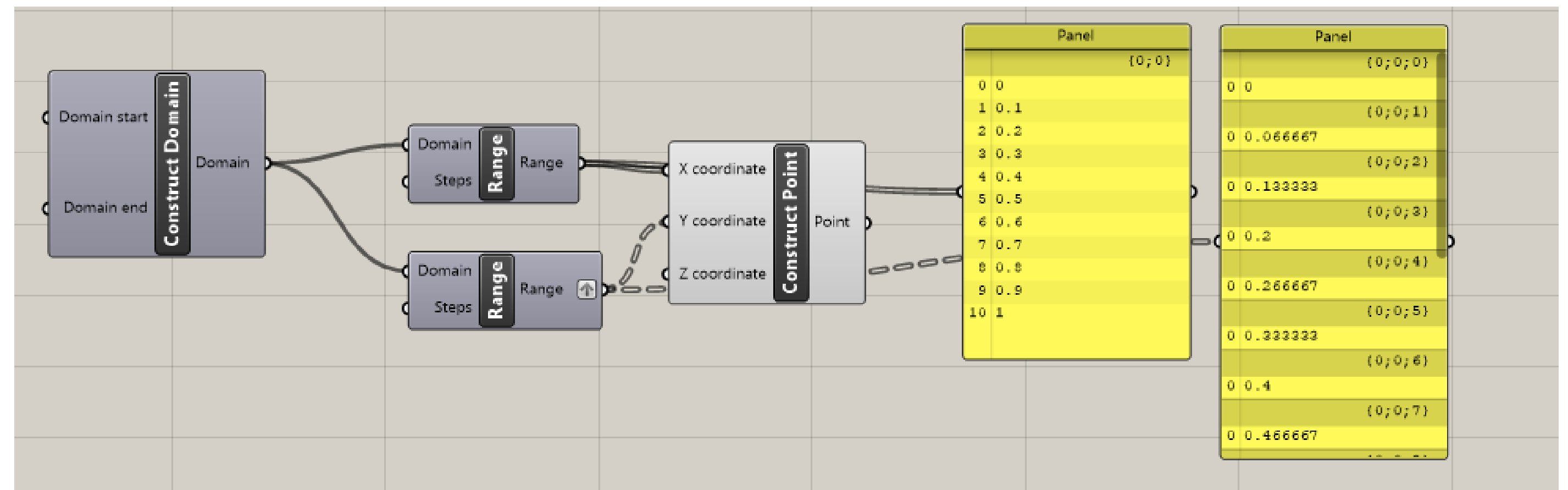
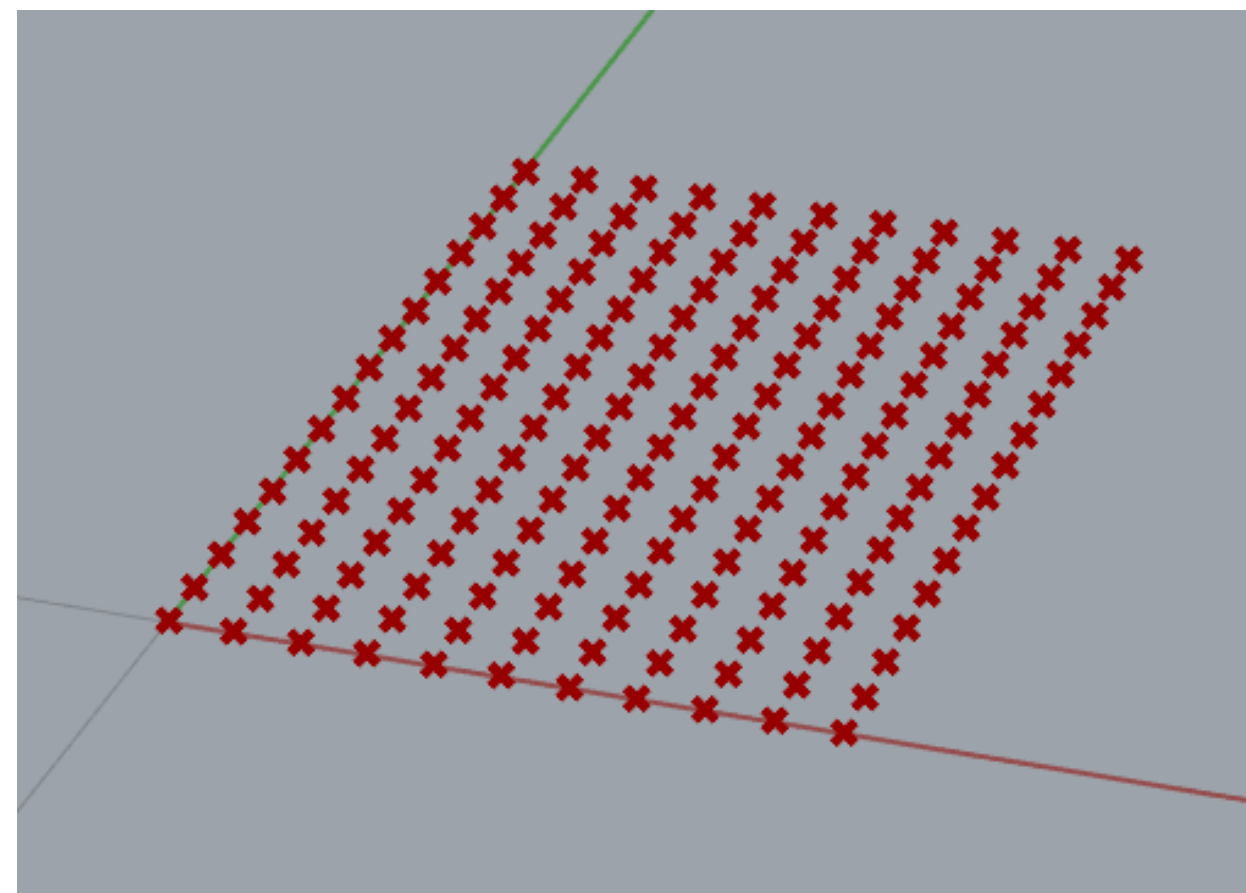
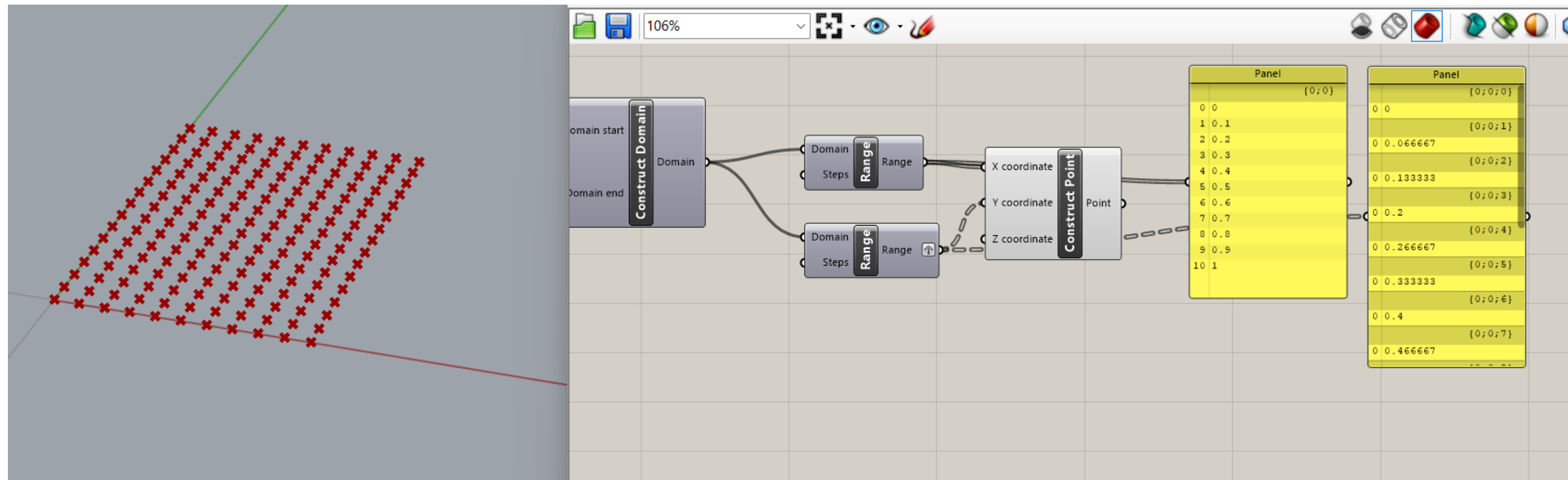
Aula 10- Superfície curva no grasshopper



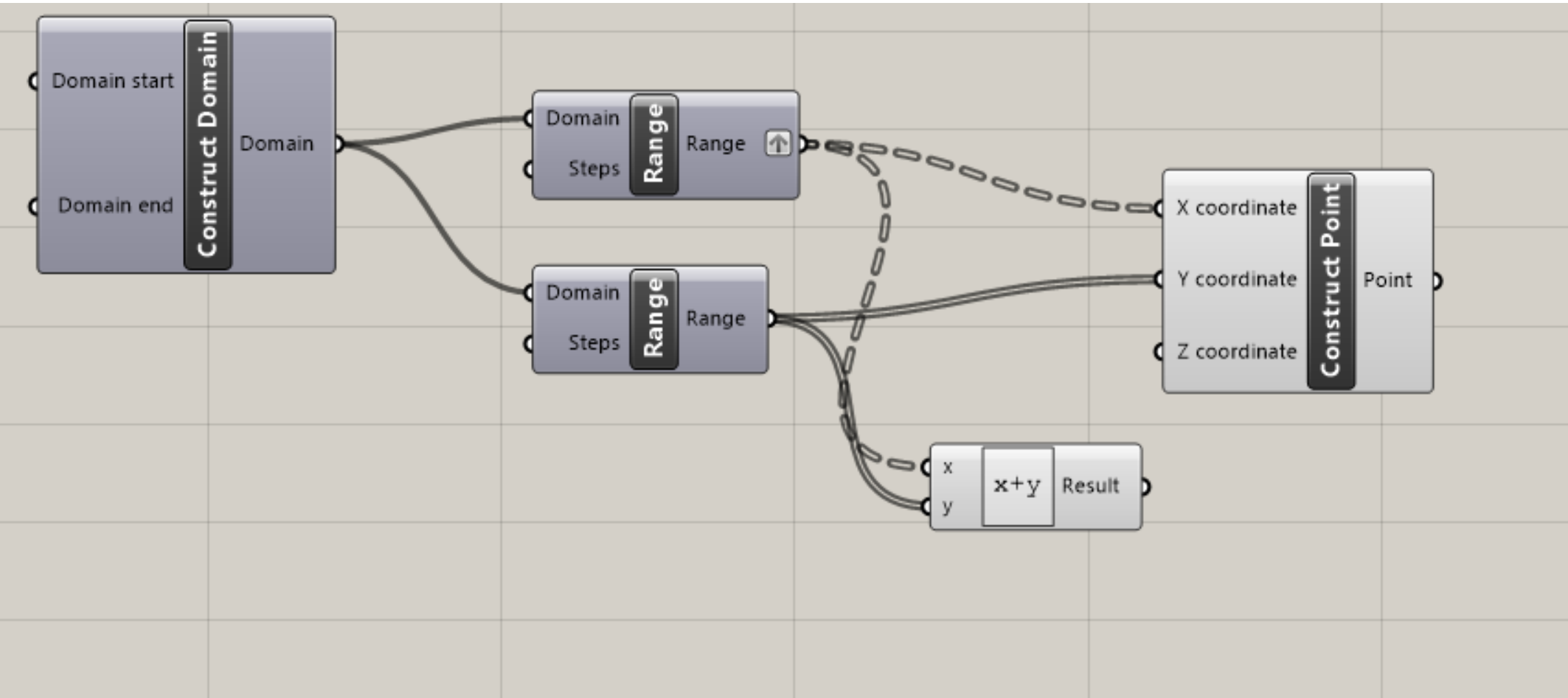
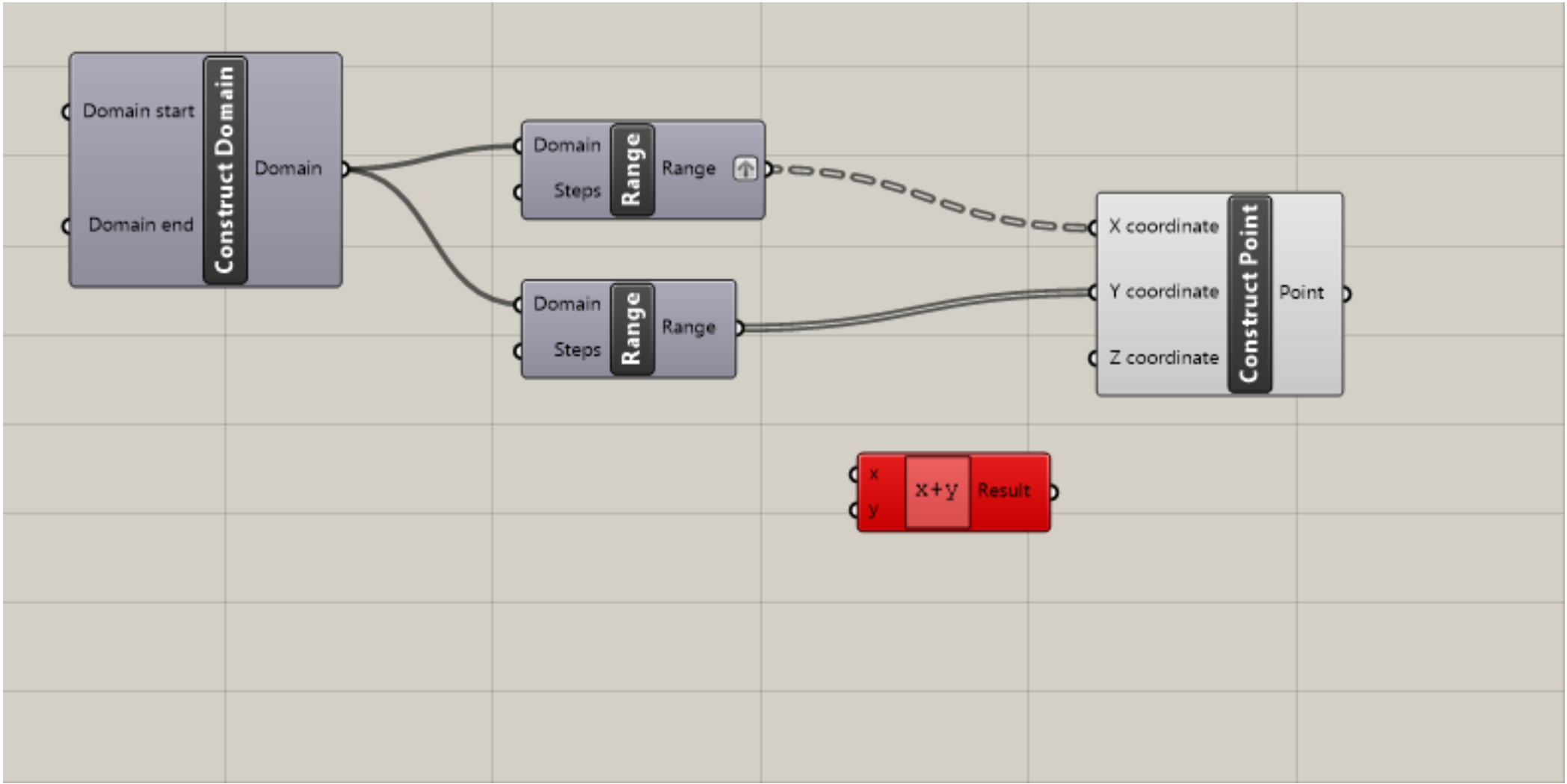
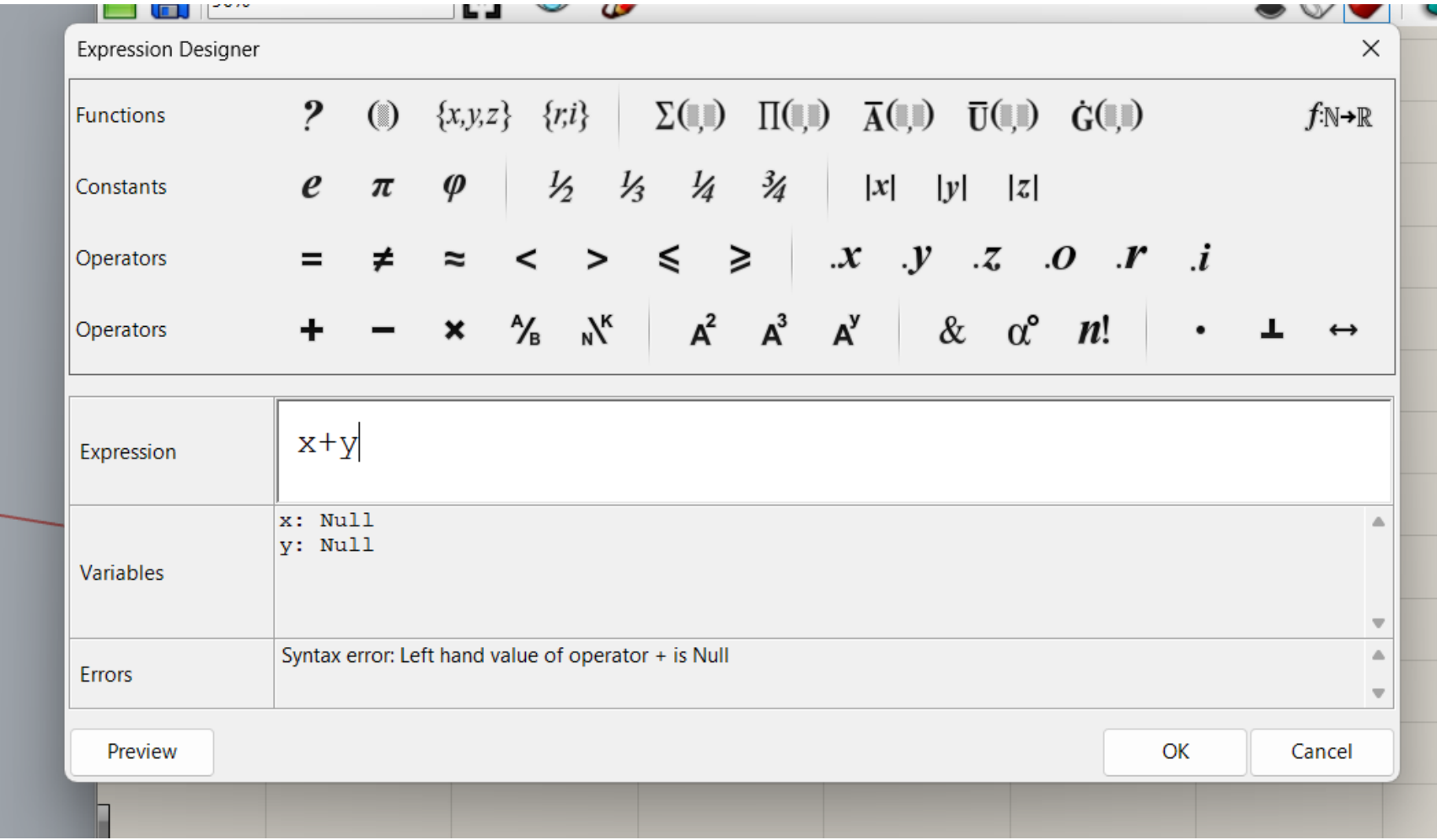
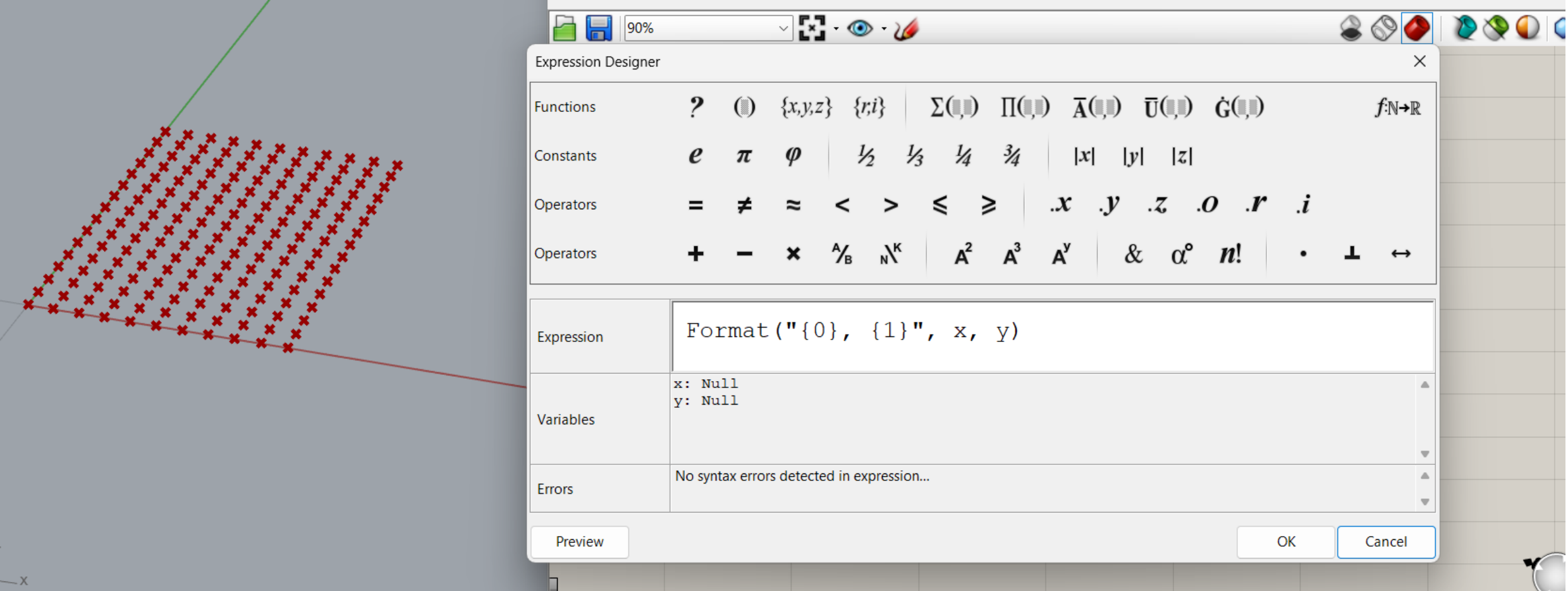
Aula 10- Superfície curva no grasshopper



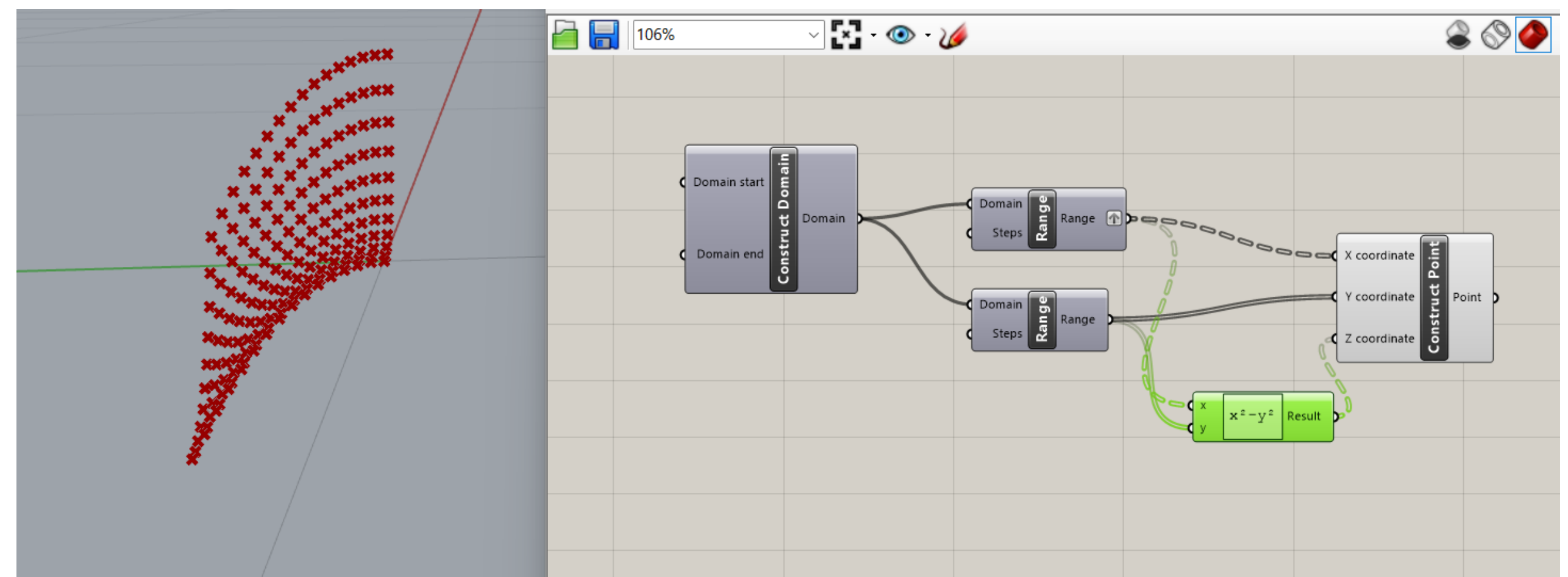
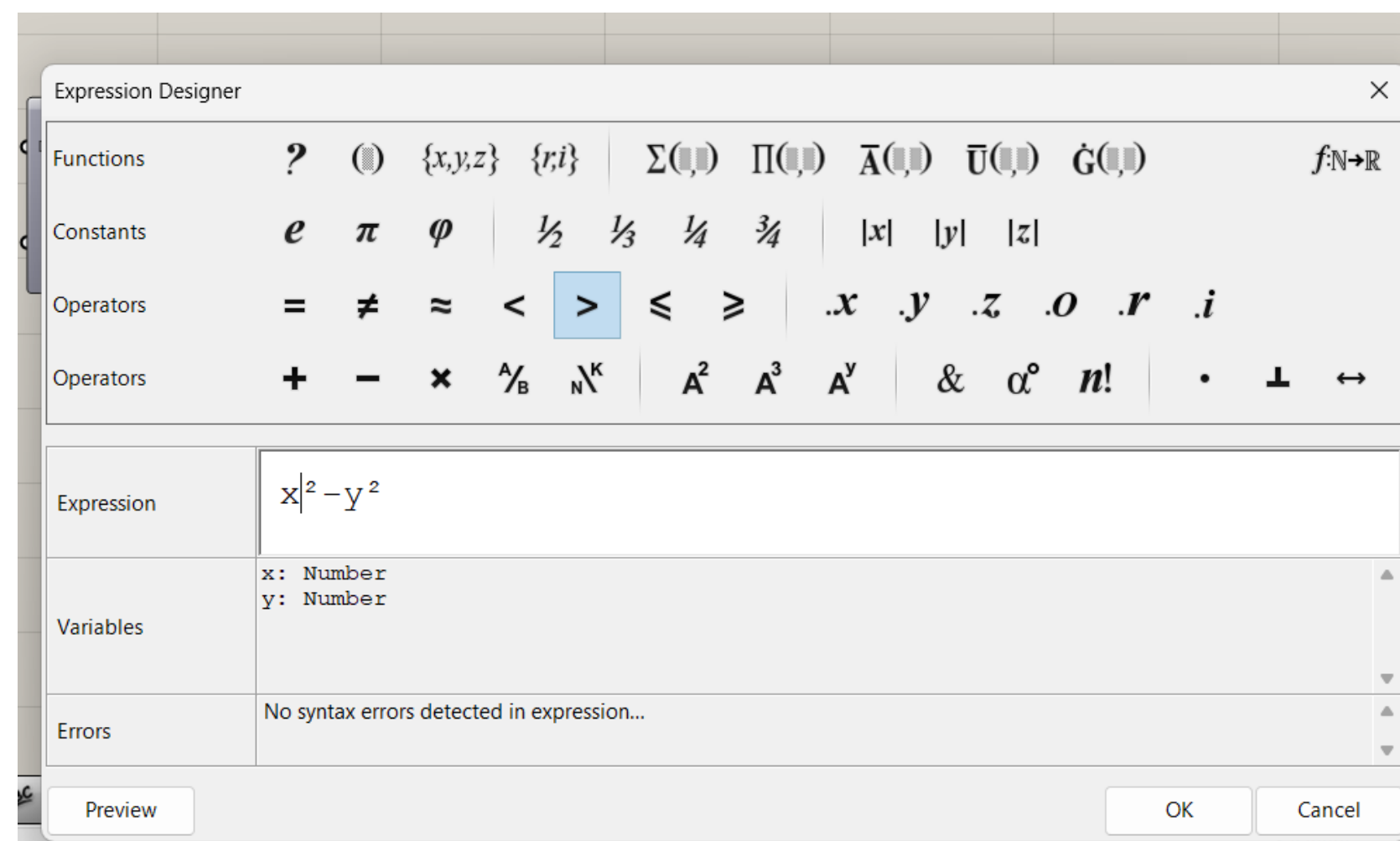
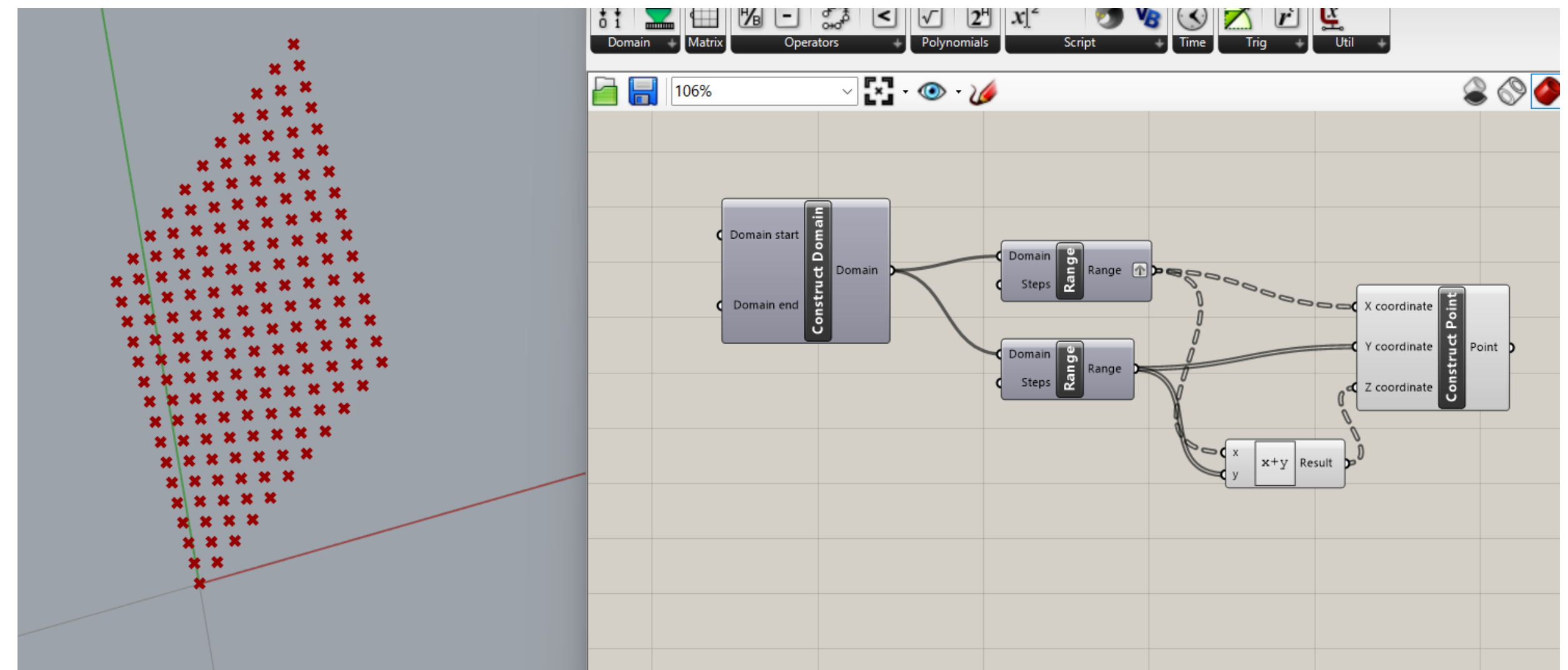
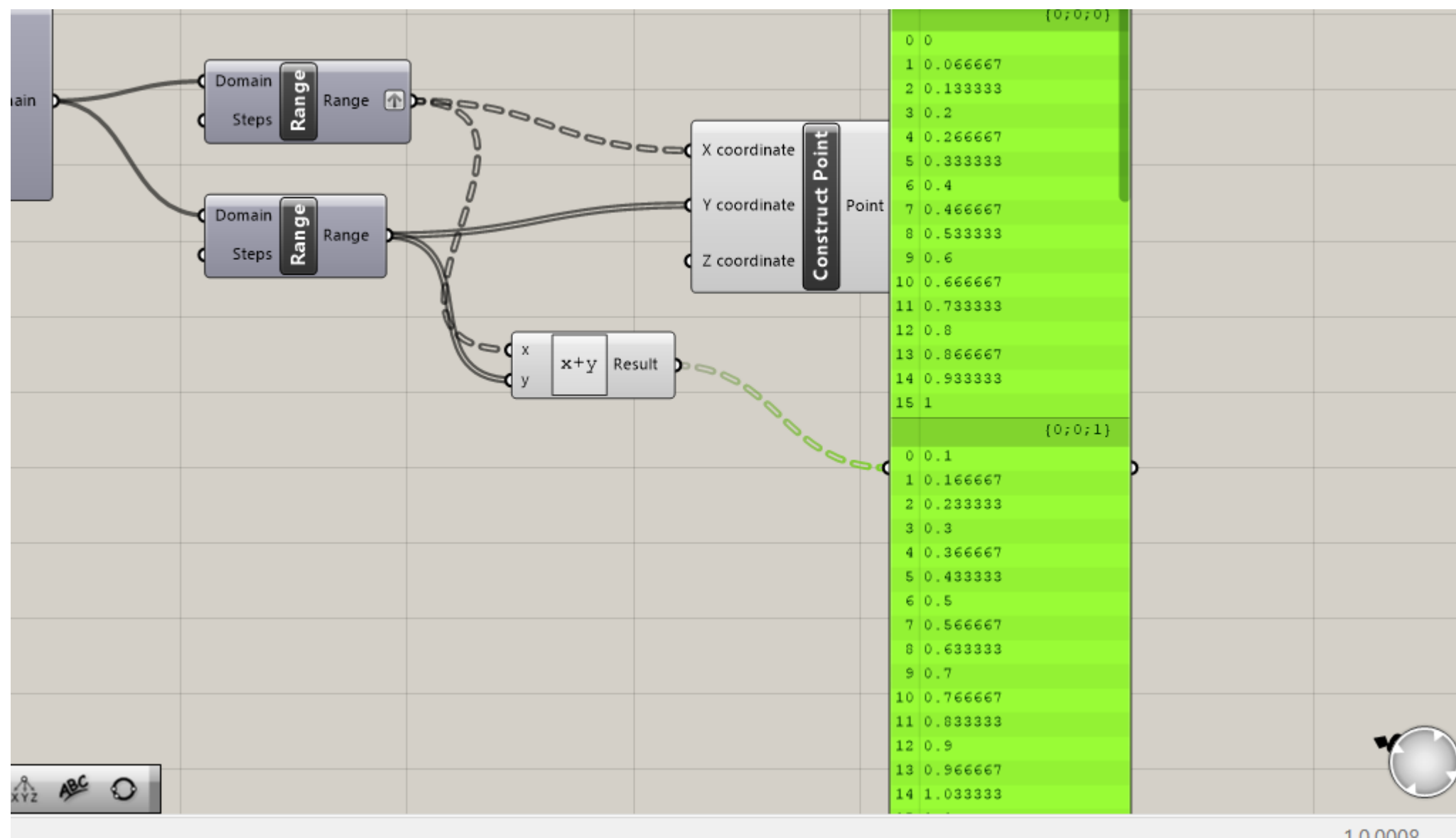
Aula 10- Superfície curva no grasshopper



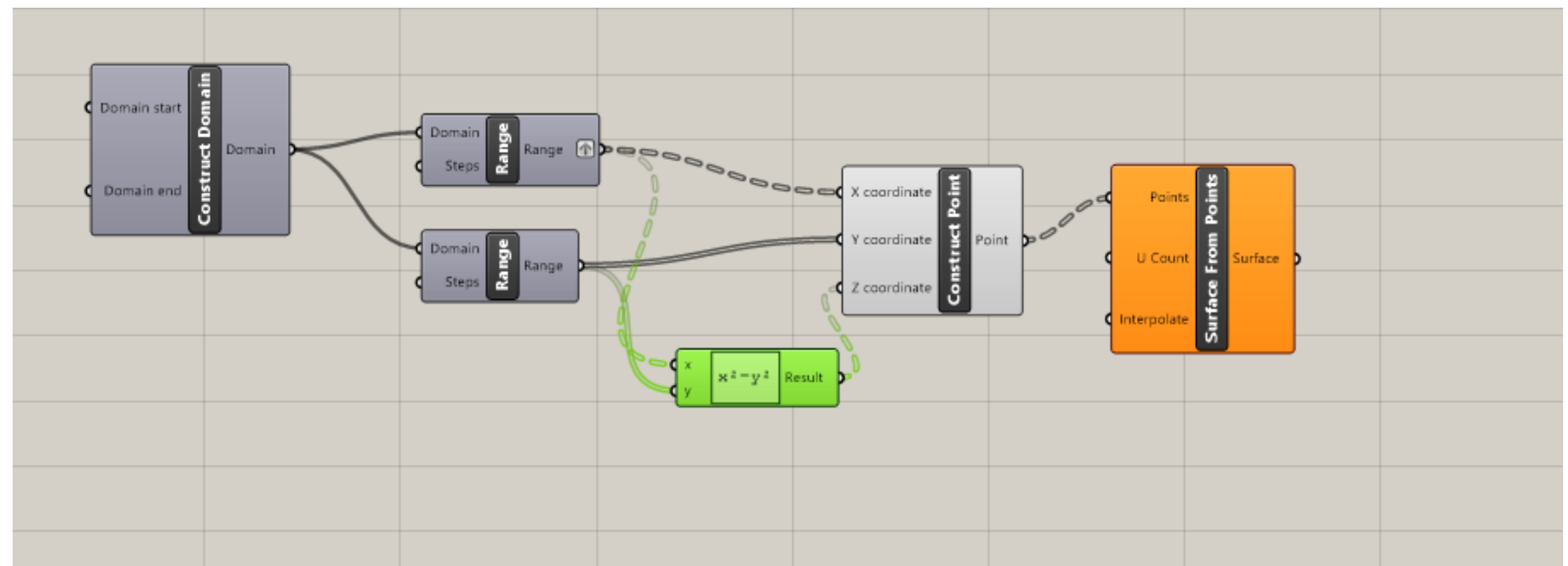
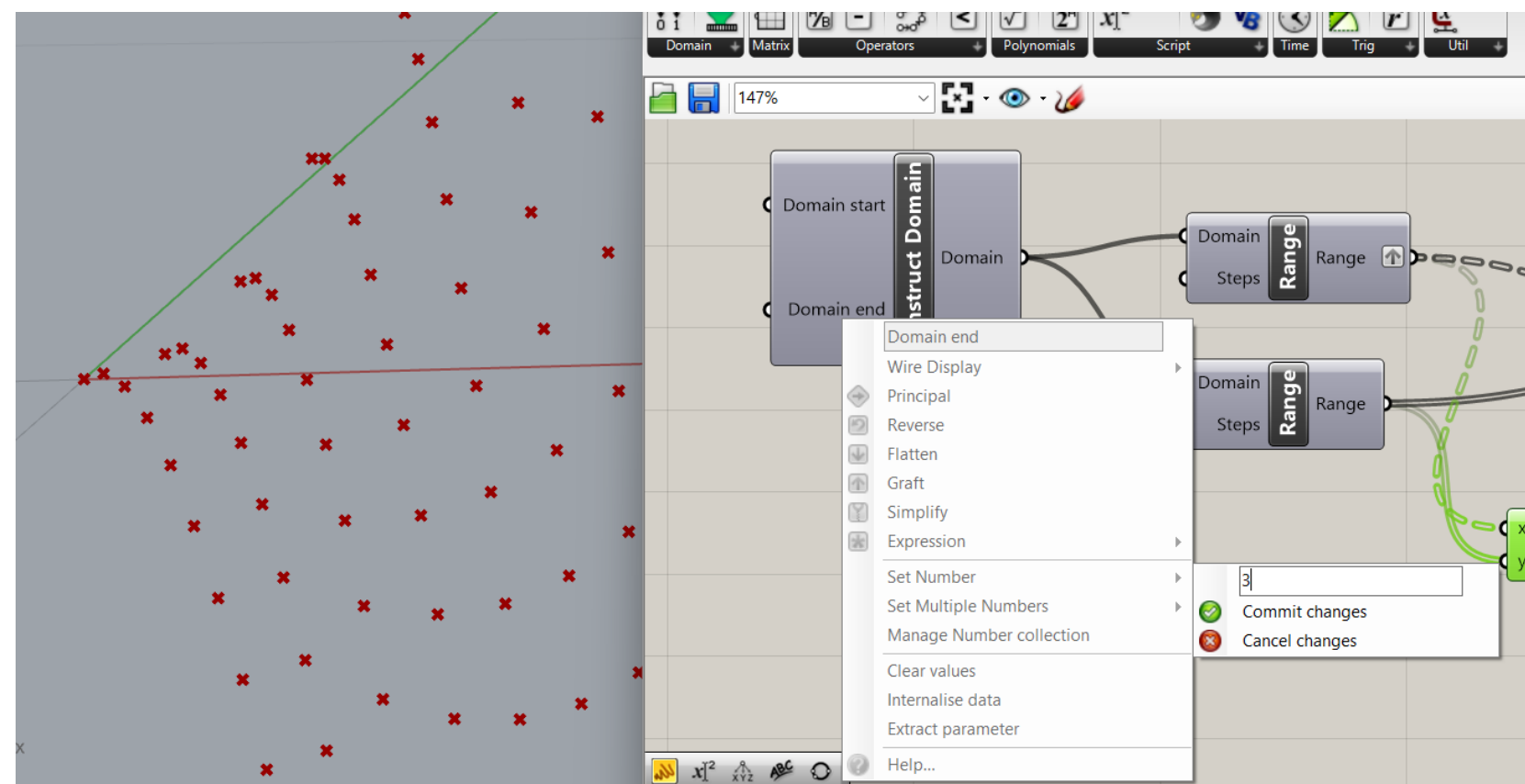
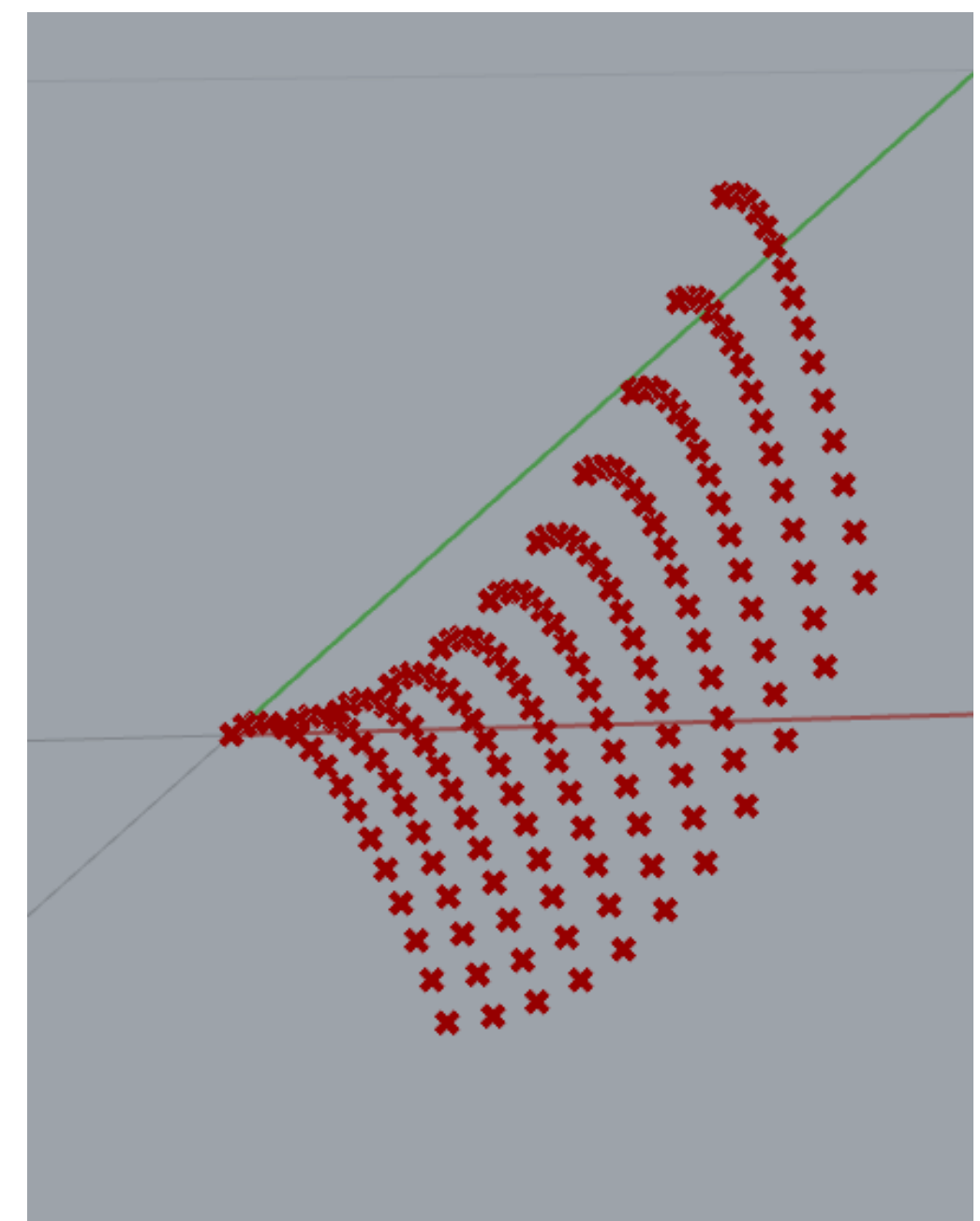
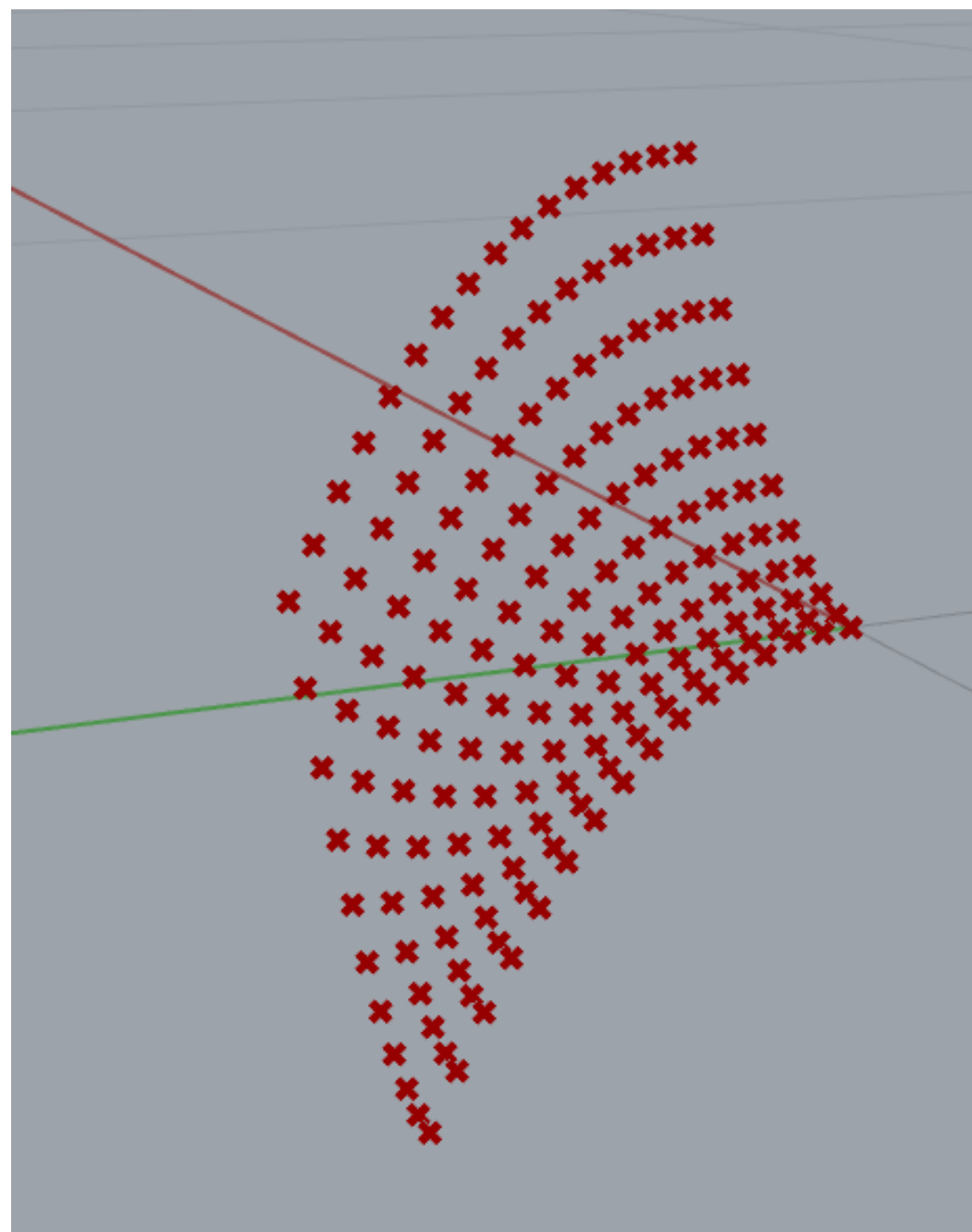
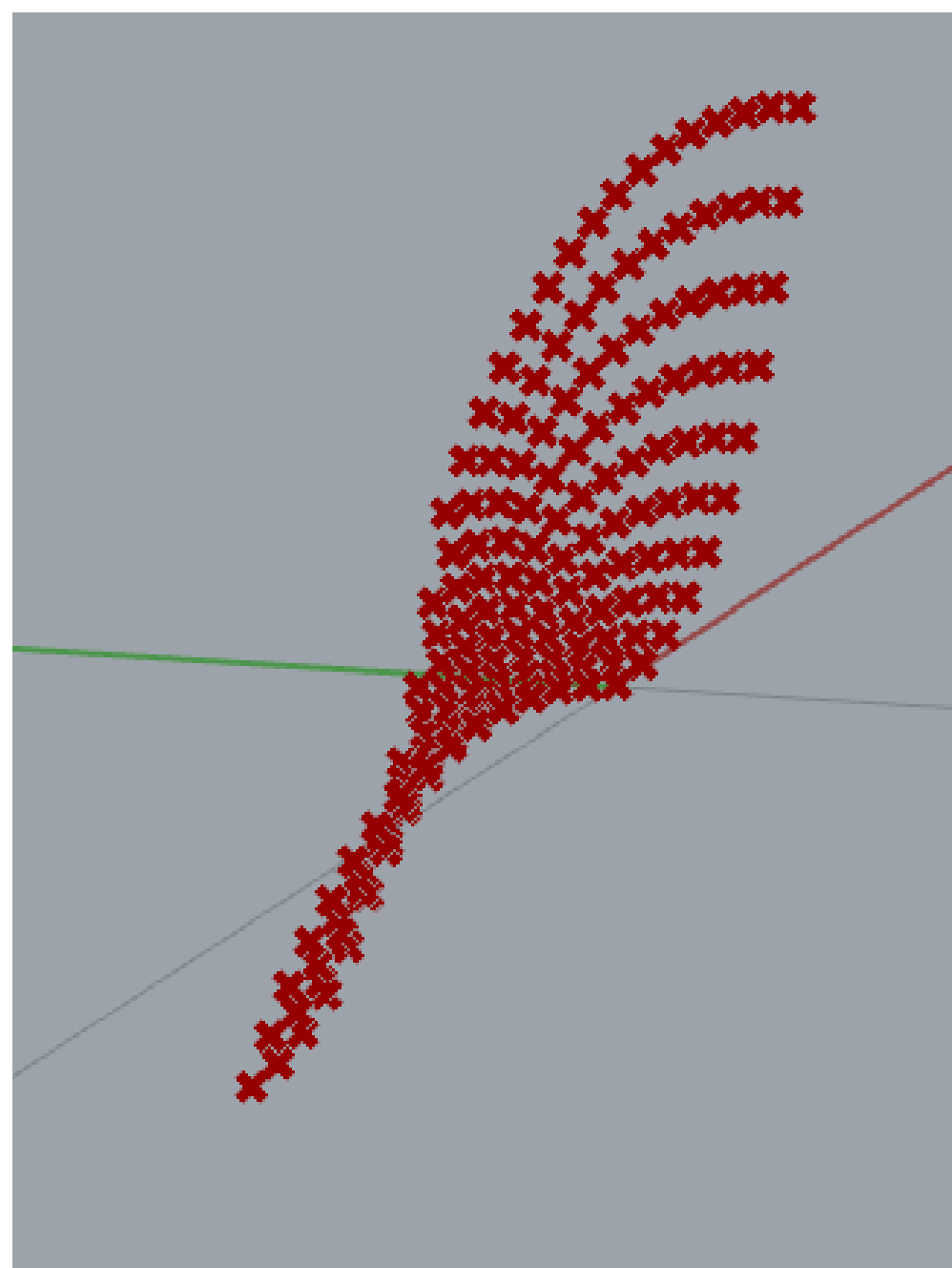
Aula 10- Superfície curva no grasshopper



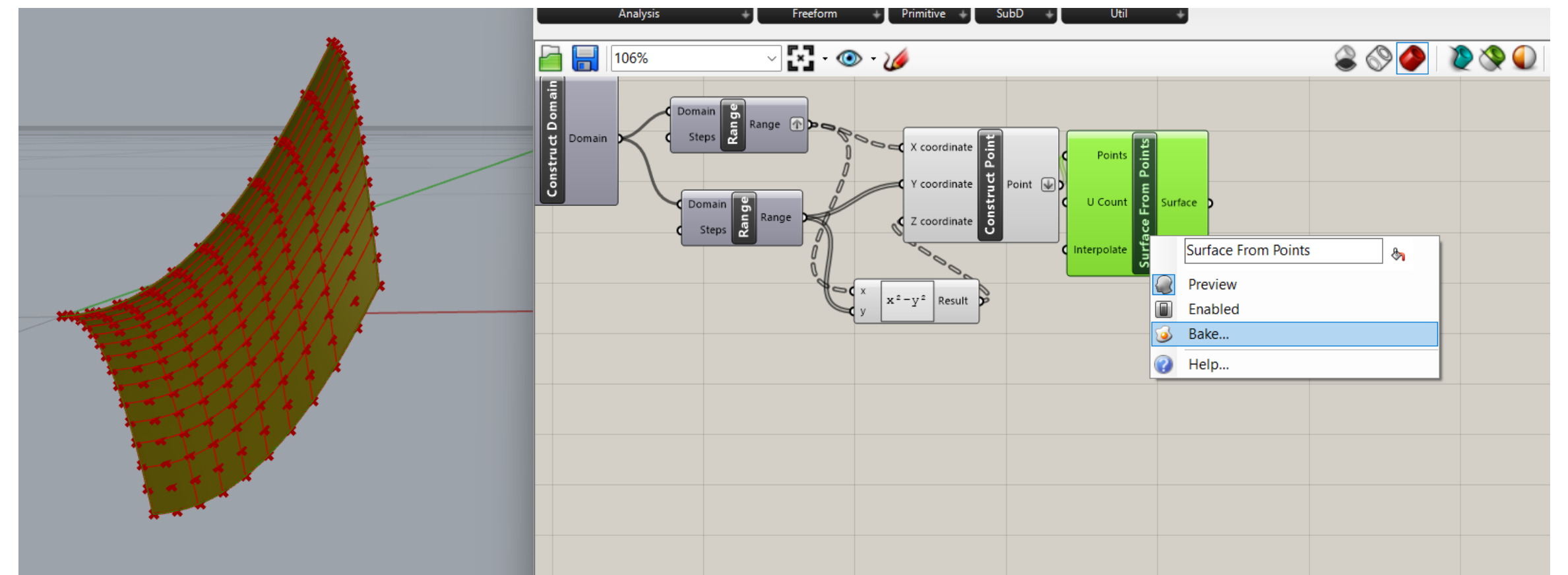
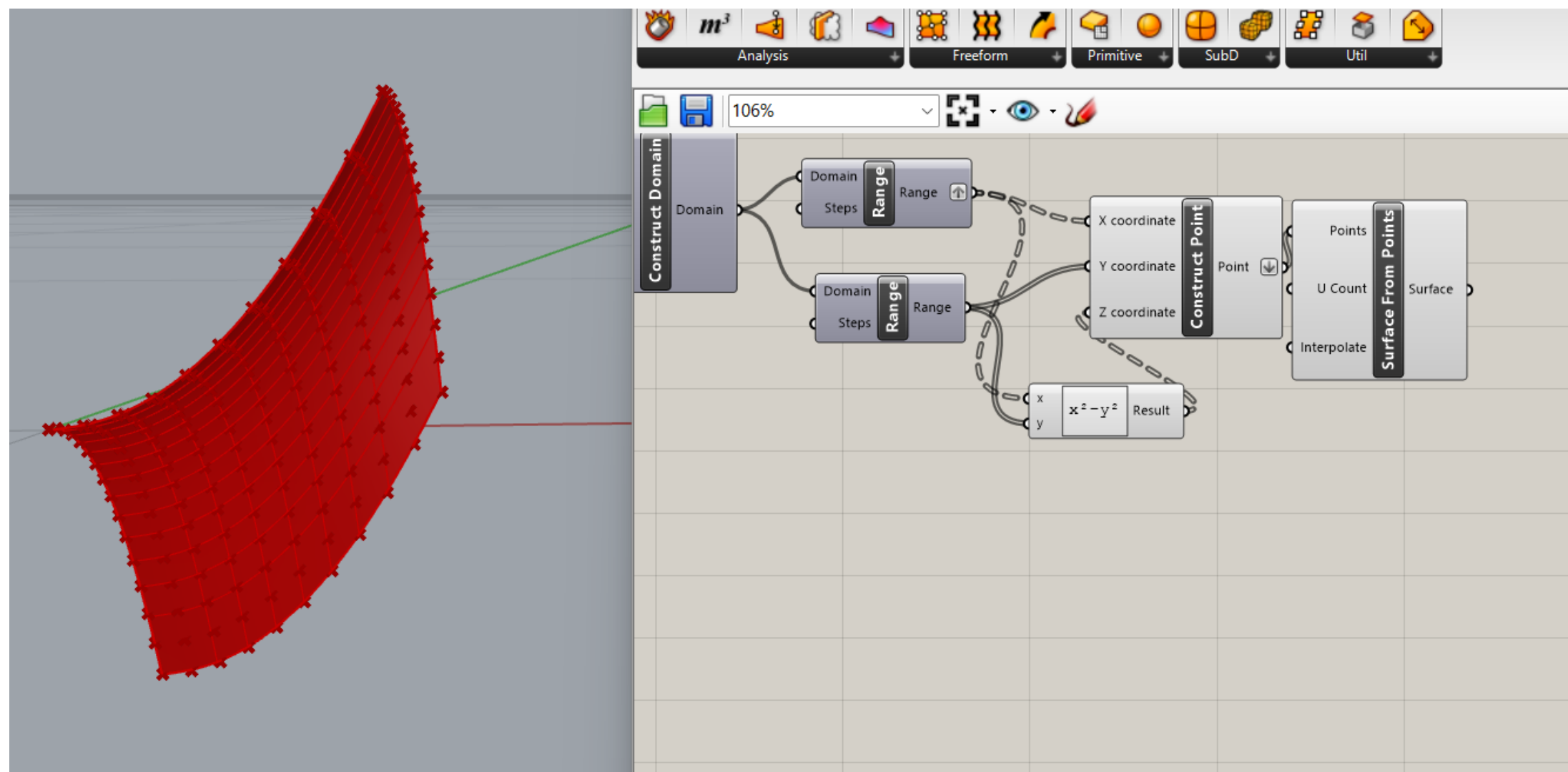
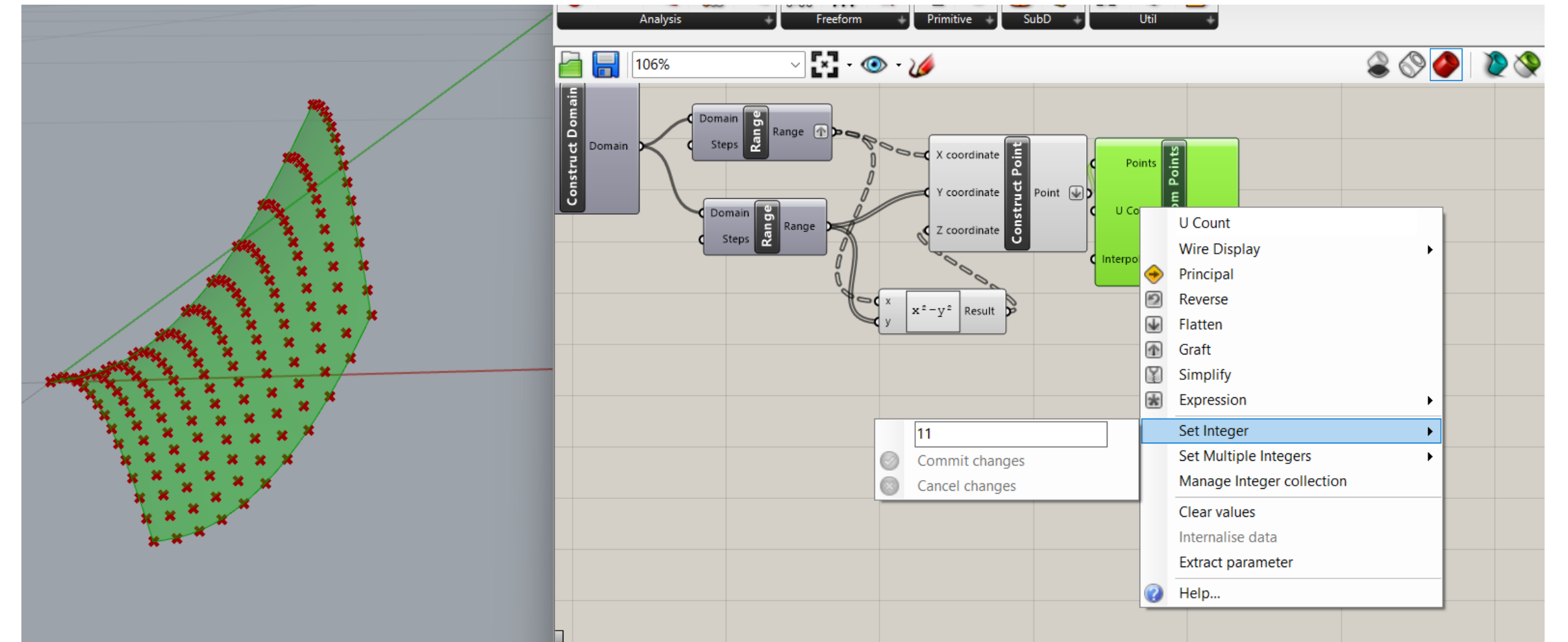
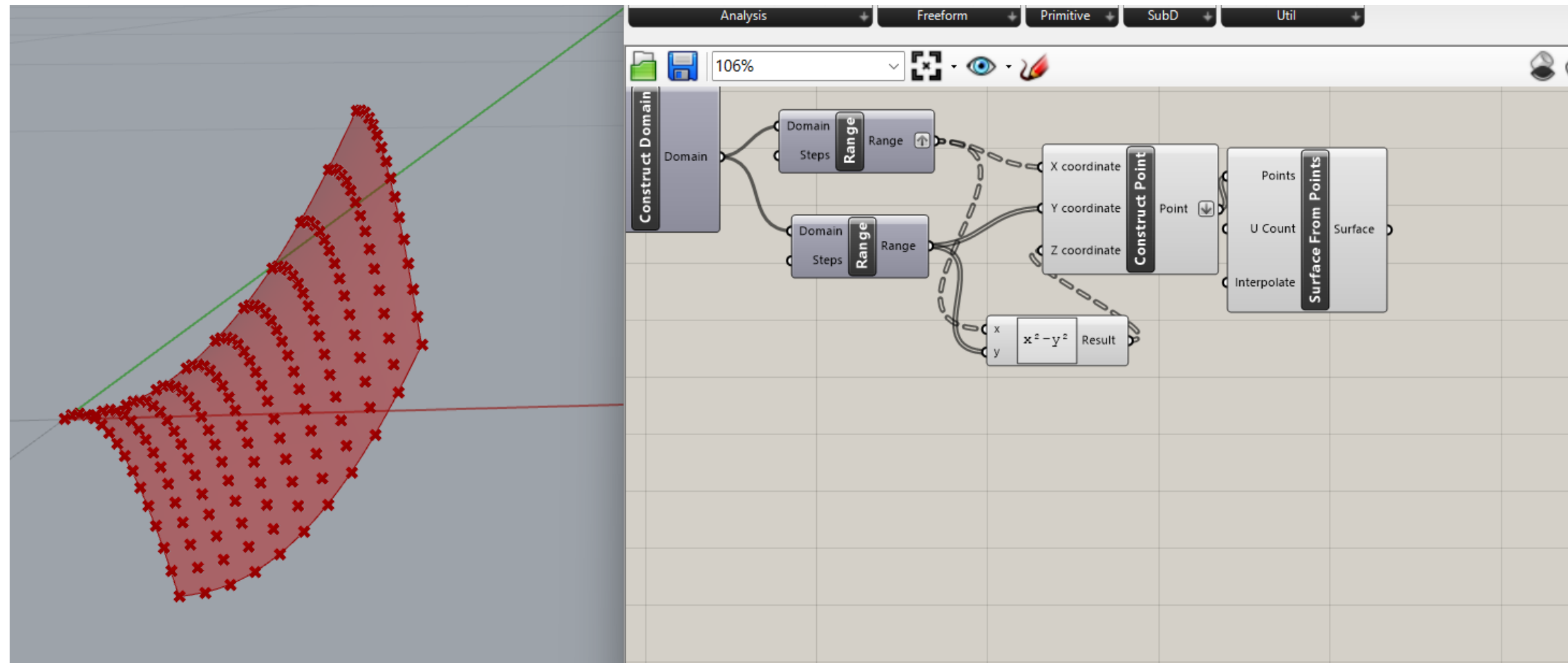
Aula 10- Superfície curva no grasshopper



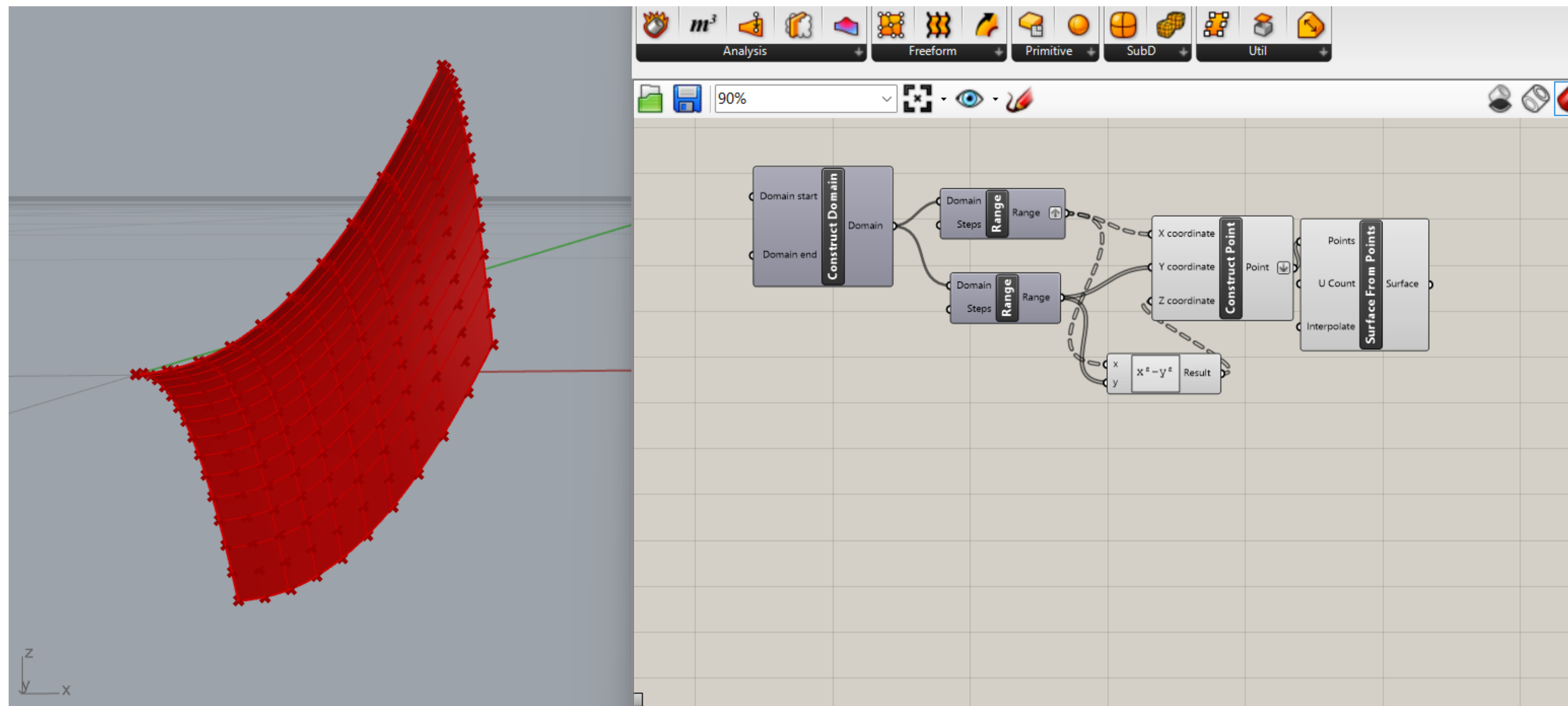
Aula 10- Superfície curva no grasshopper



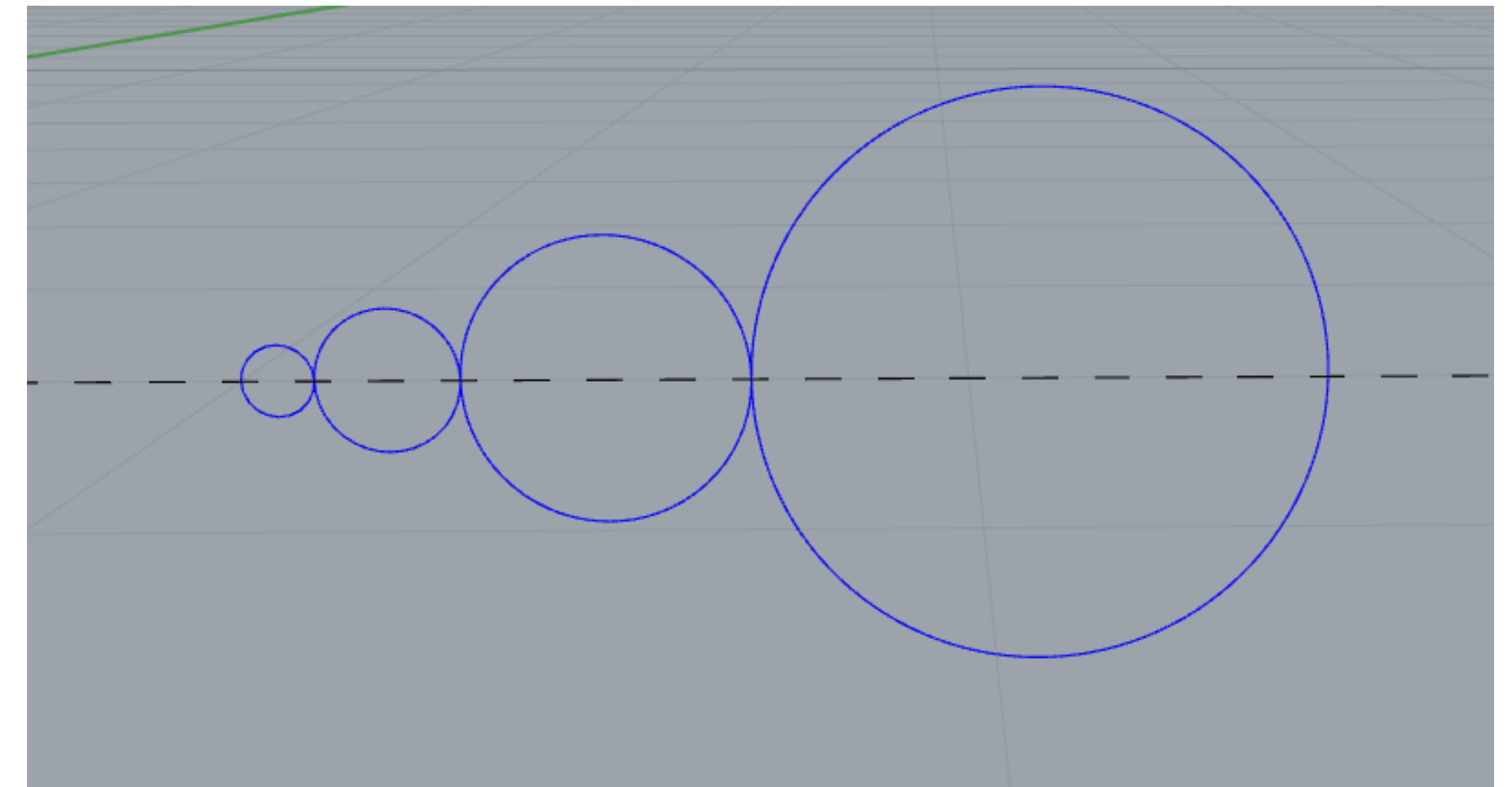
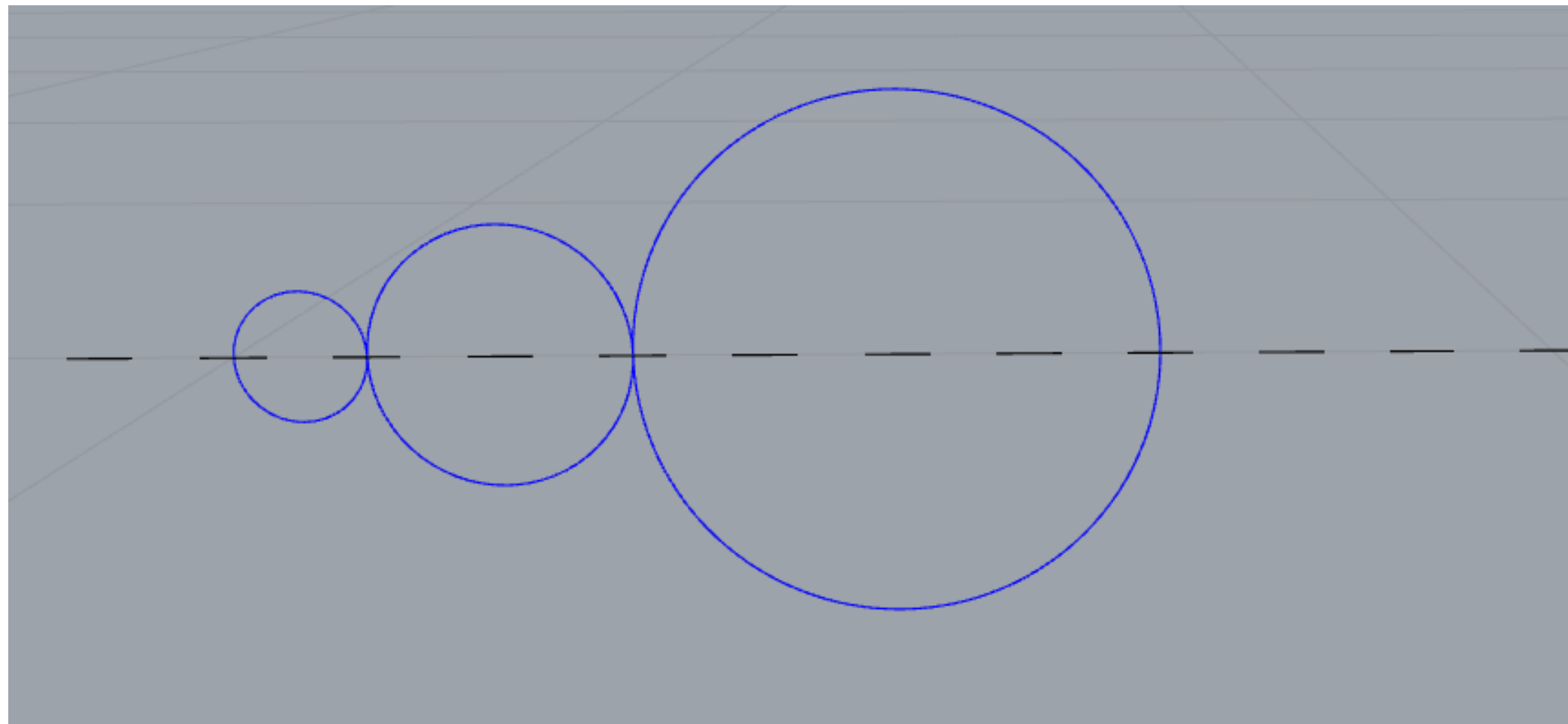
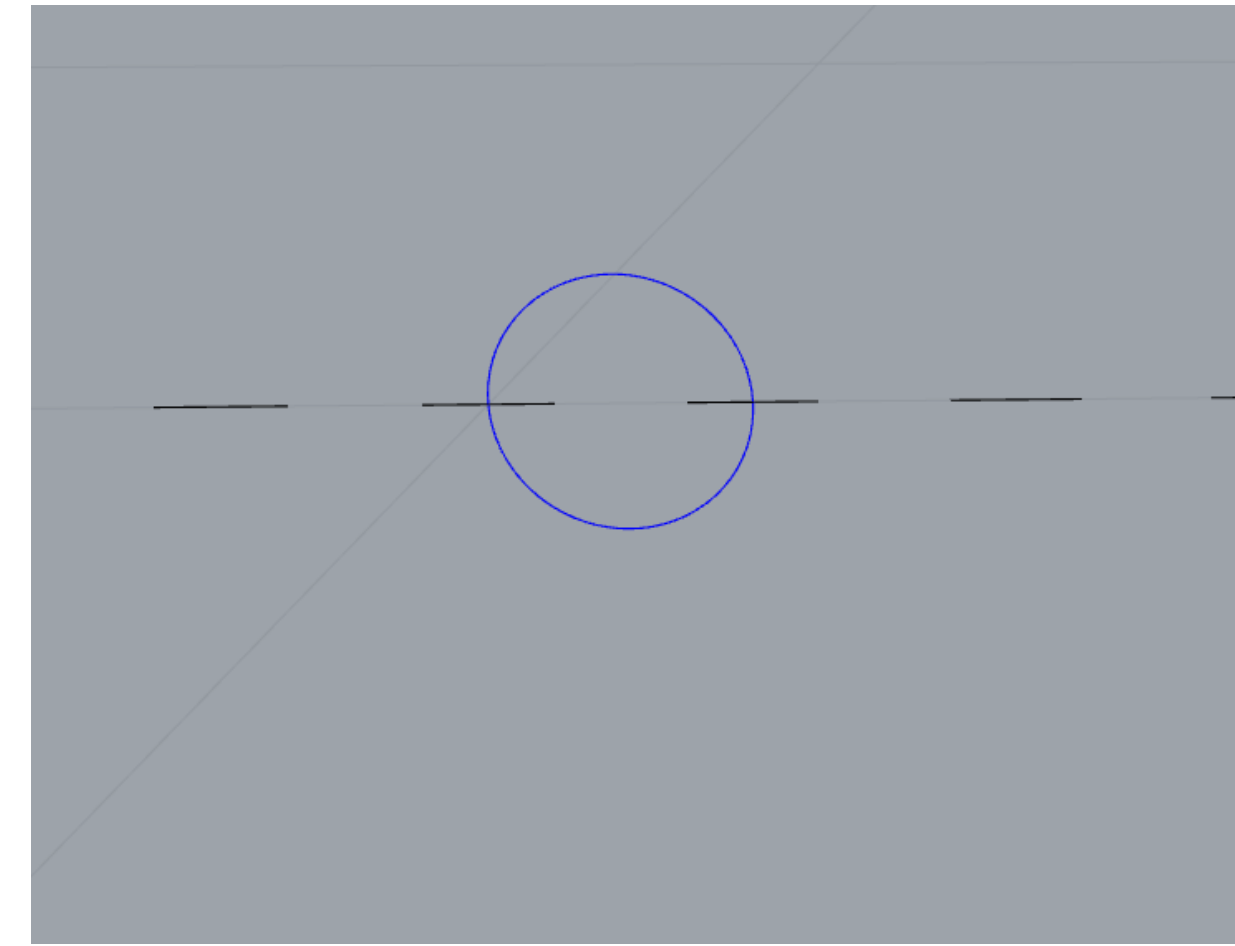
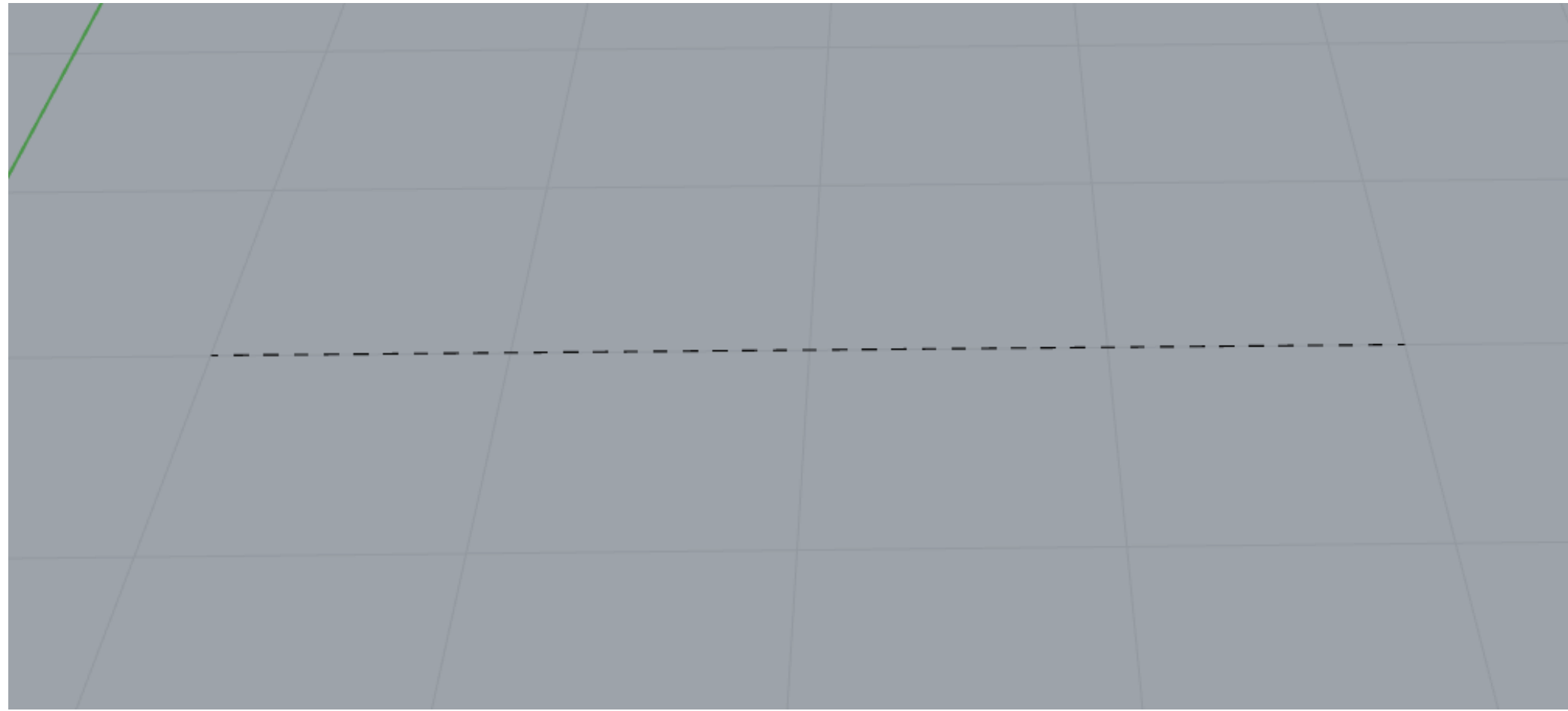
Aula 10- Superfície curva no grasshopper



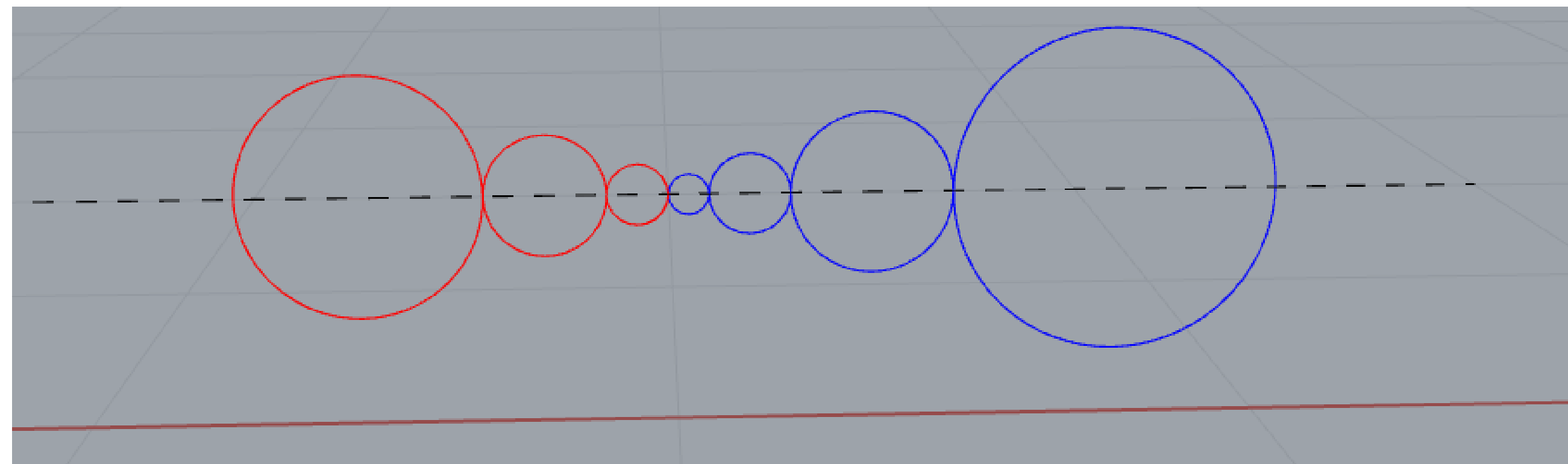
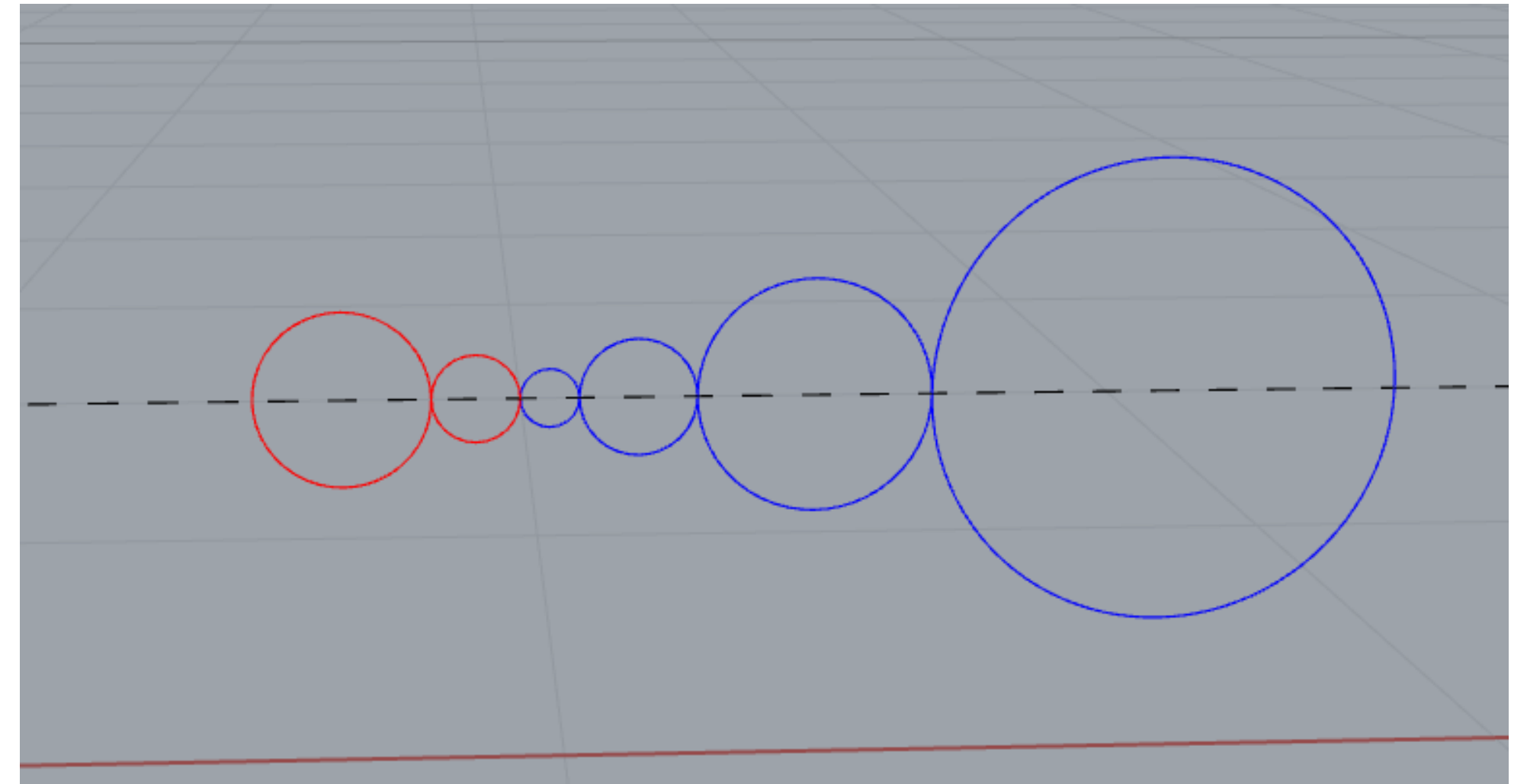
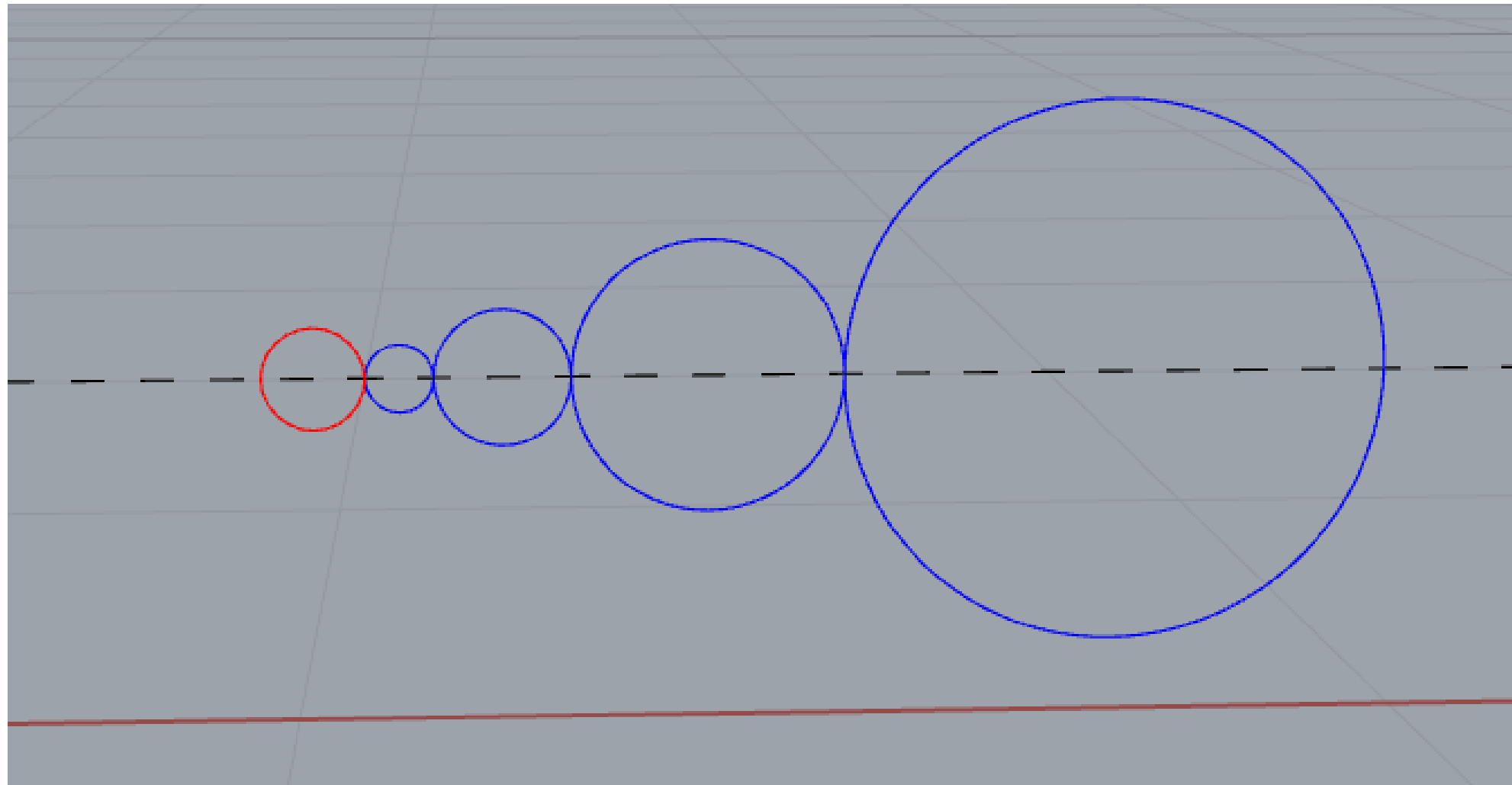
Aula 10- Superfície curva no grasshopper



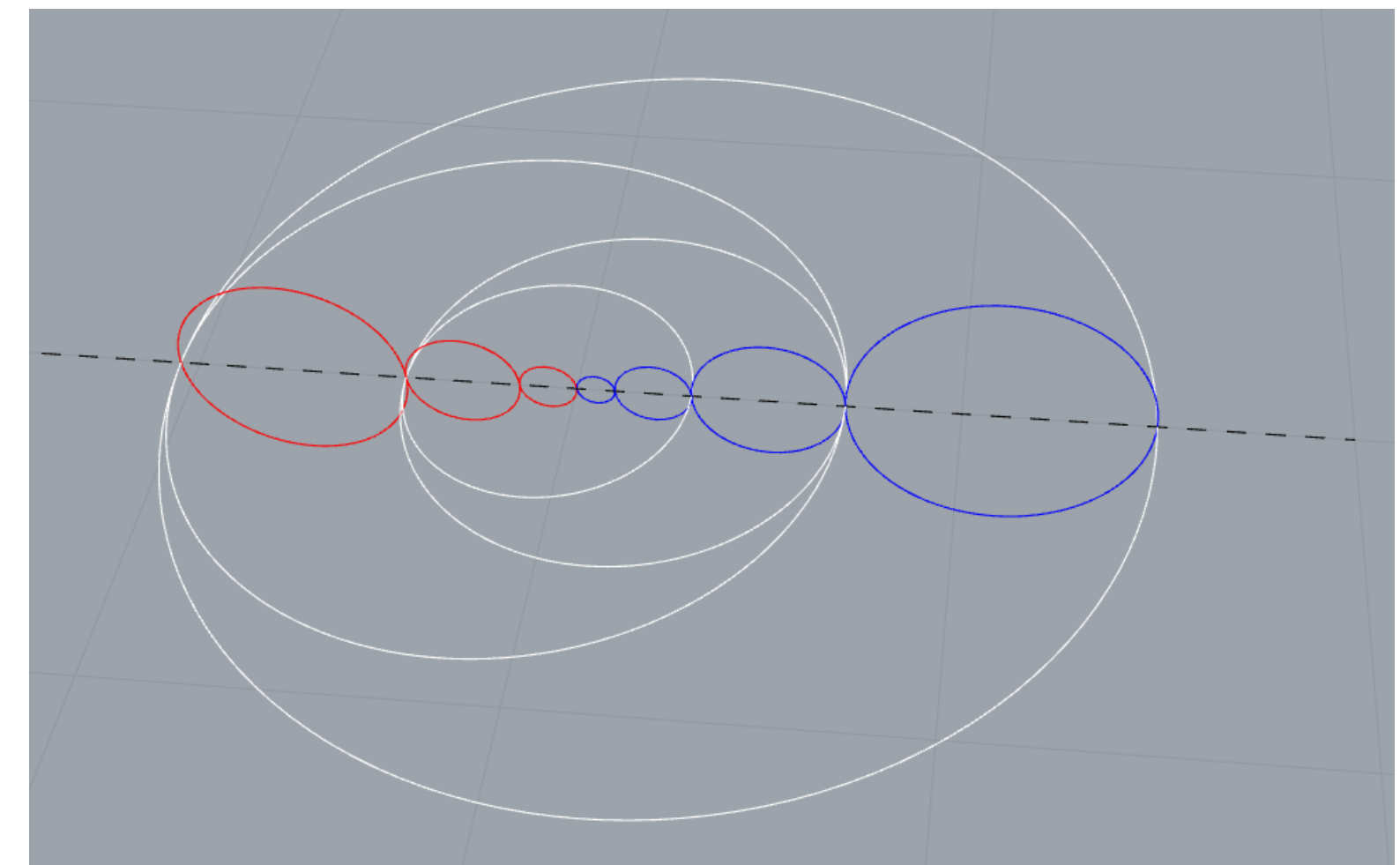
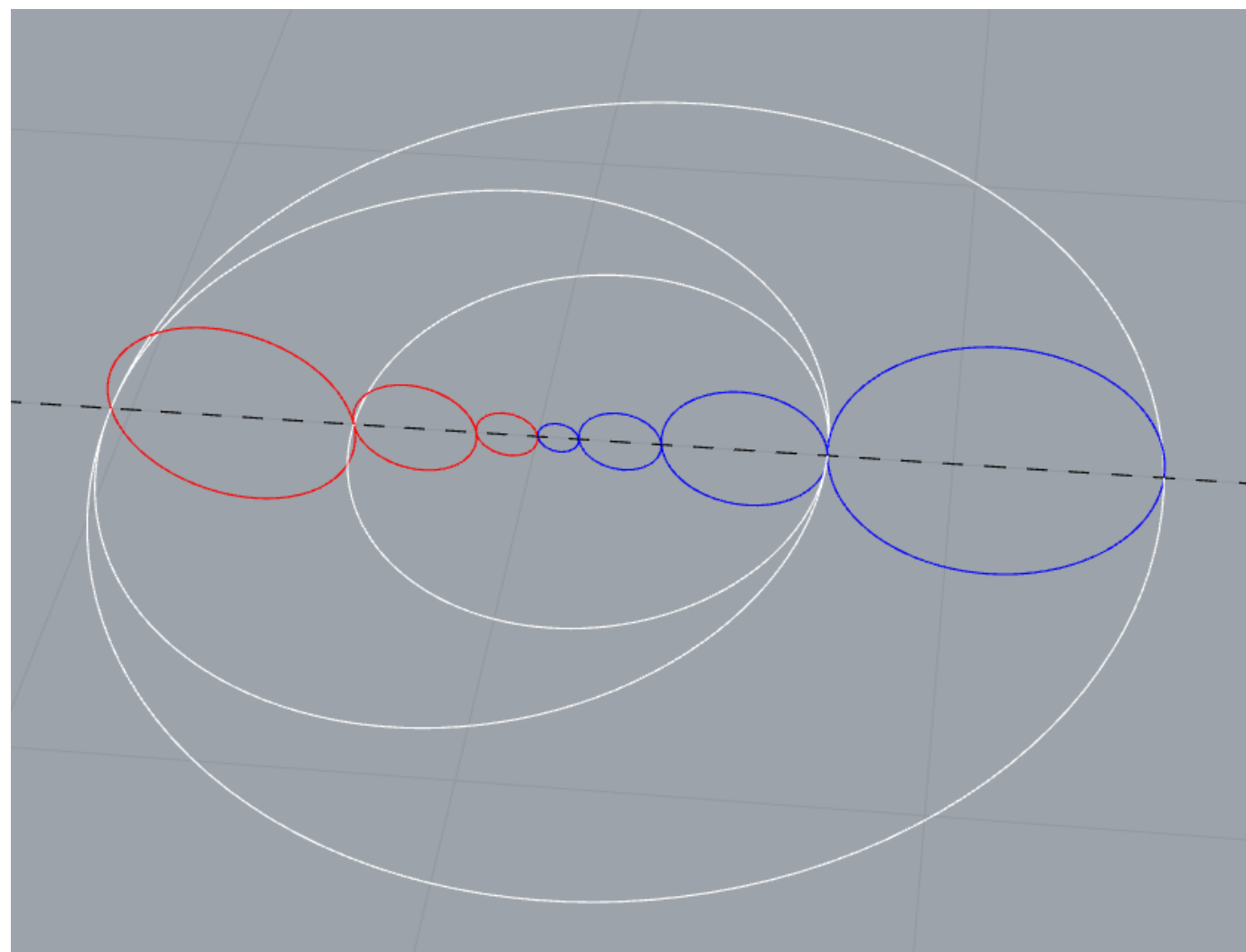
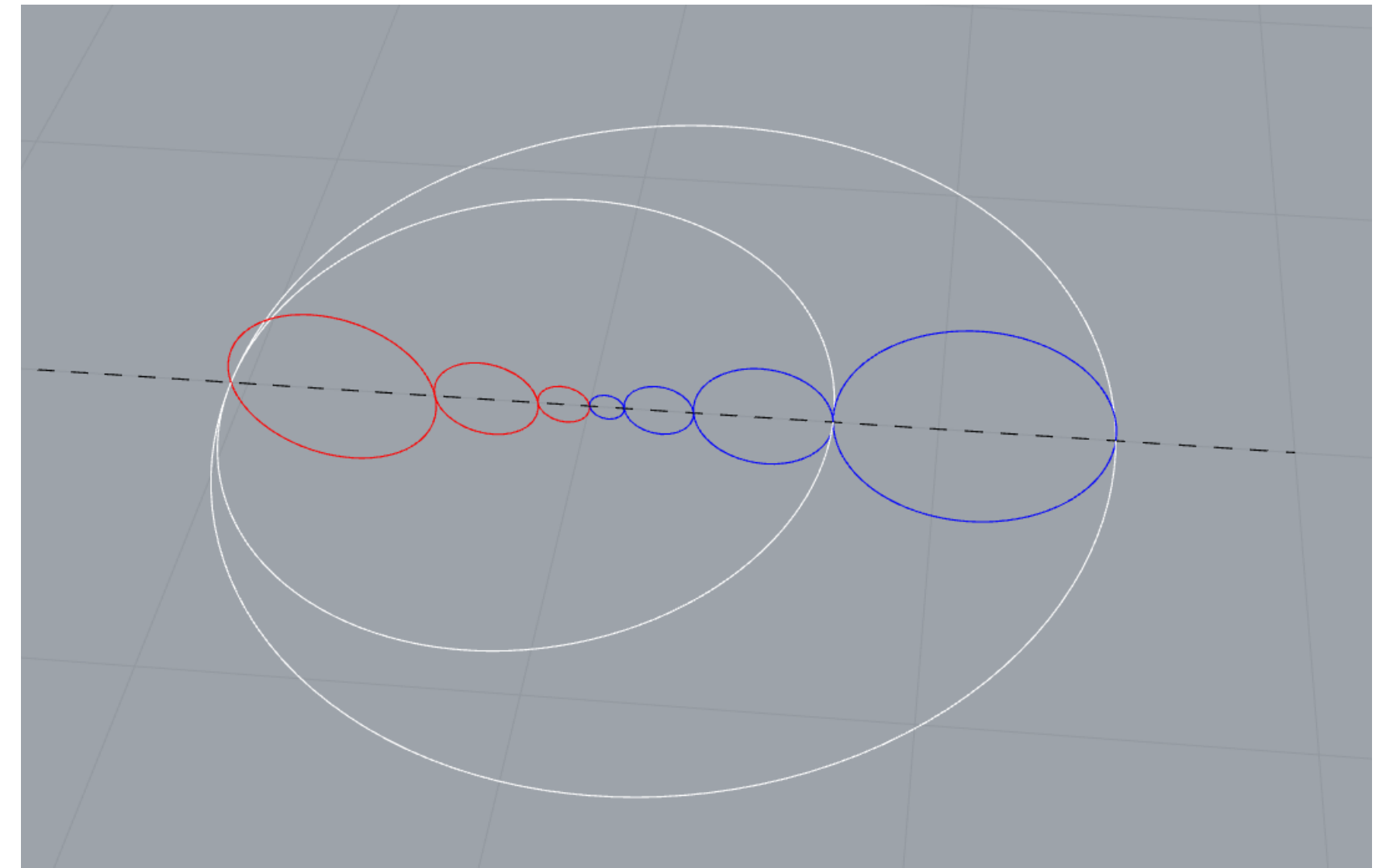
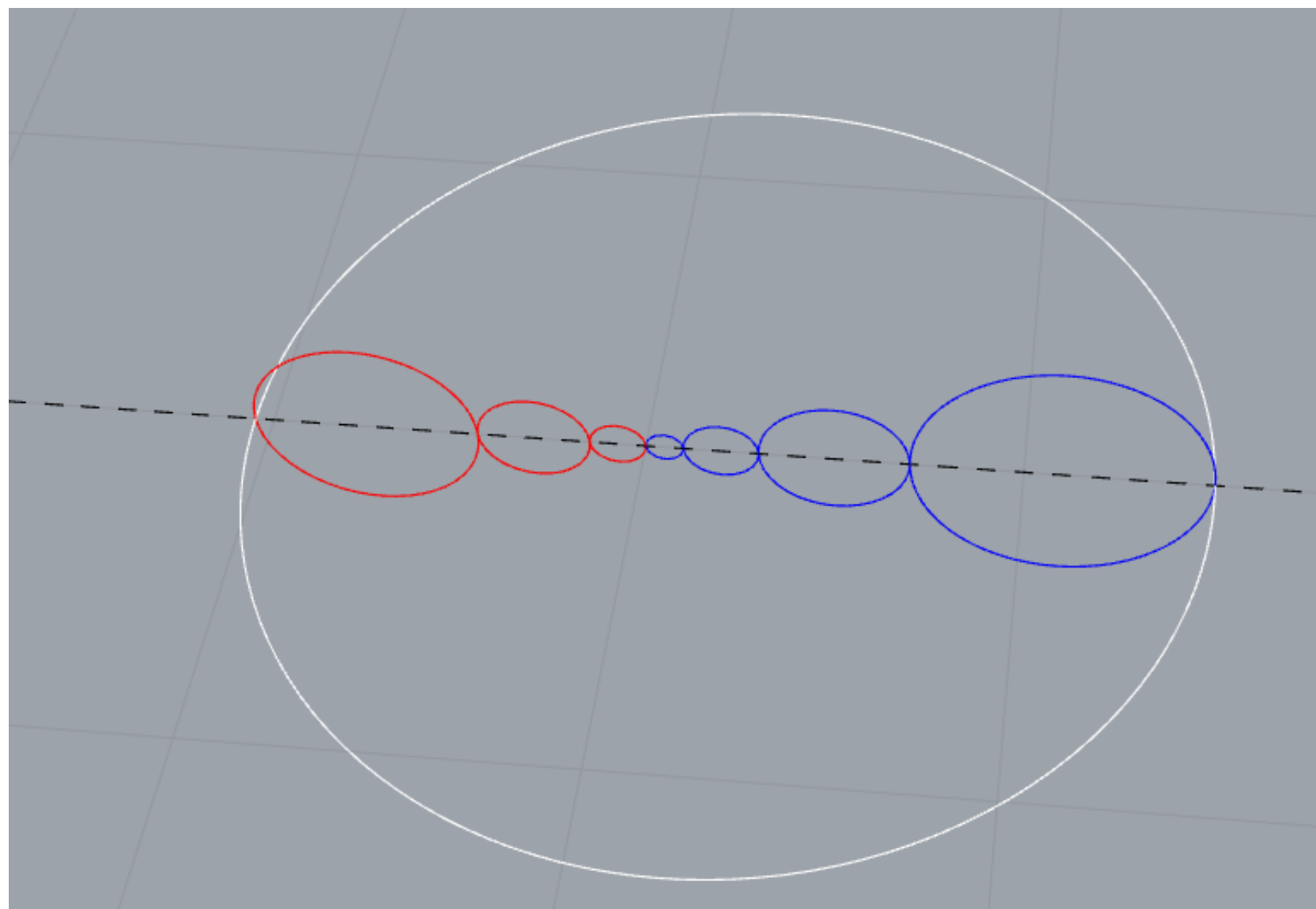
Aula 10- Superfície curva no grasshopper



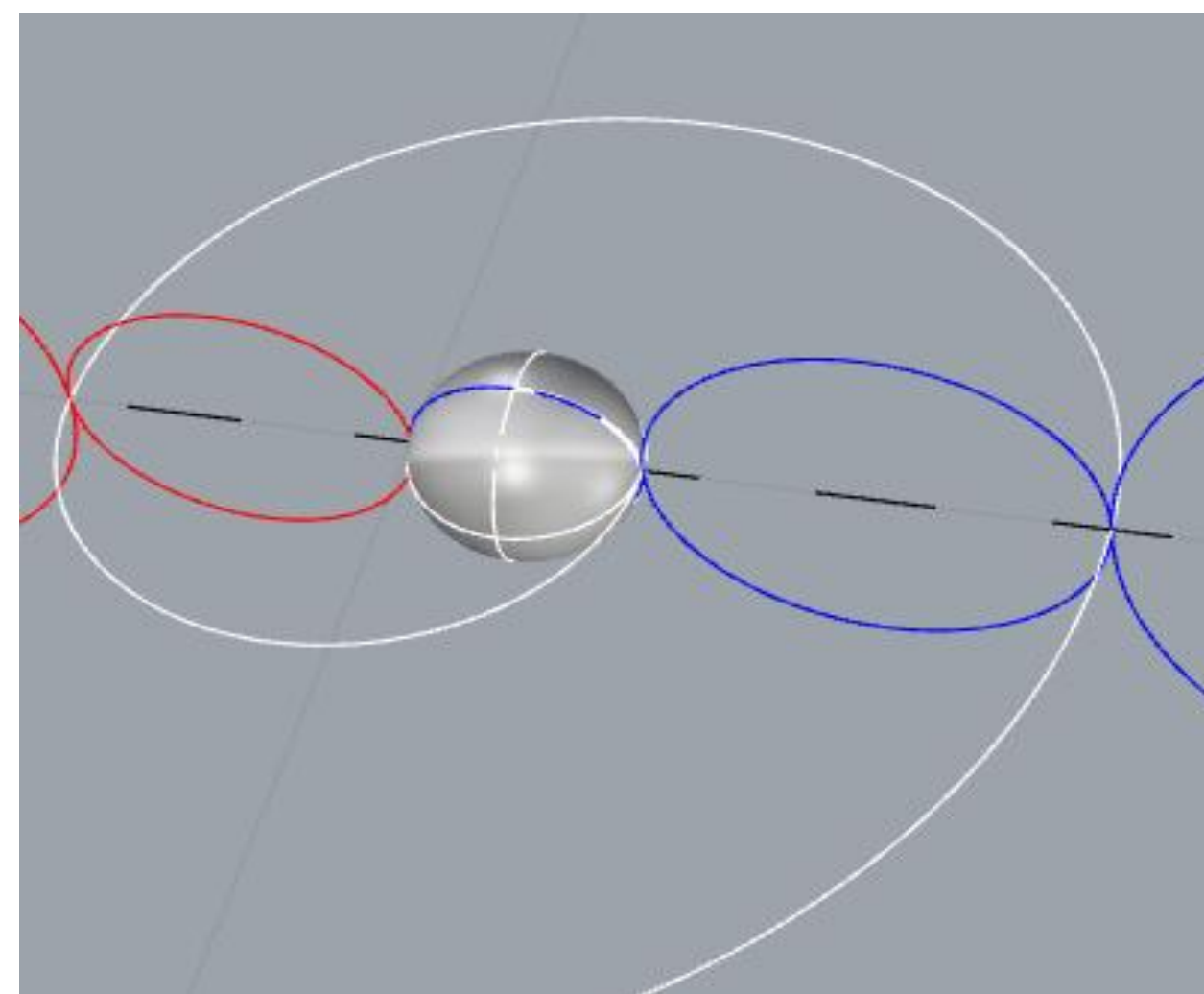
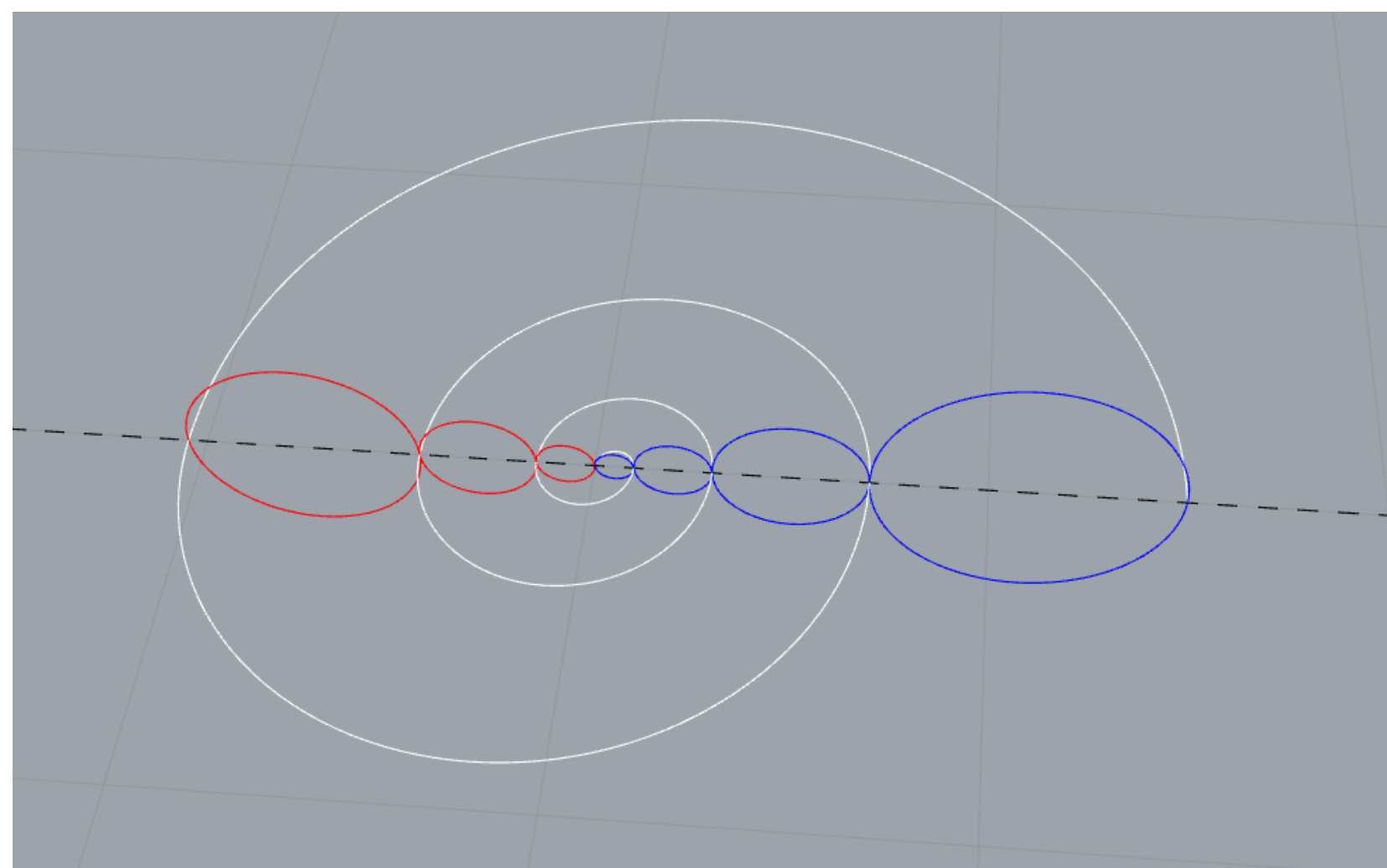
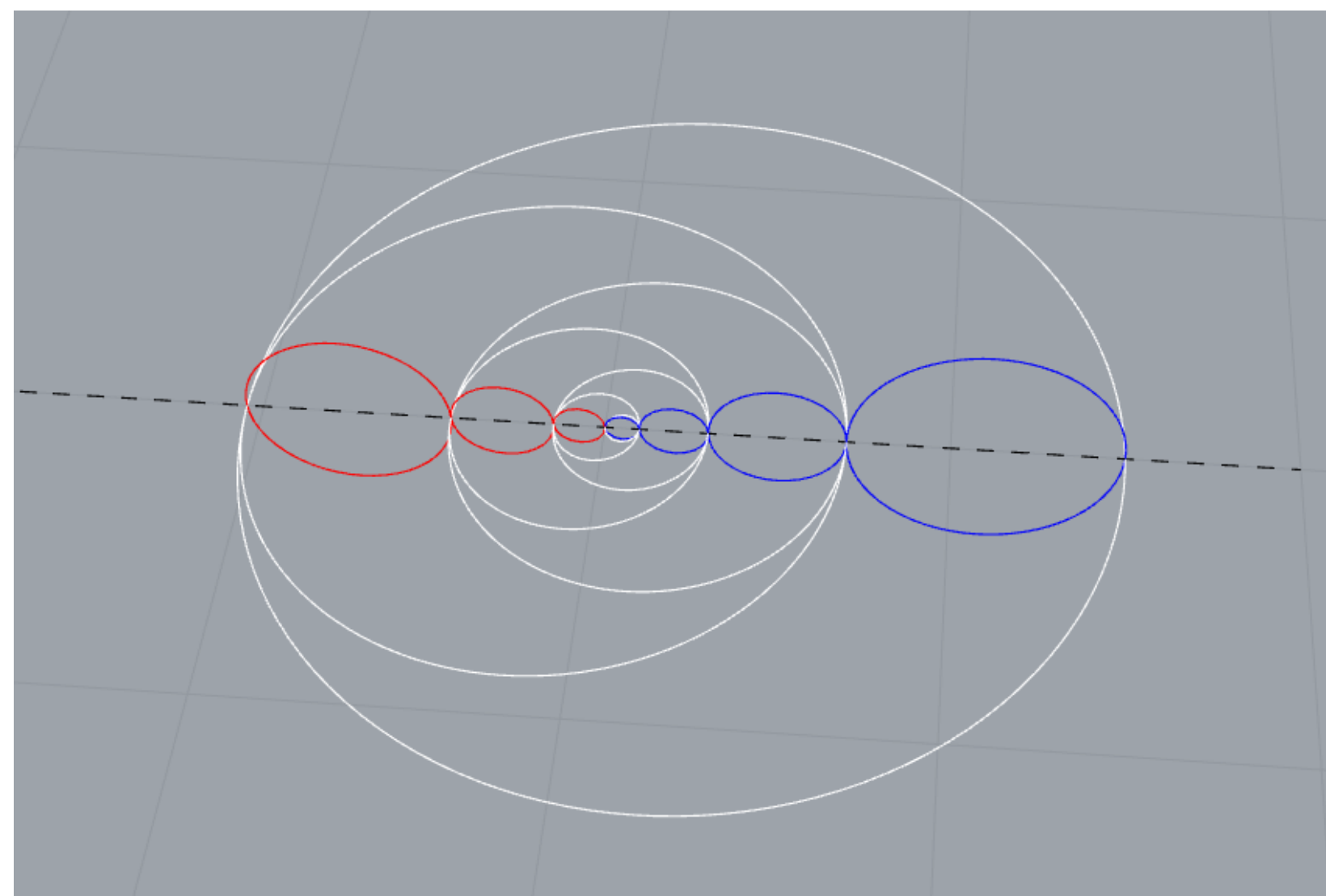
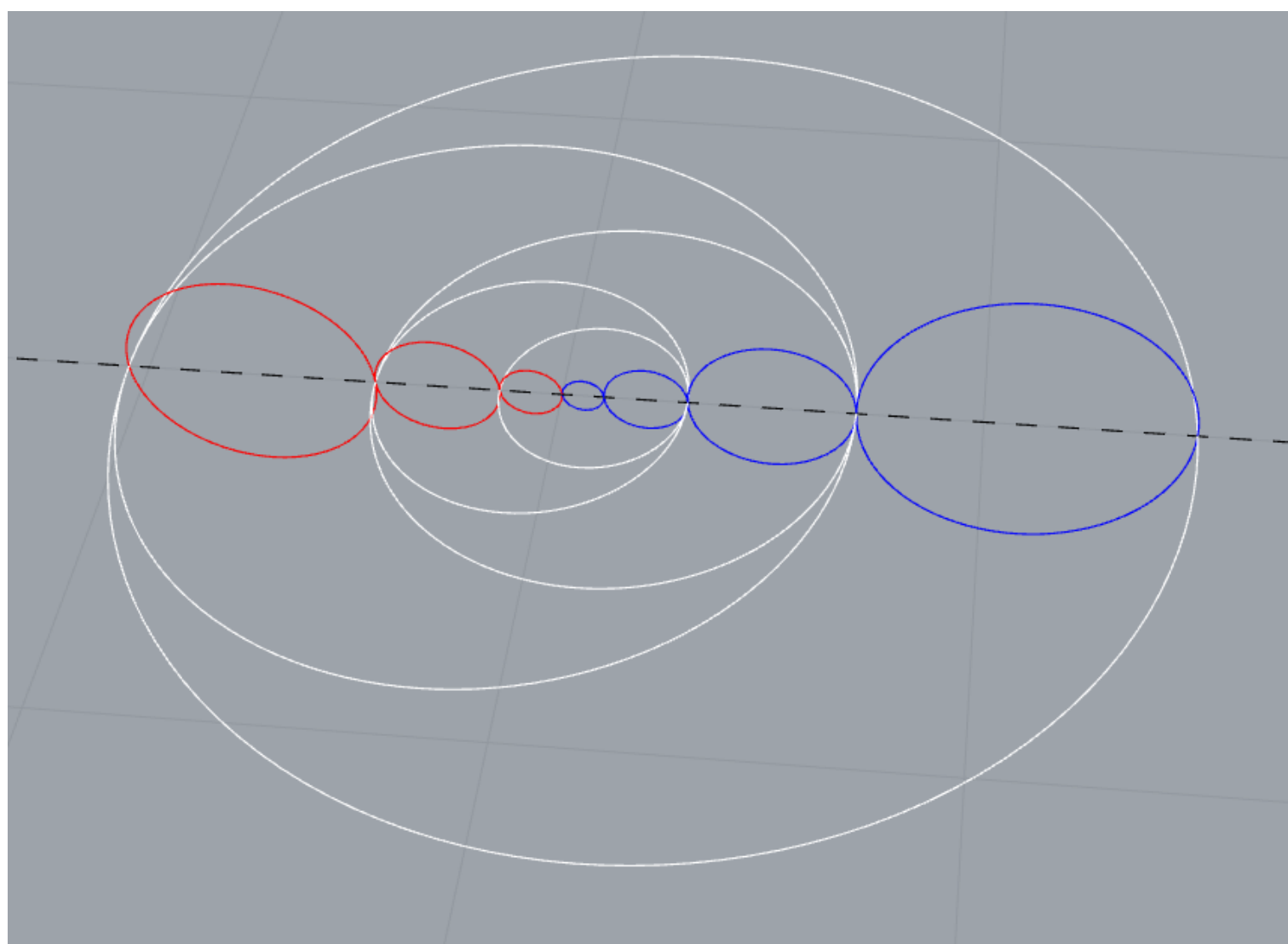
Aula 11- Planorbis



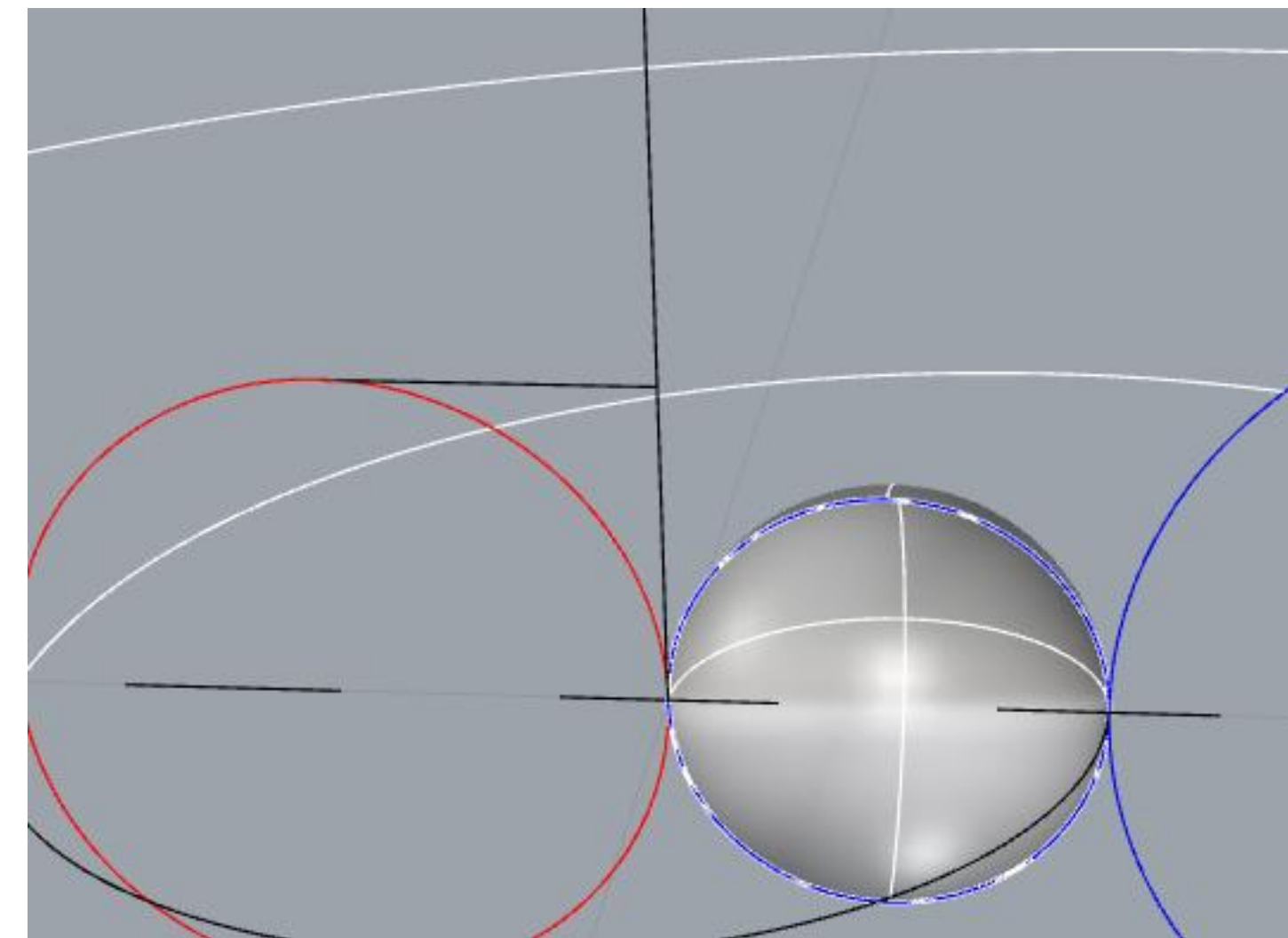
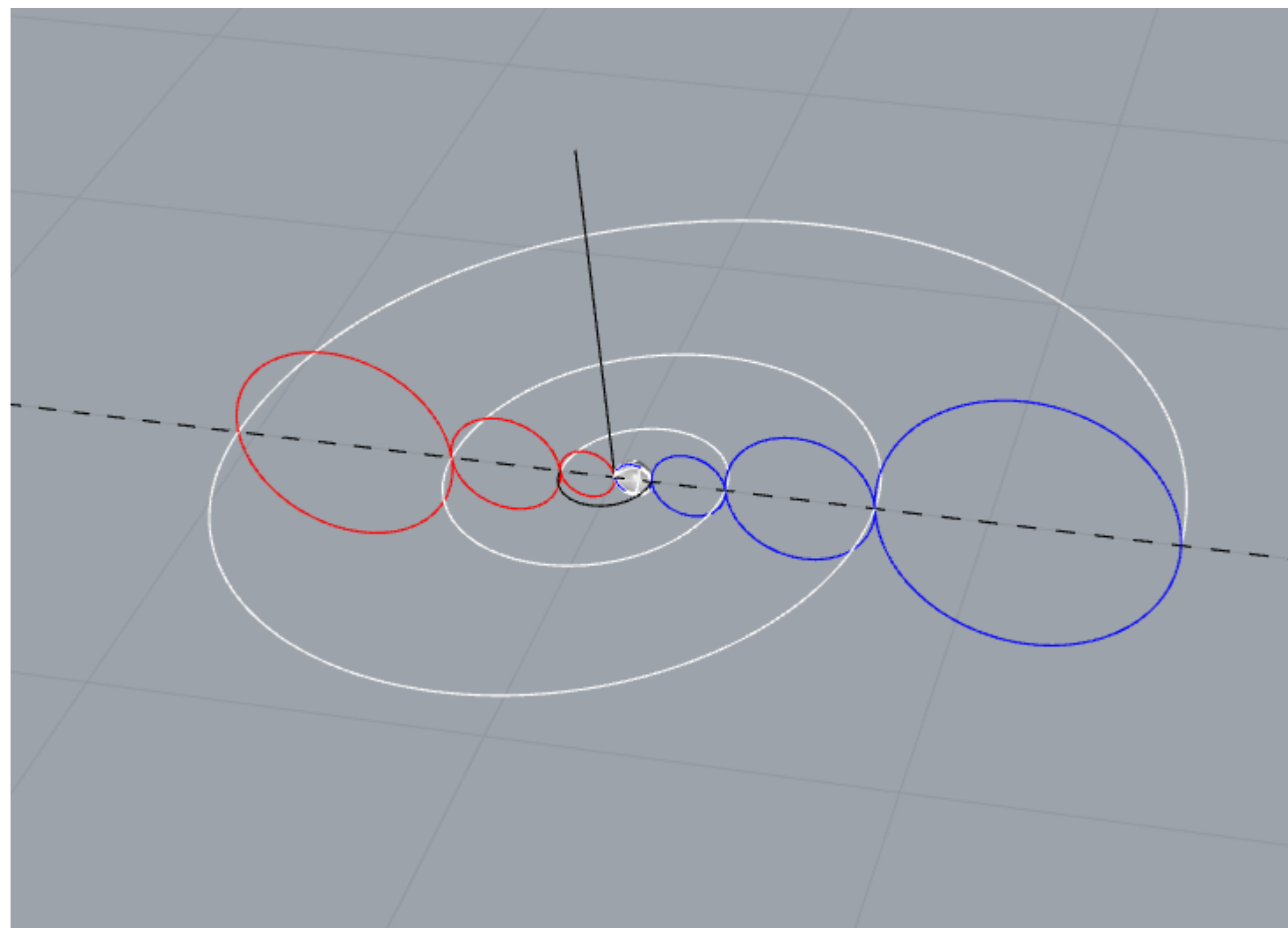
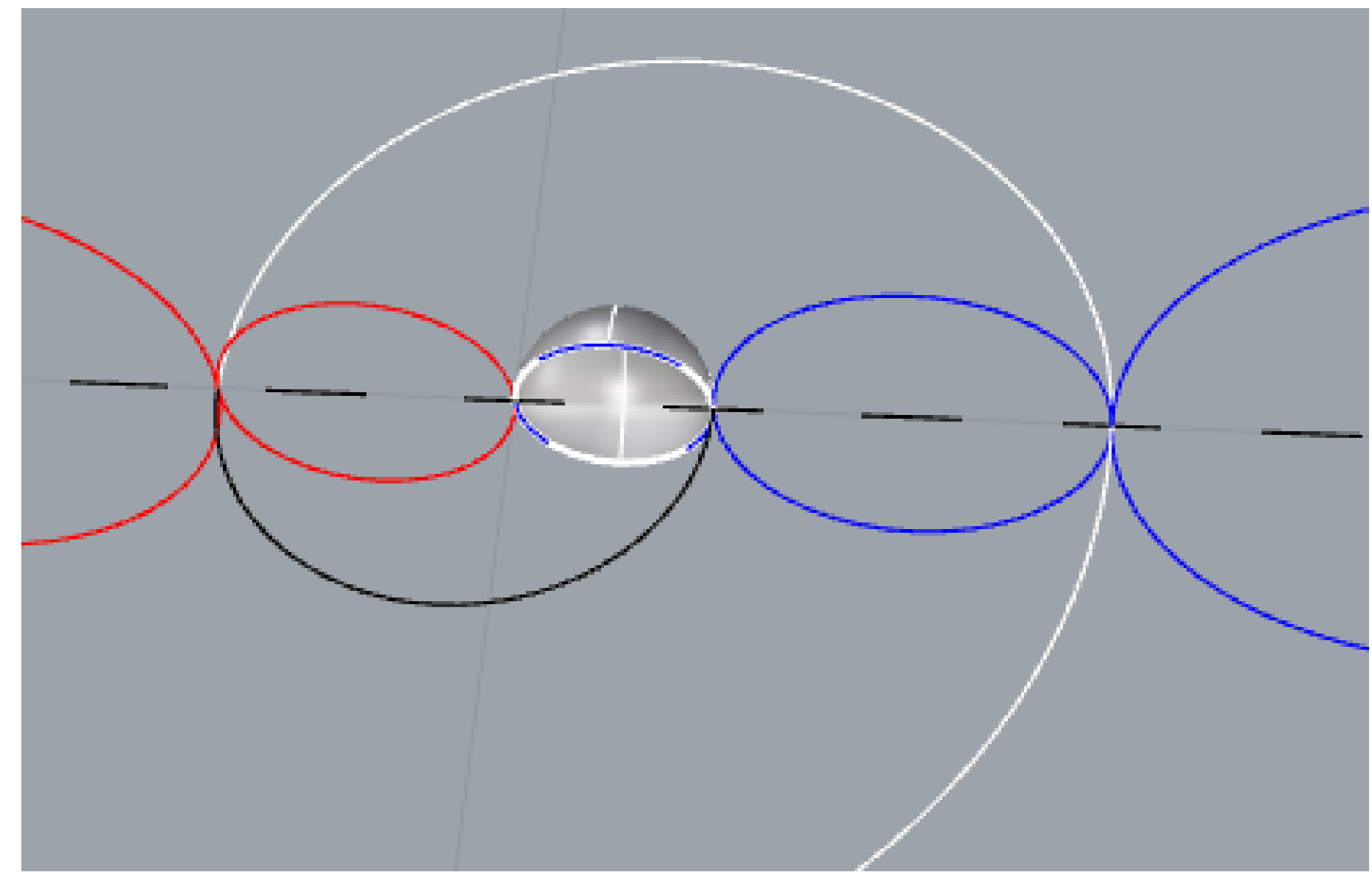
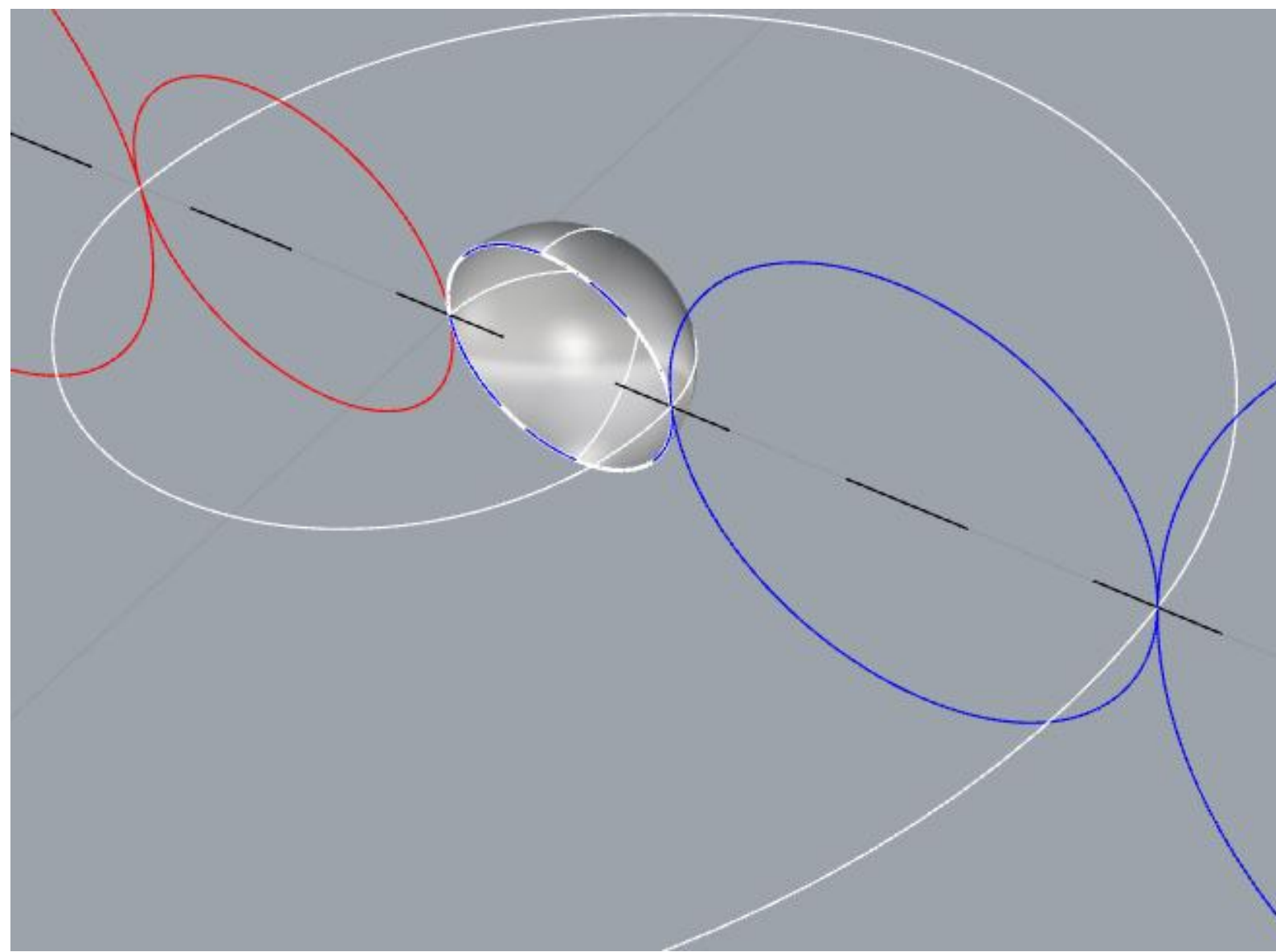
Aula 11- Planorbis



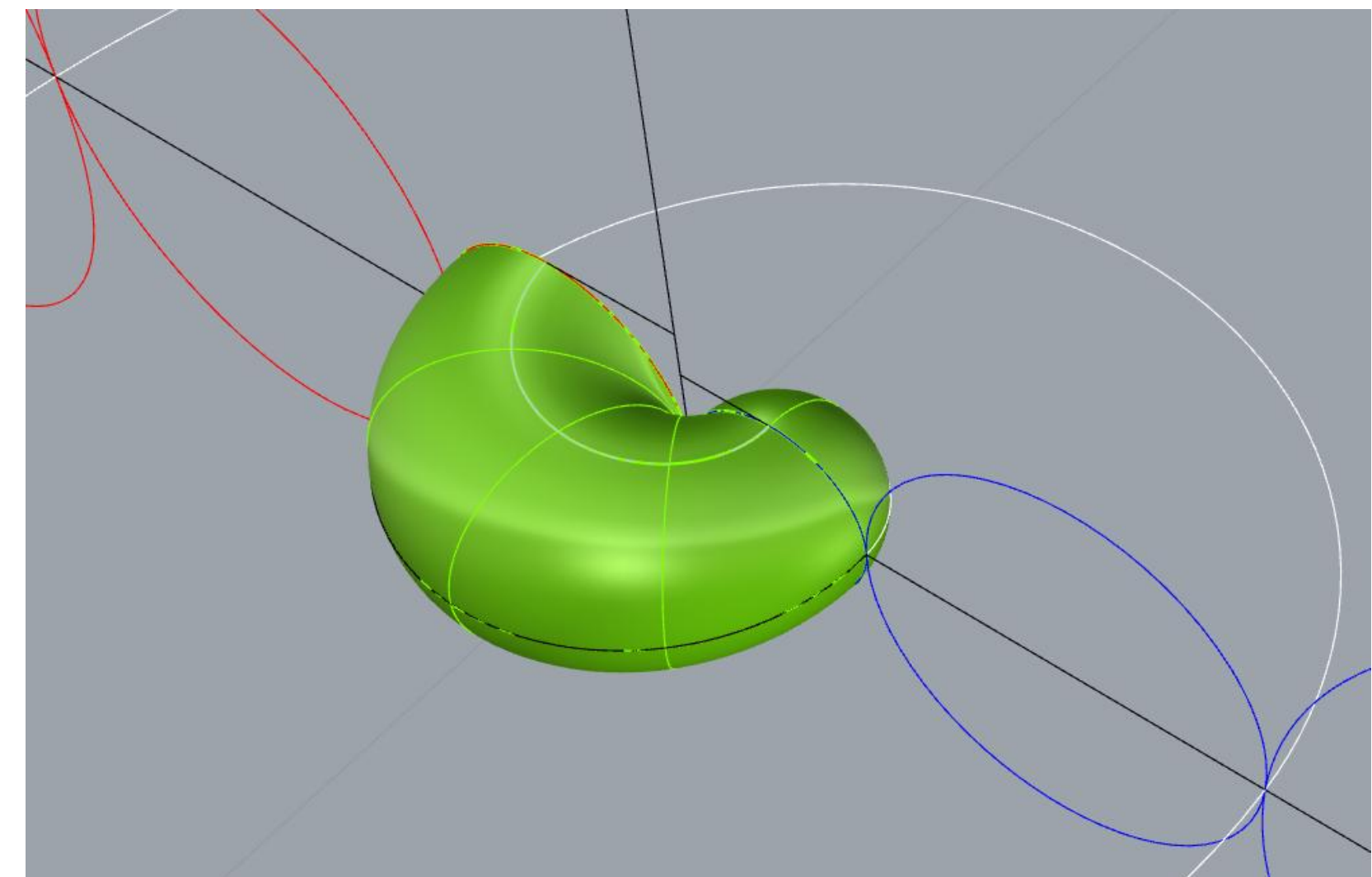
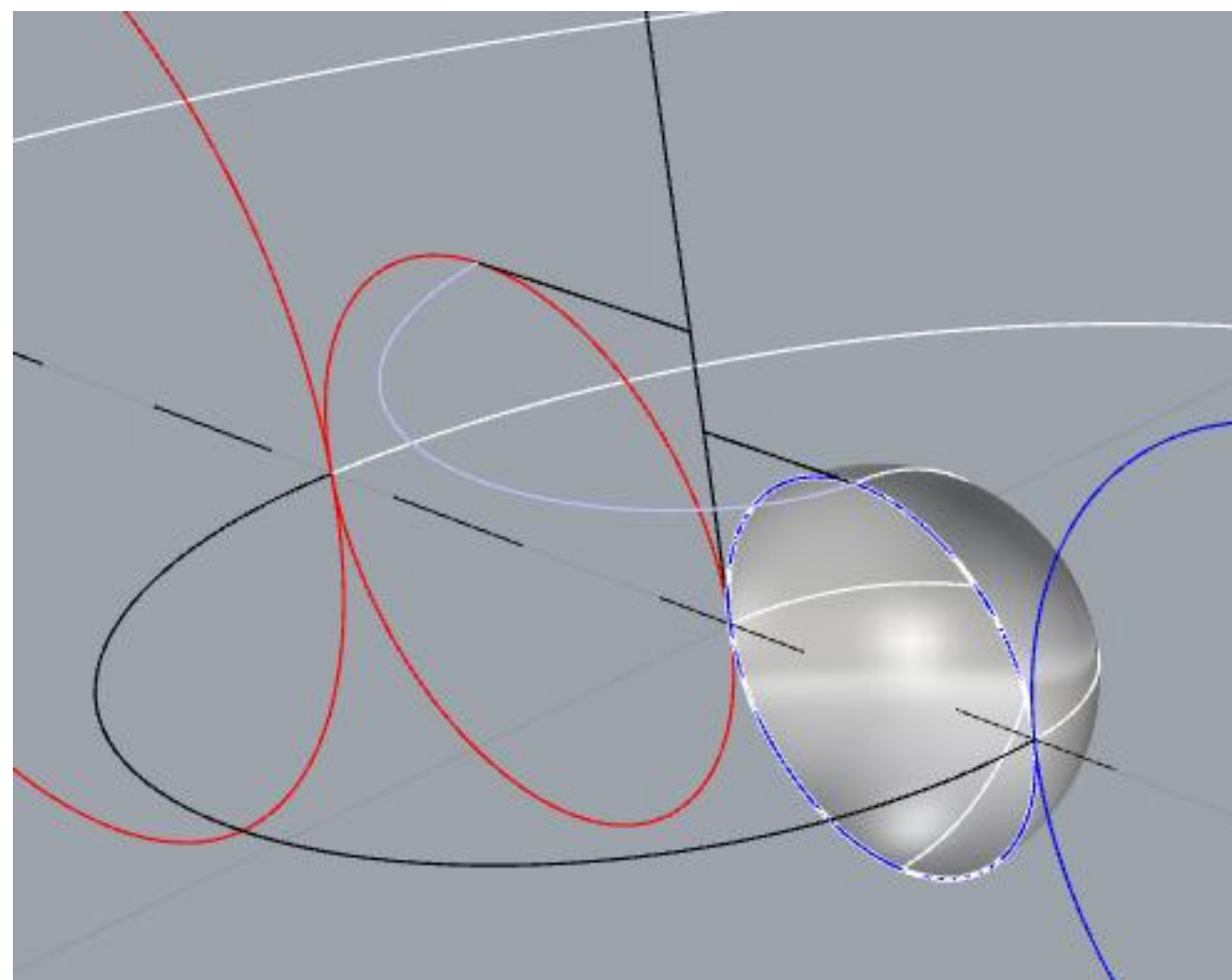
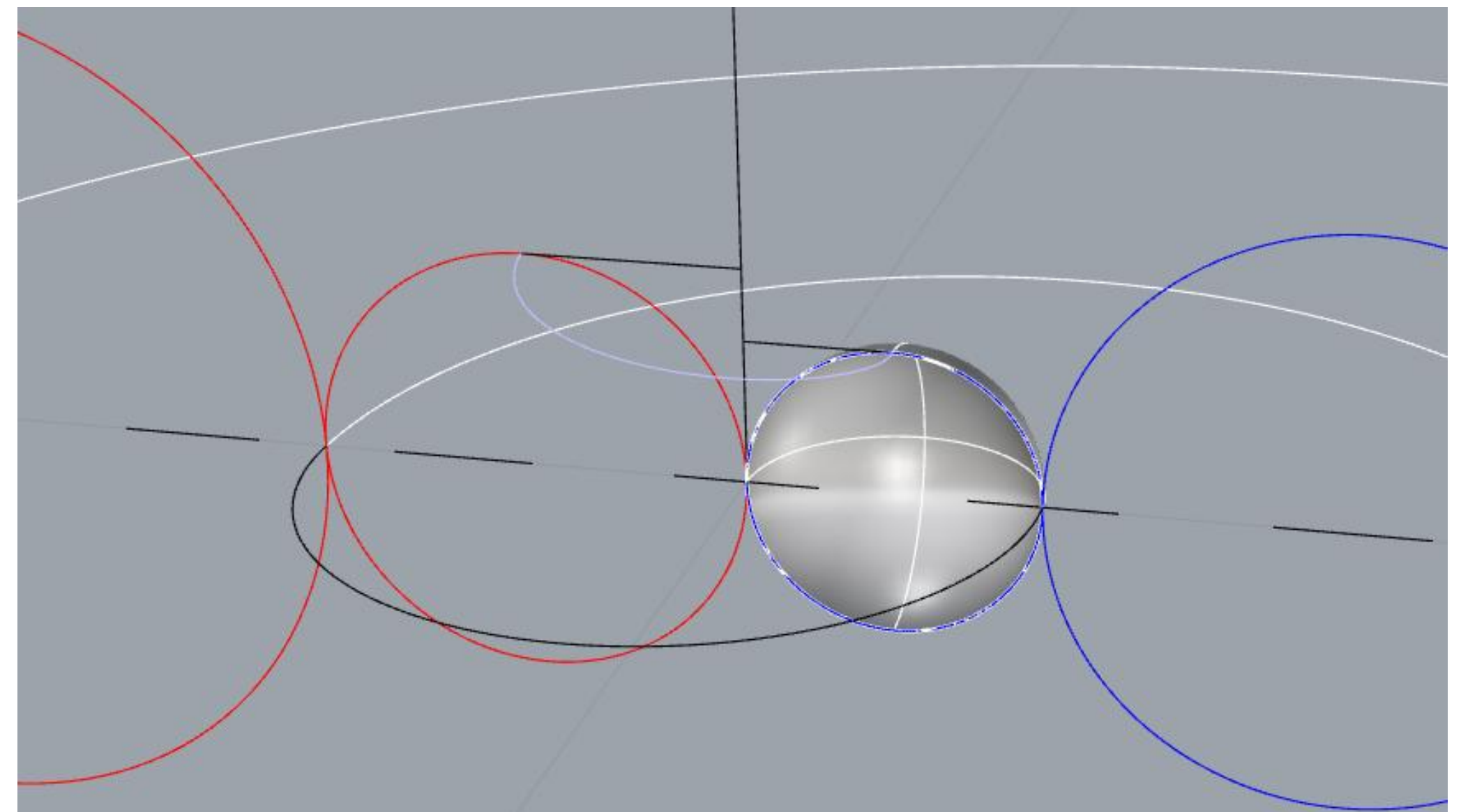
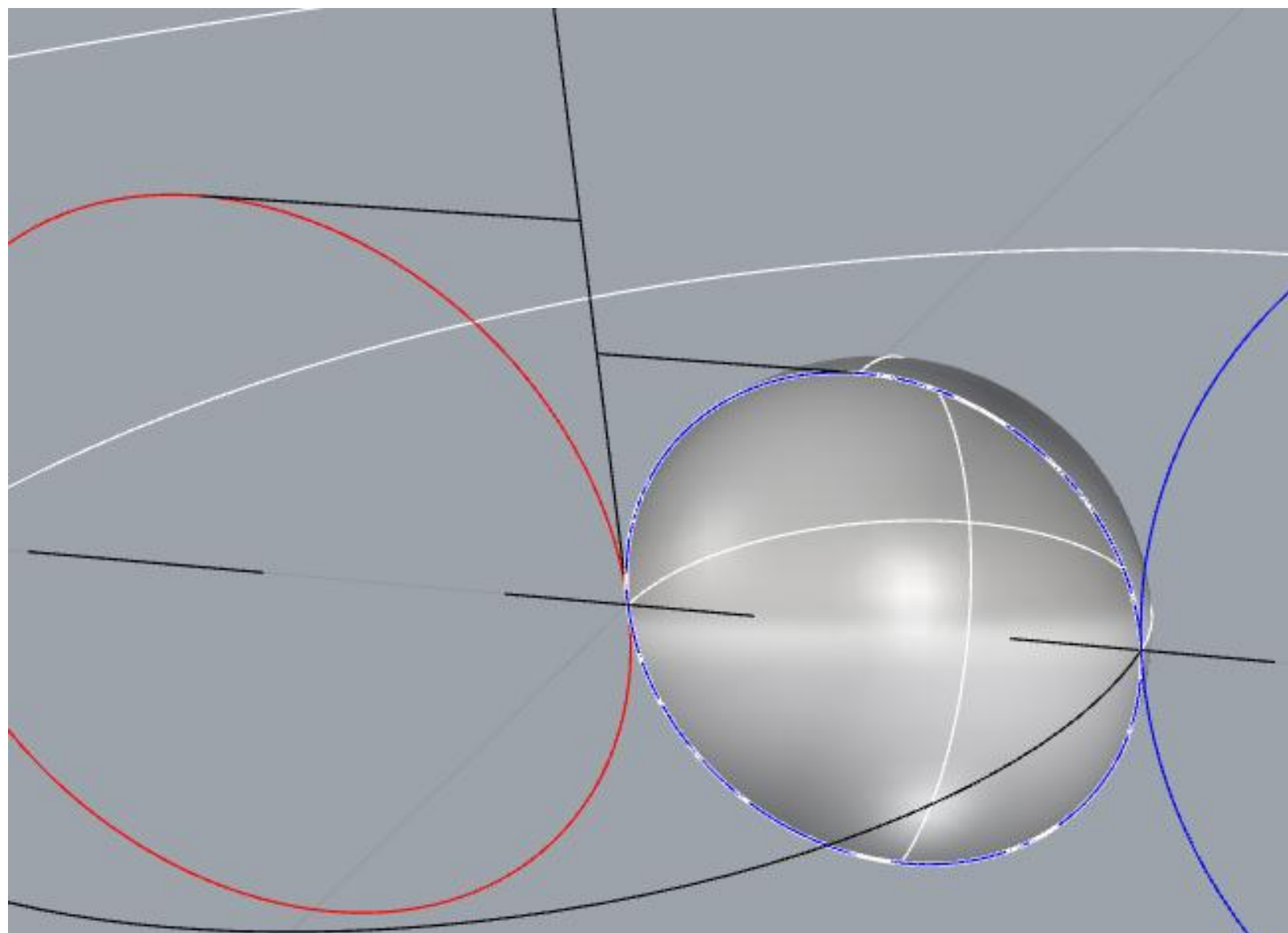
Aula 11- Planorbis



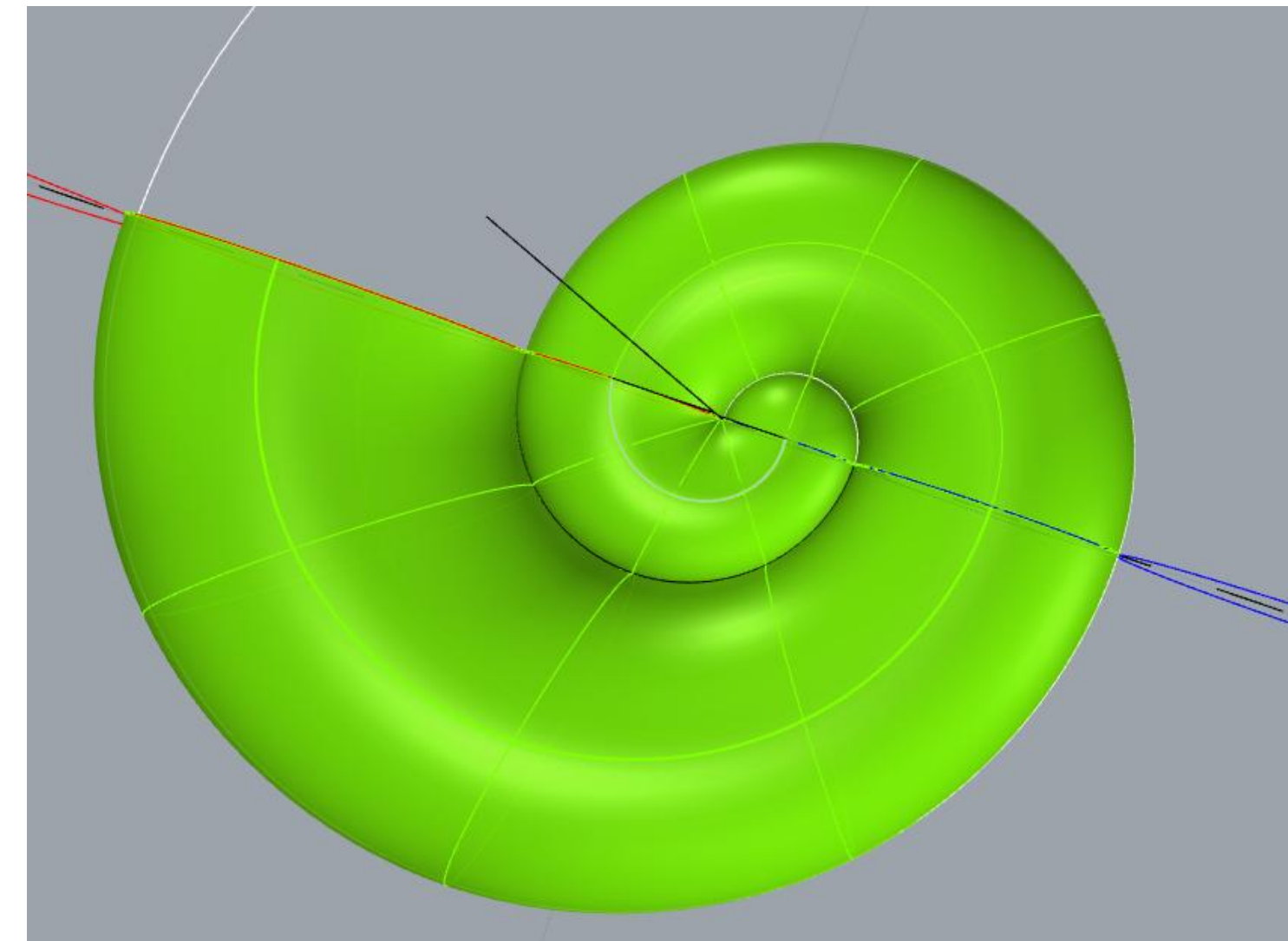
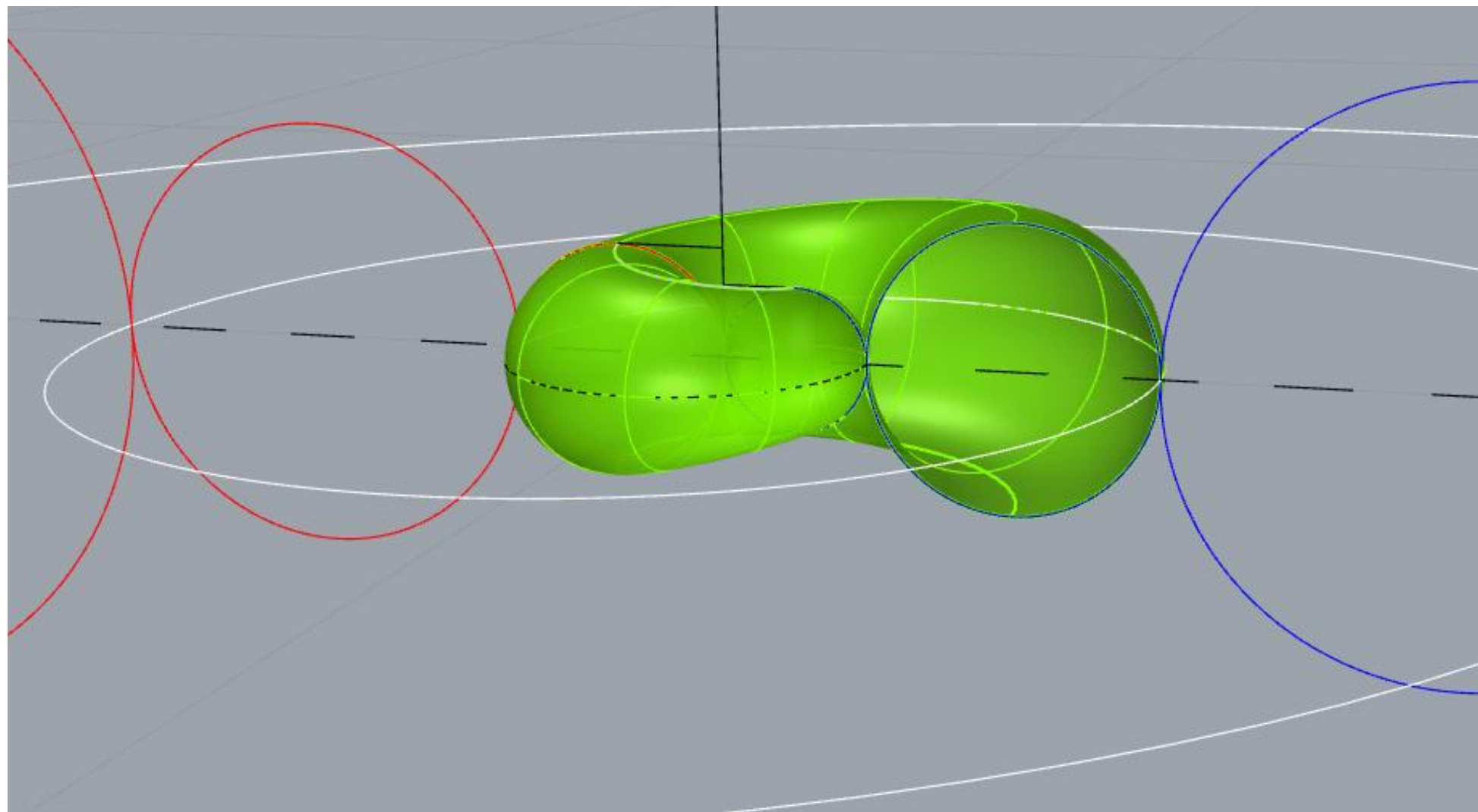
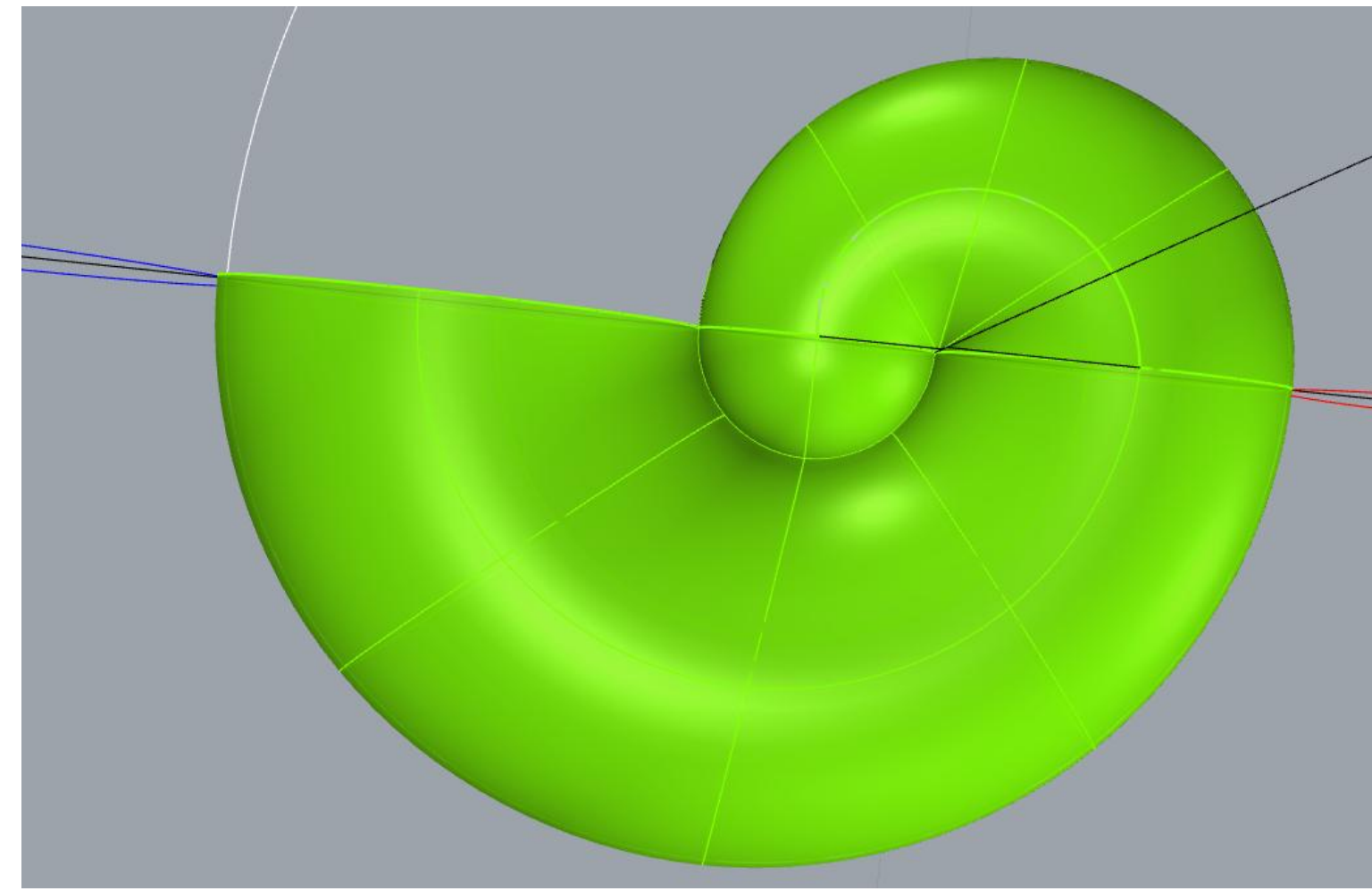
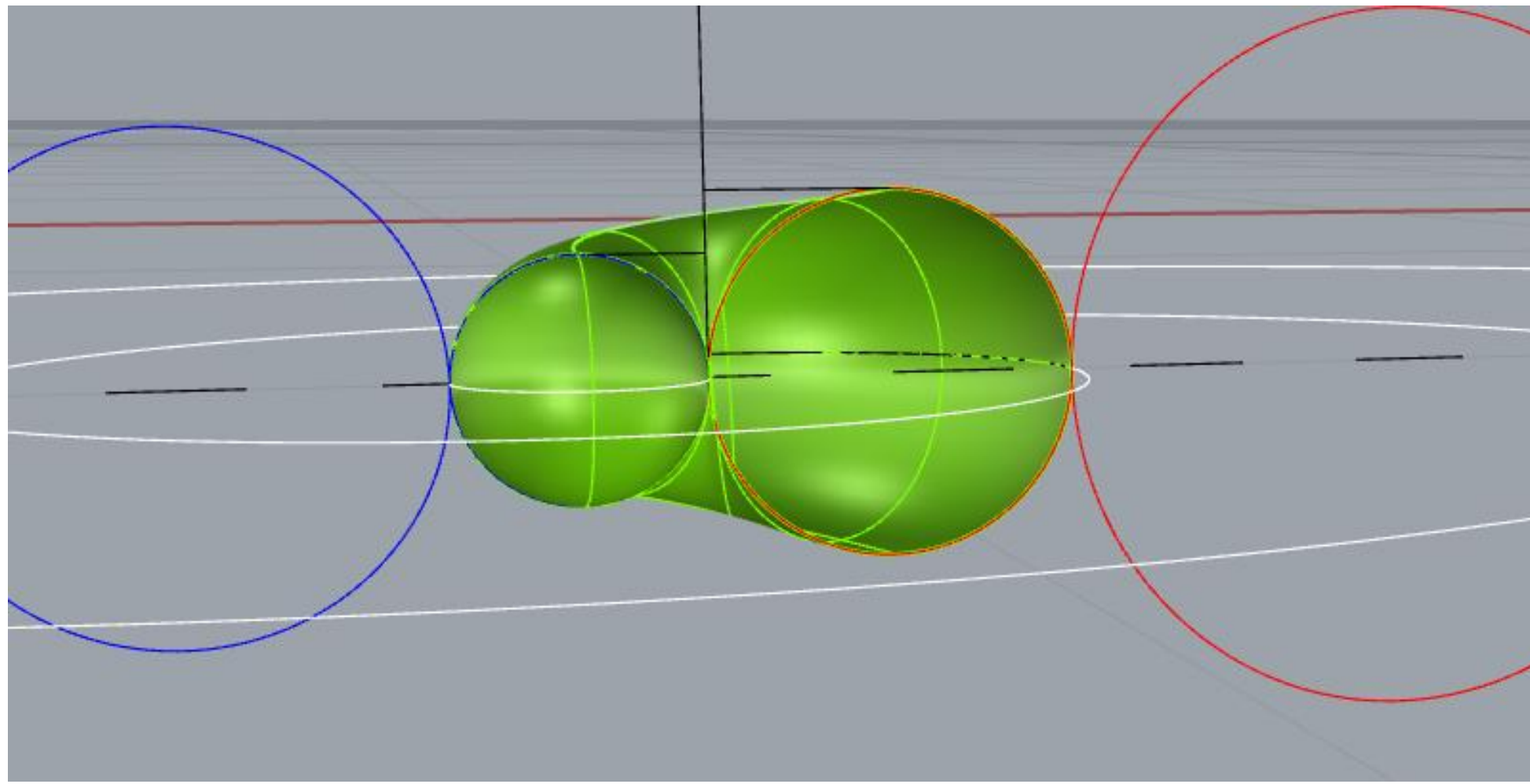
Aula 11- Planorbis



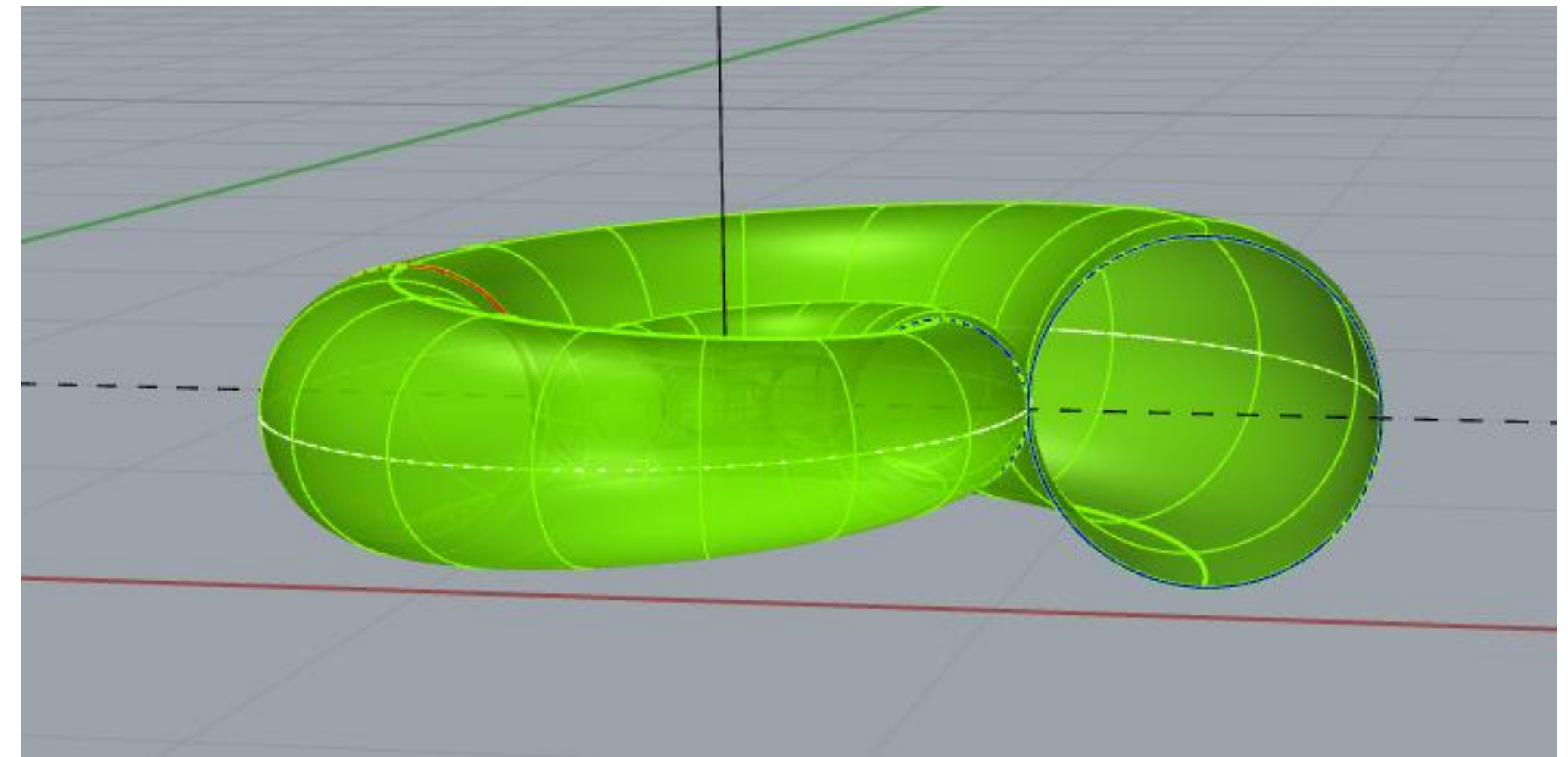
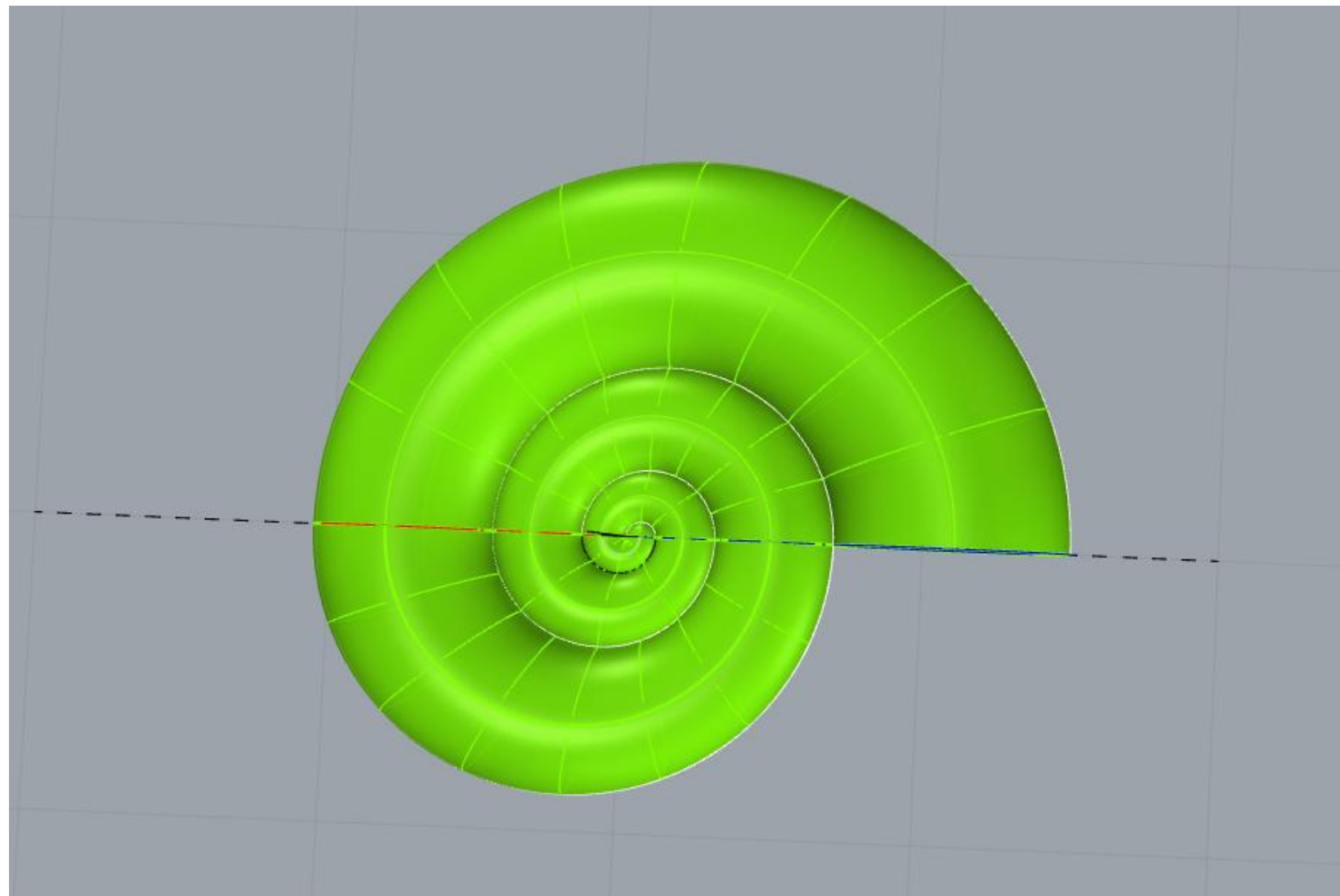
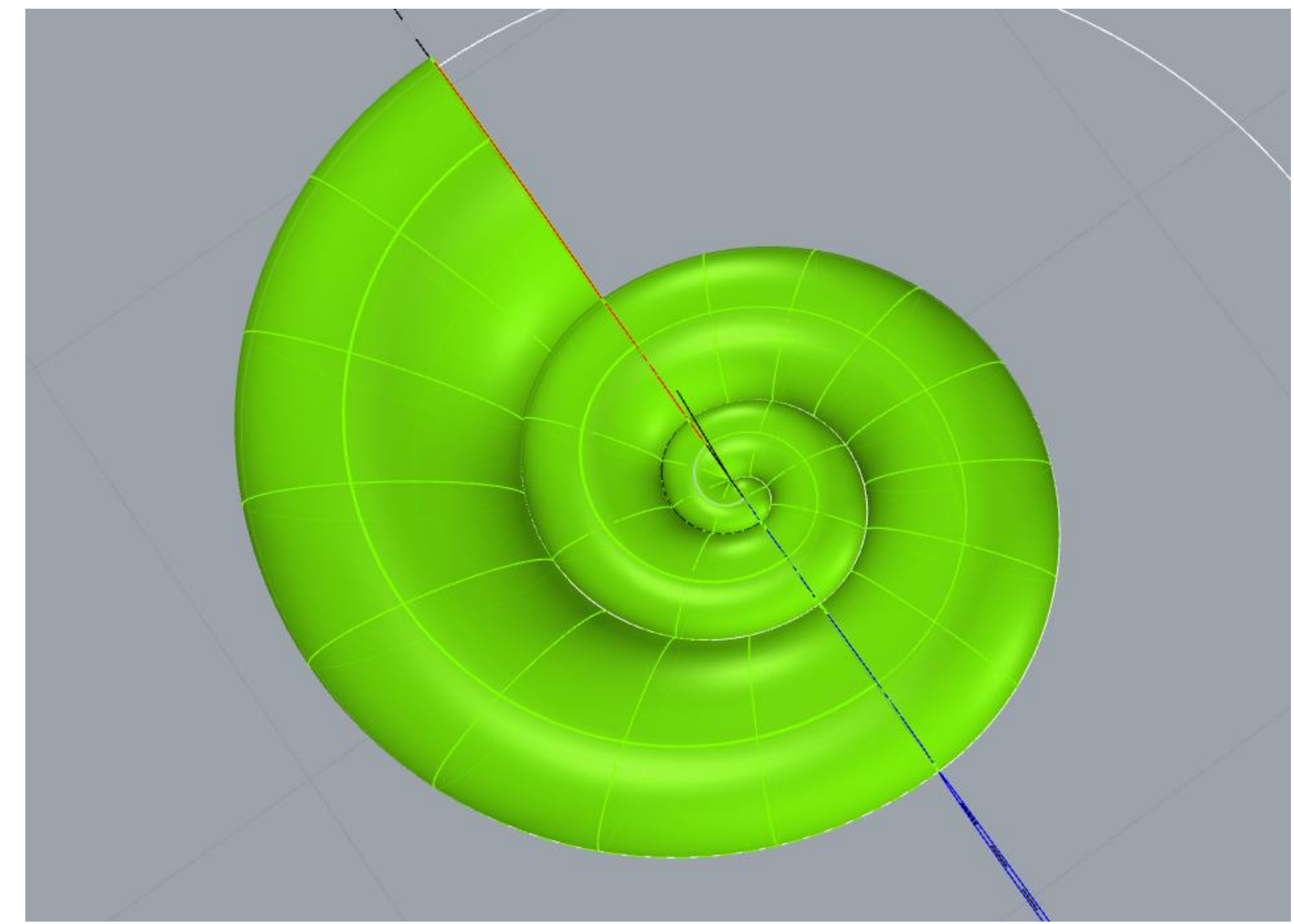
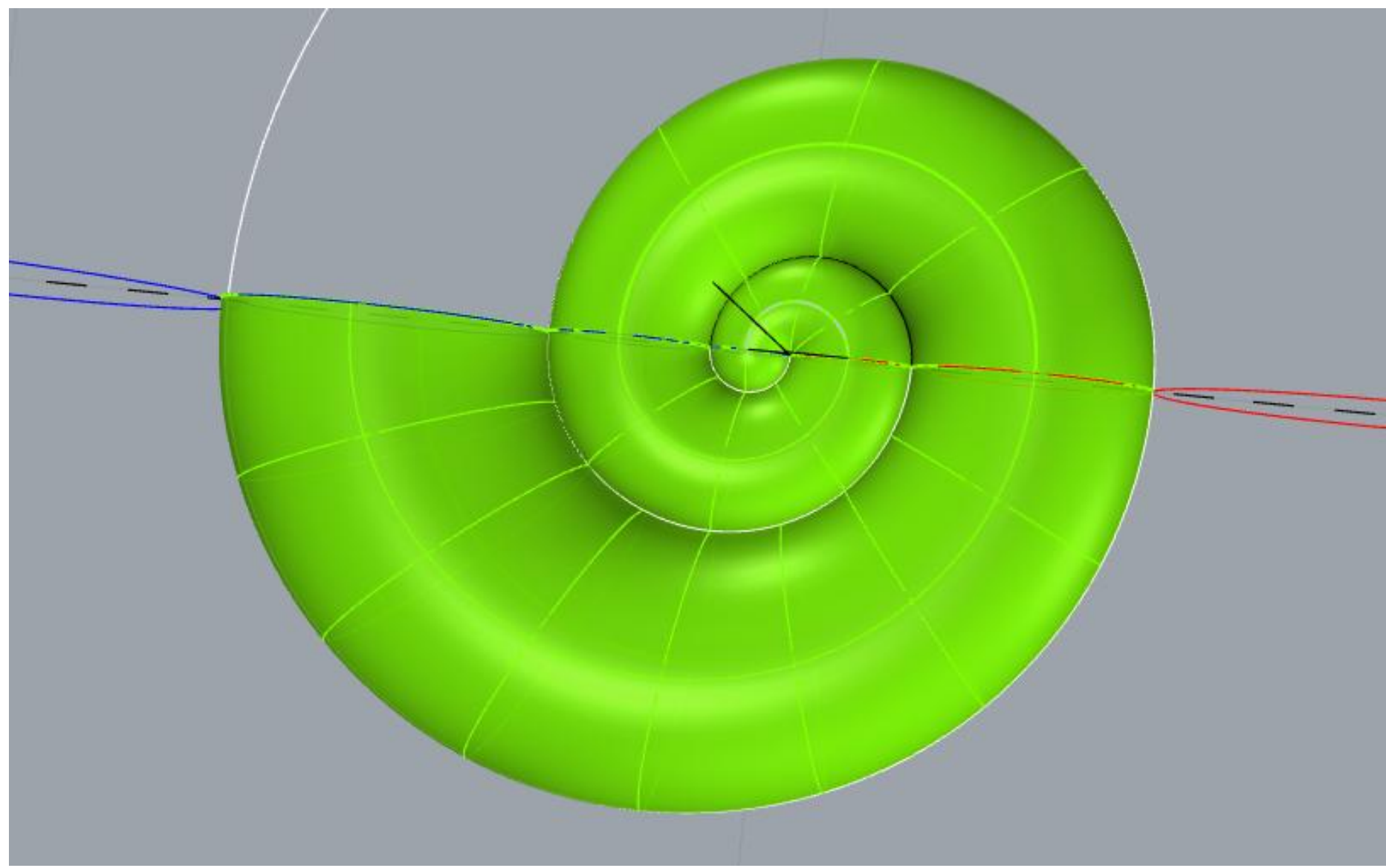
Aula 11- Planorbis



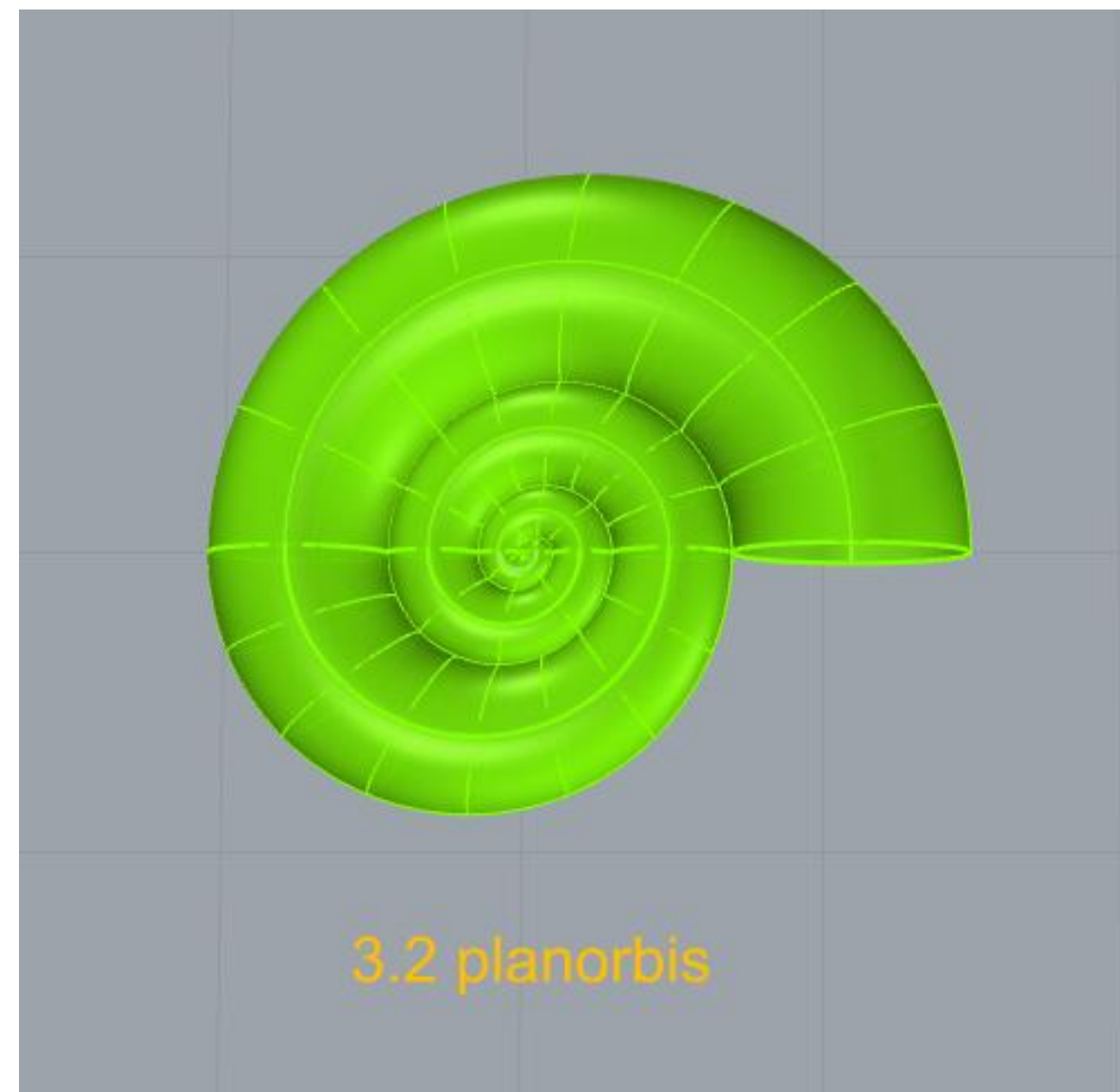
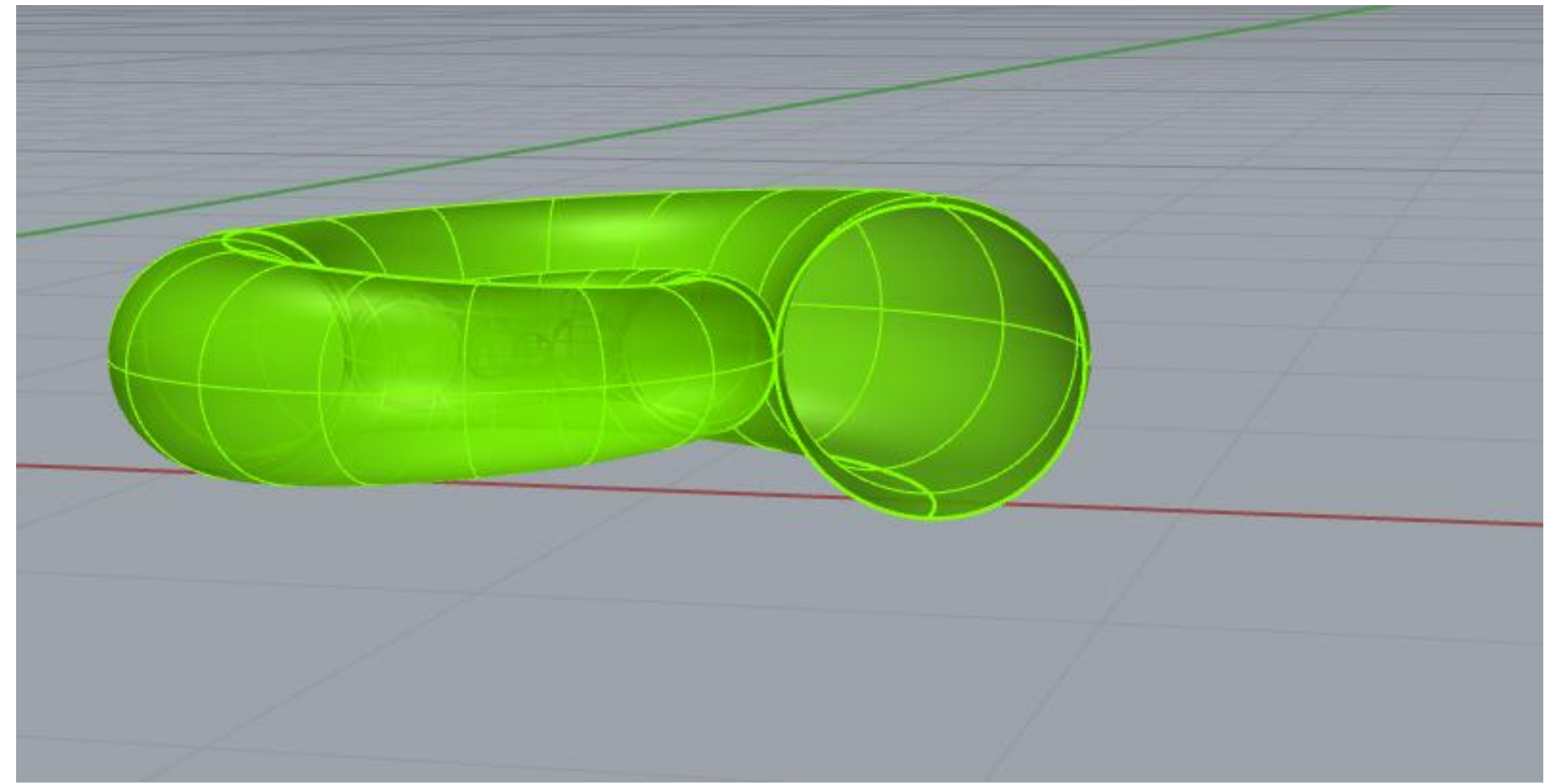
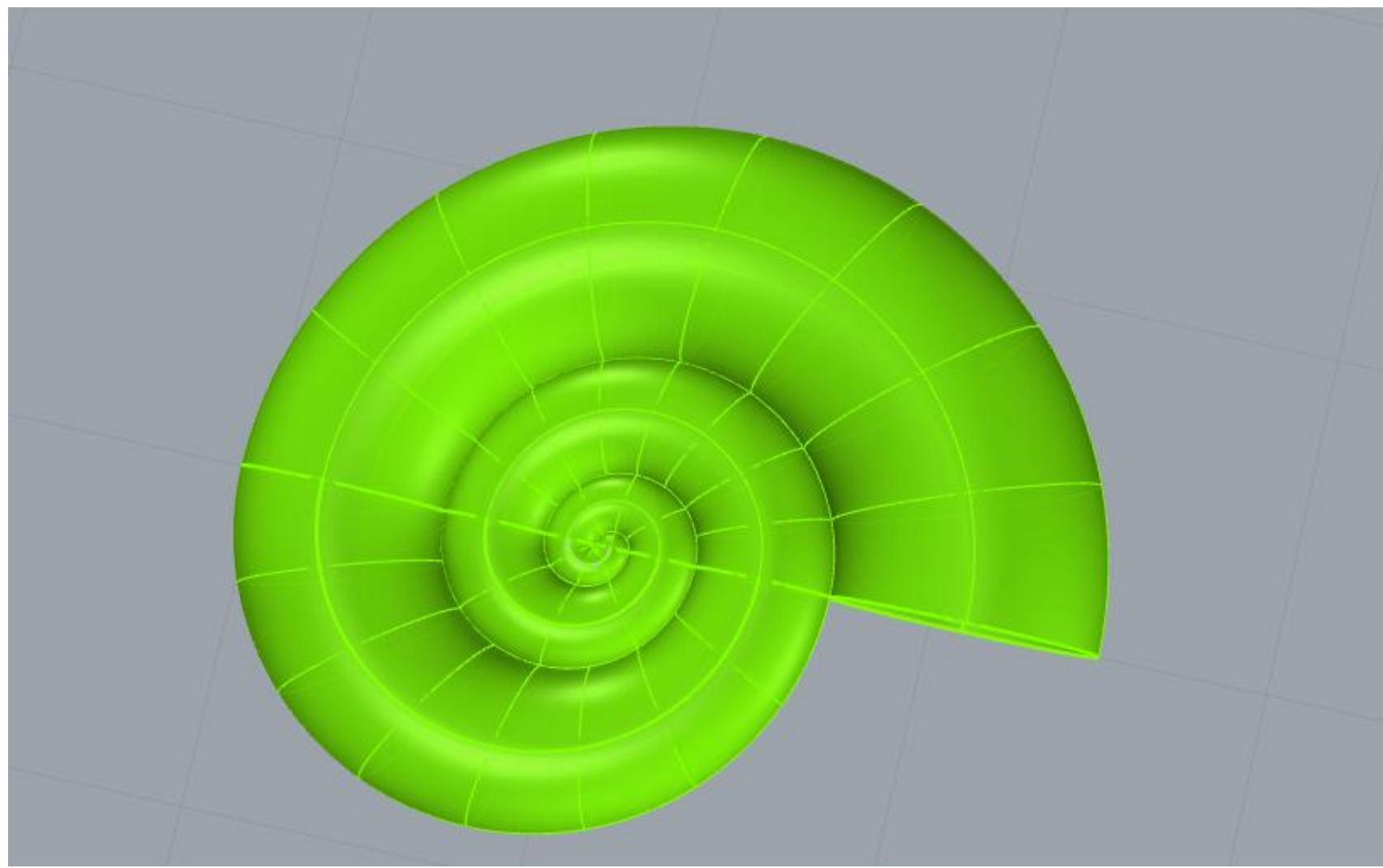
Aula 11- Planorbis



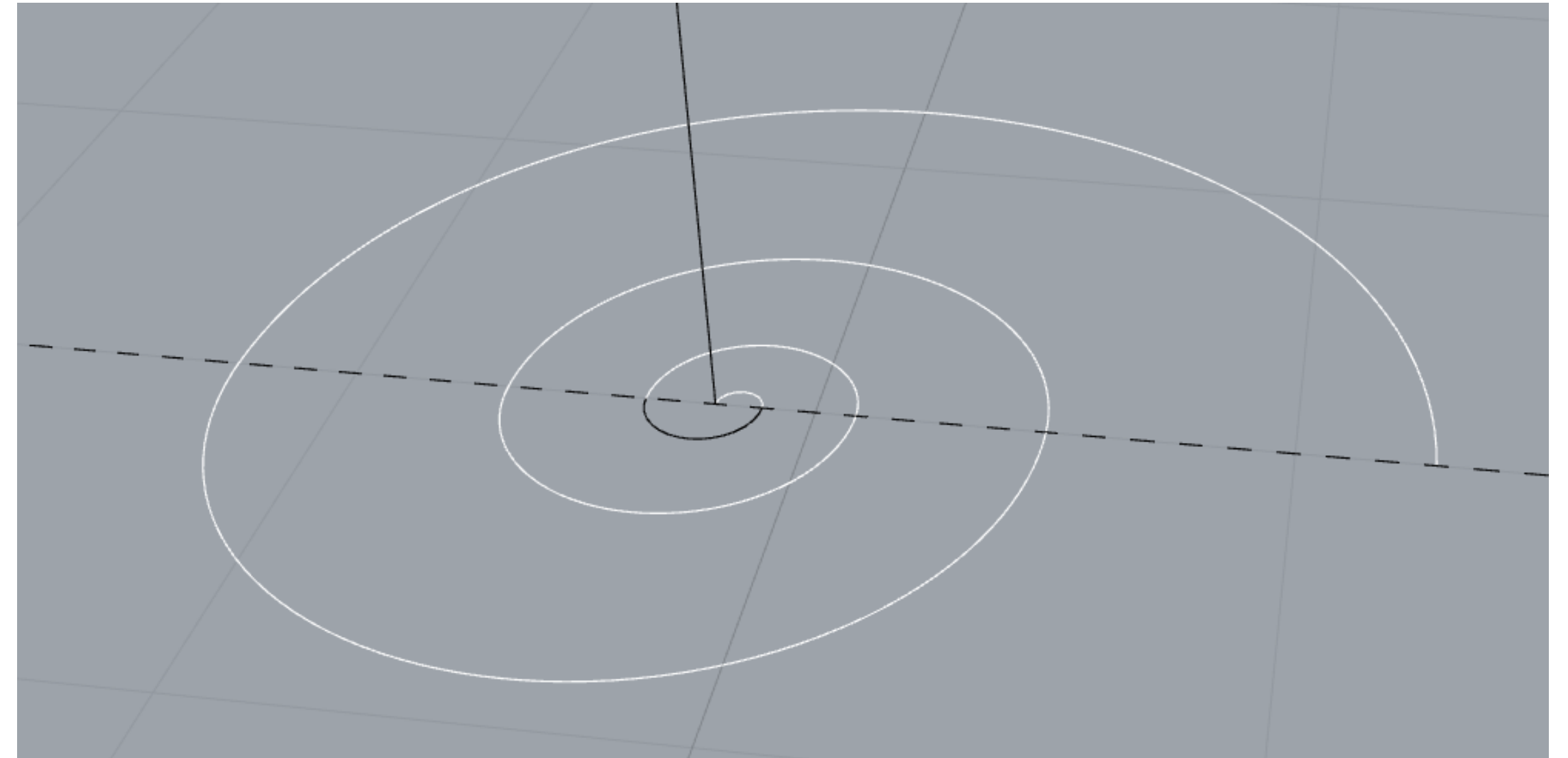
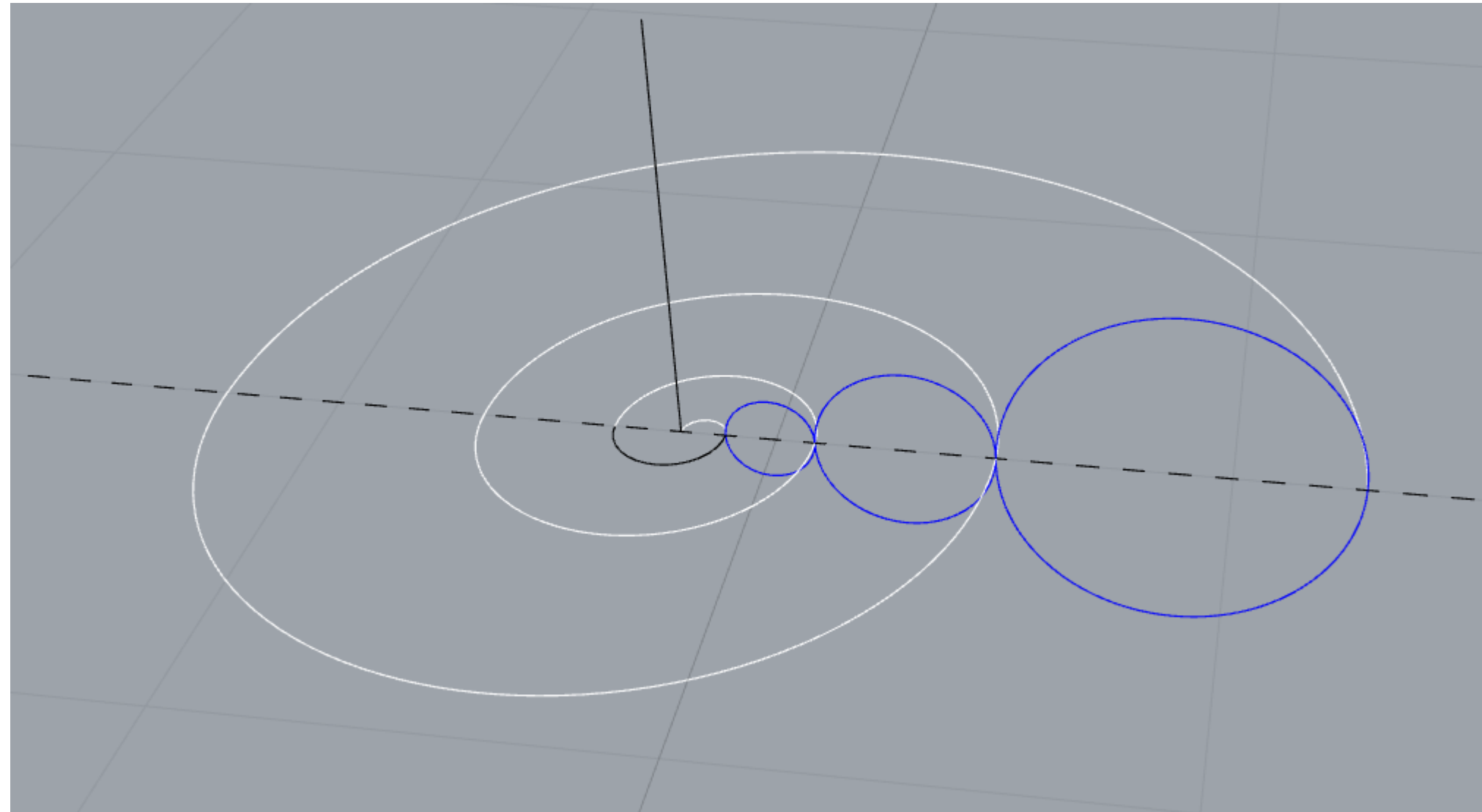
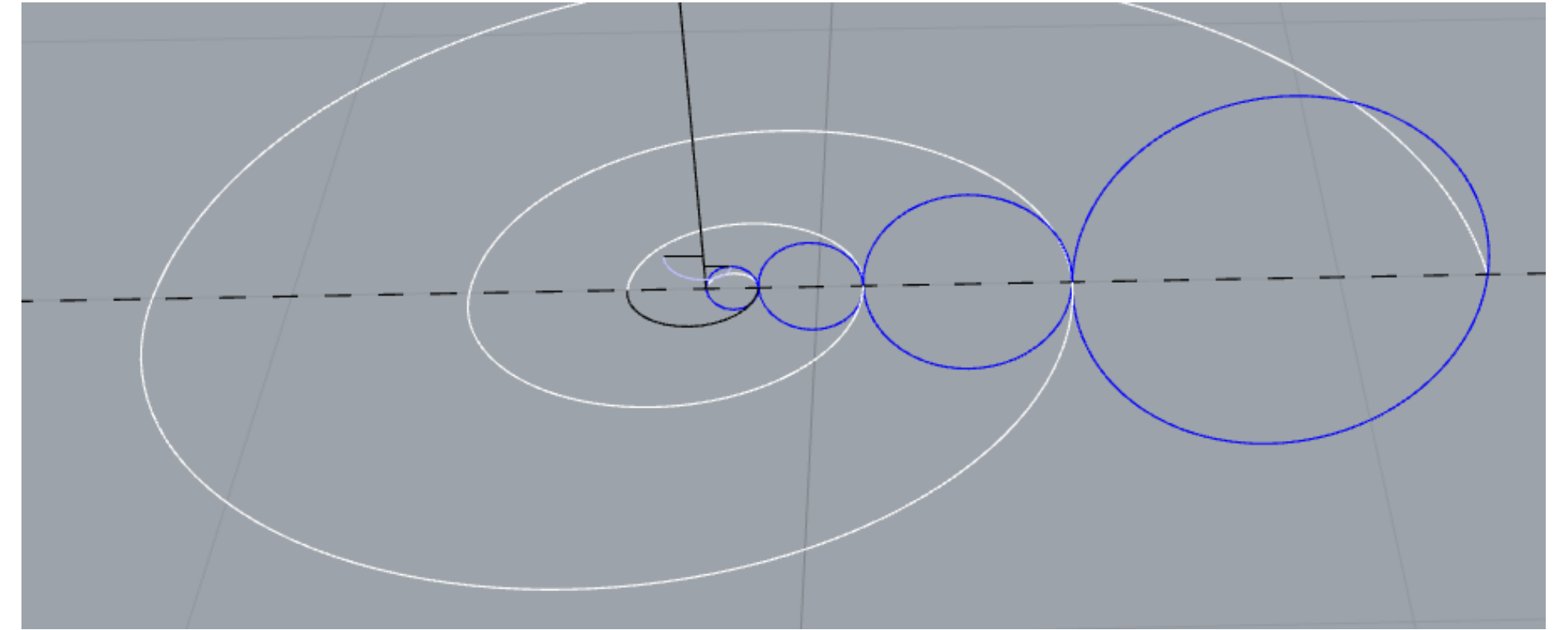
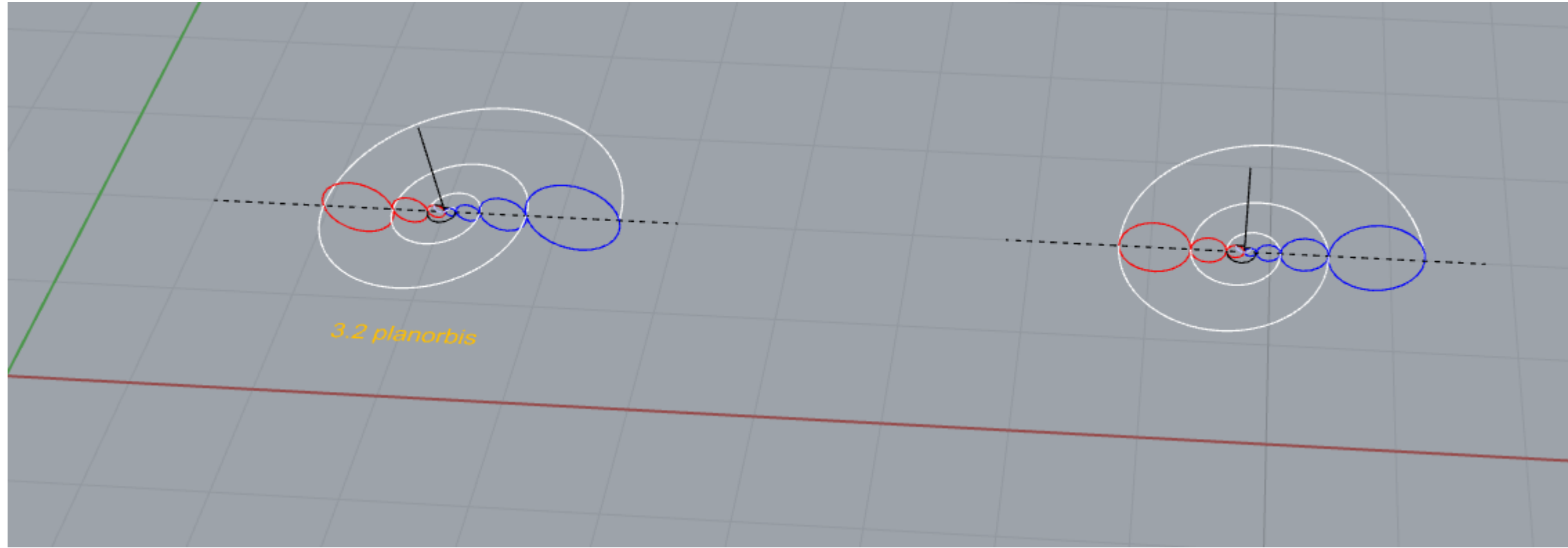
Aula 11- Planorbis



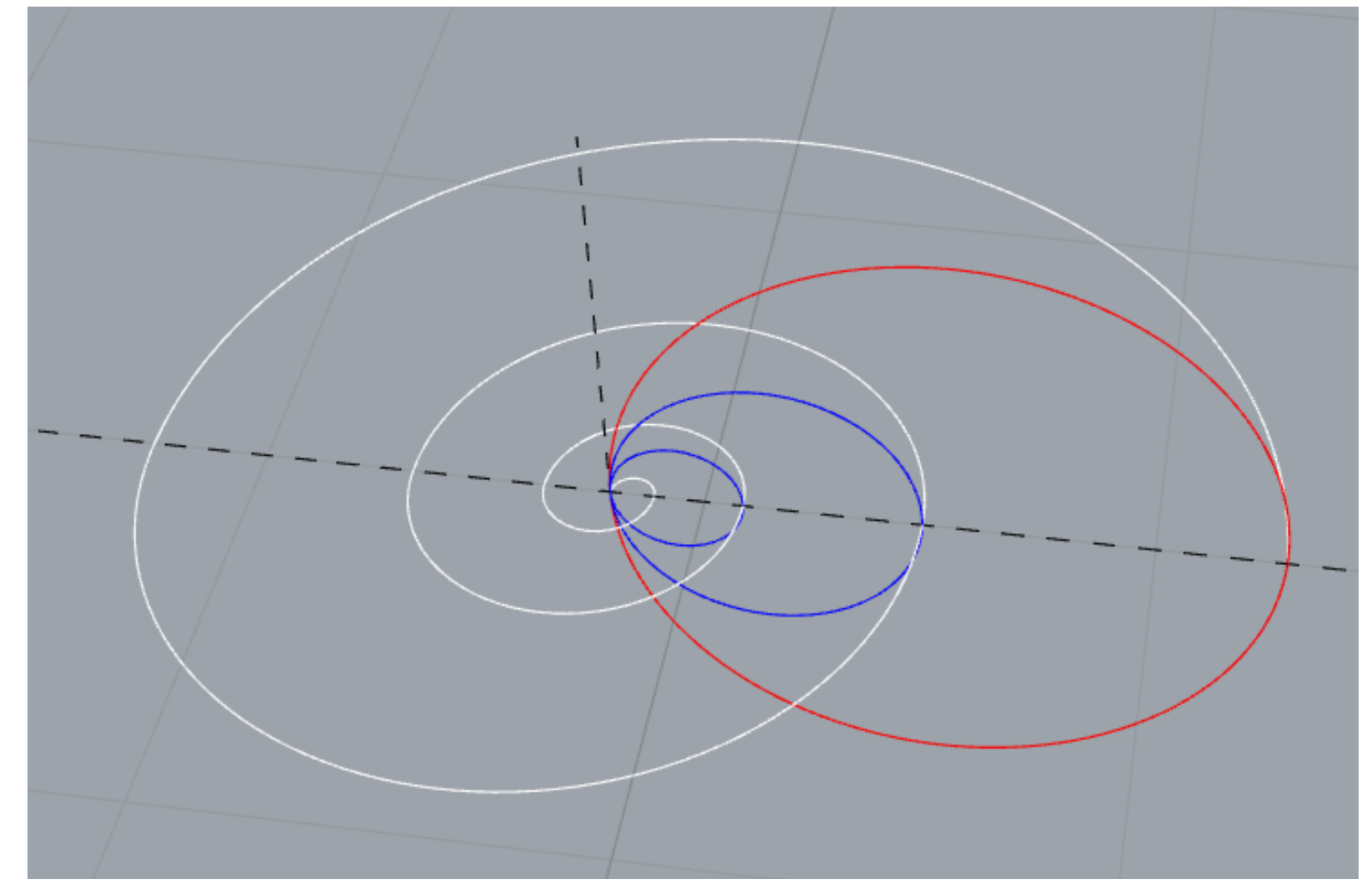
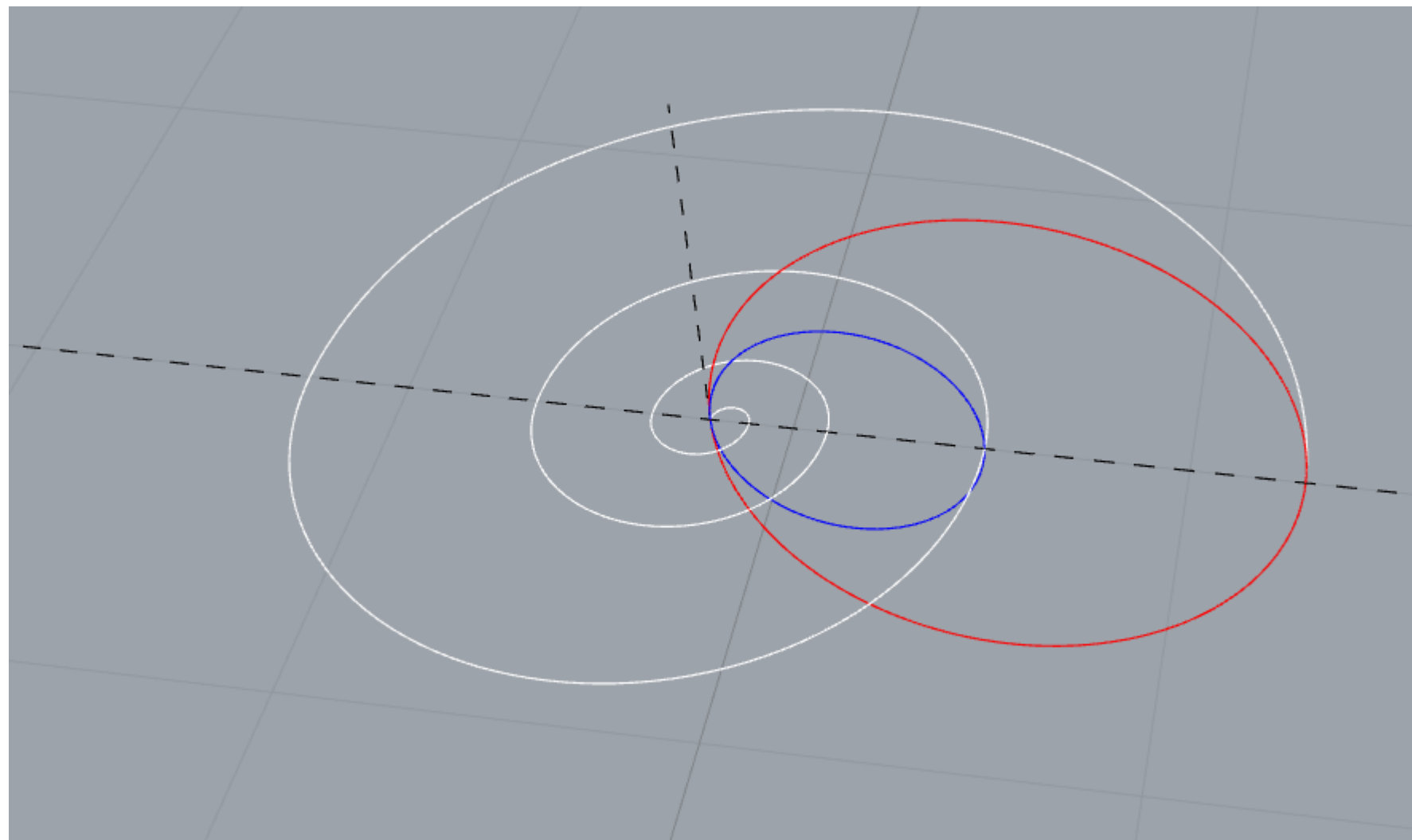
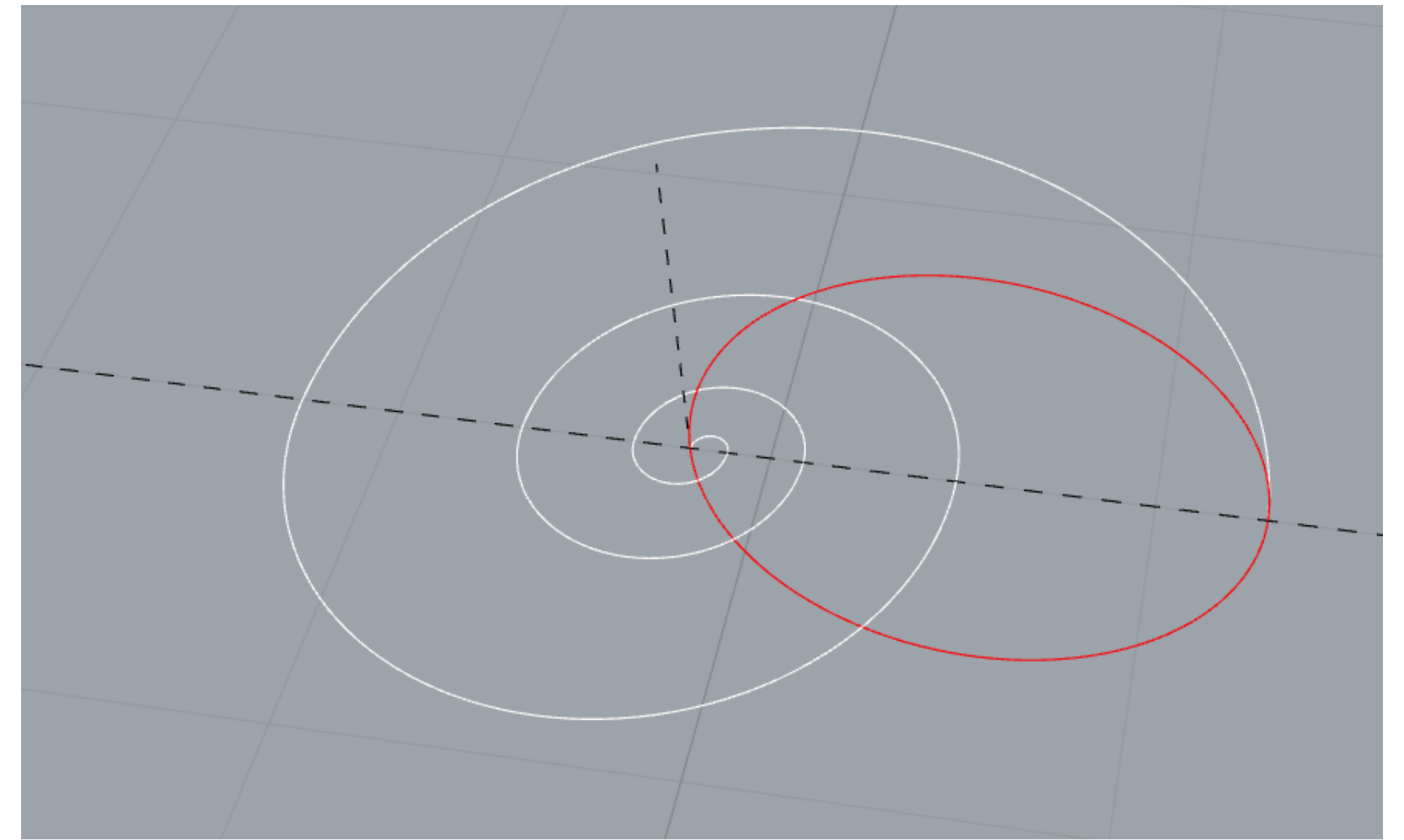
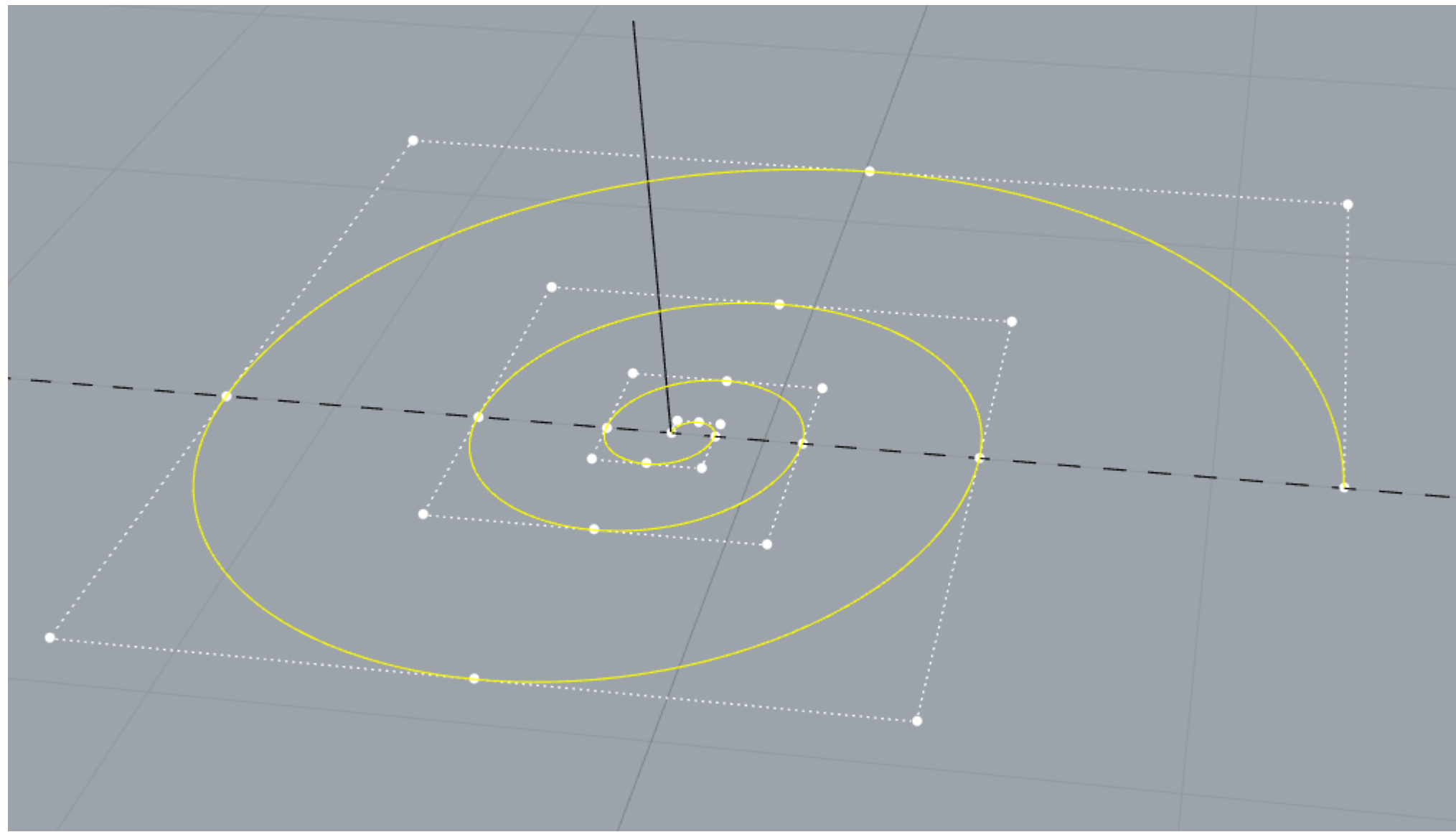
Aula 11- Planorbis



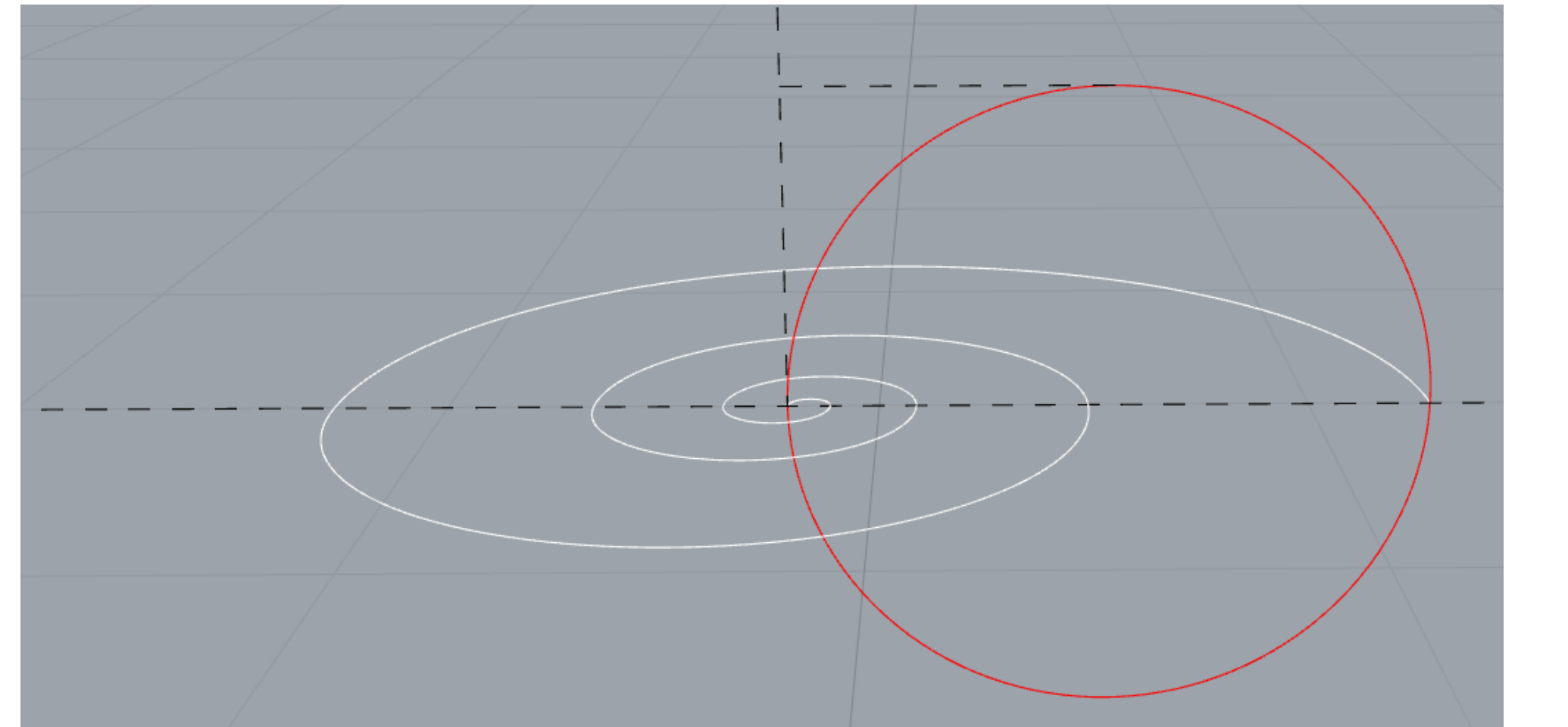
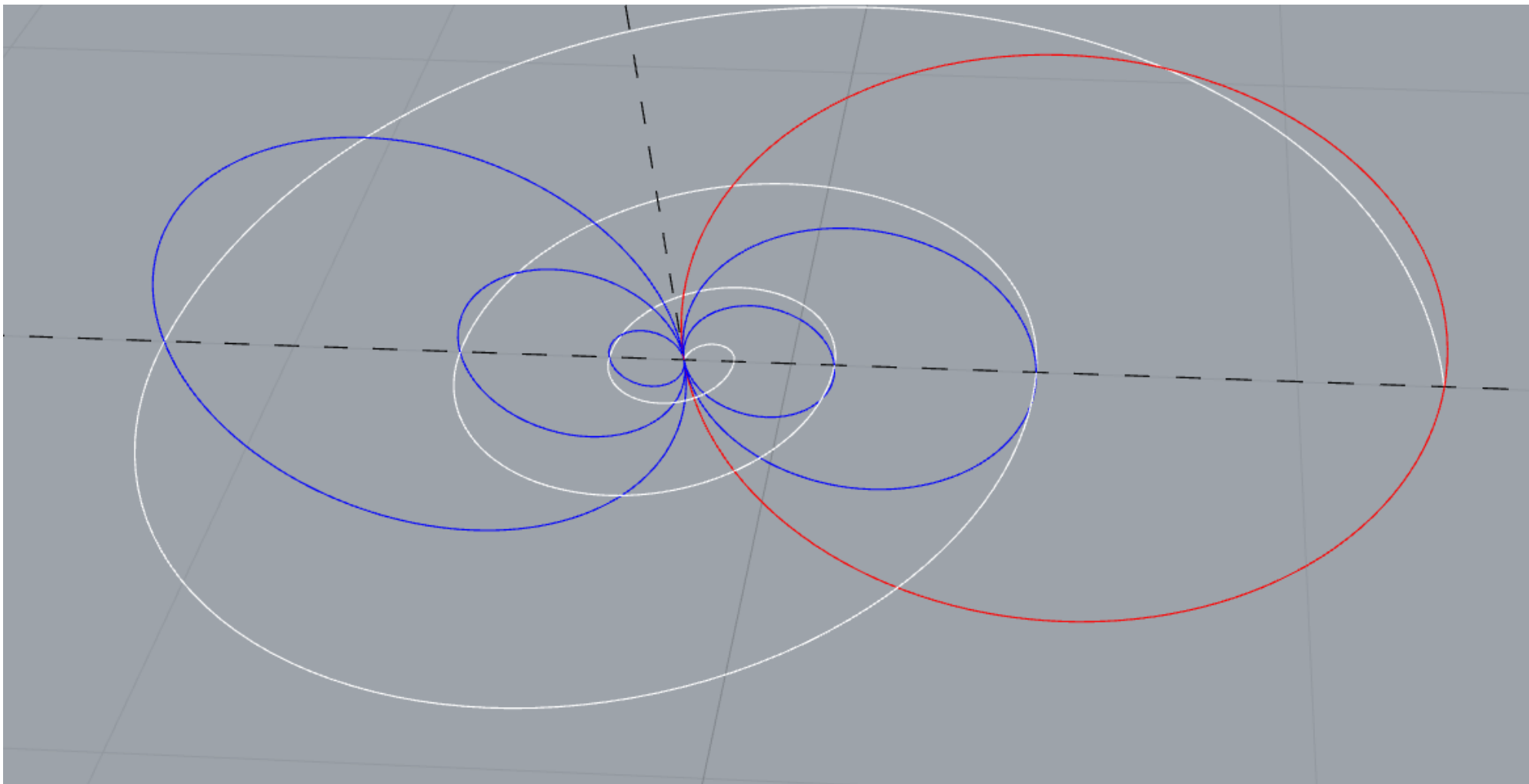
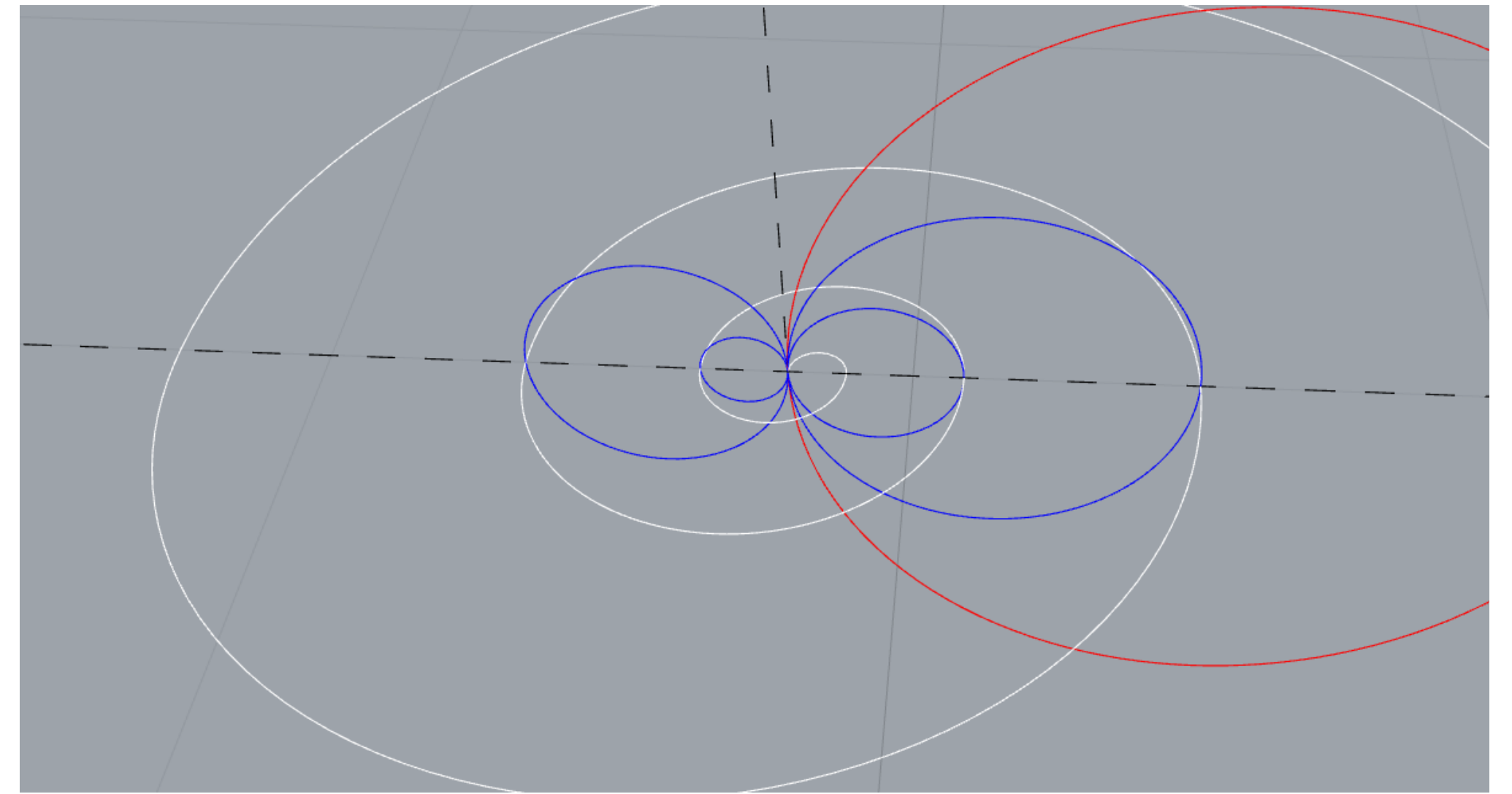
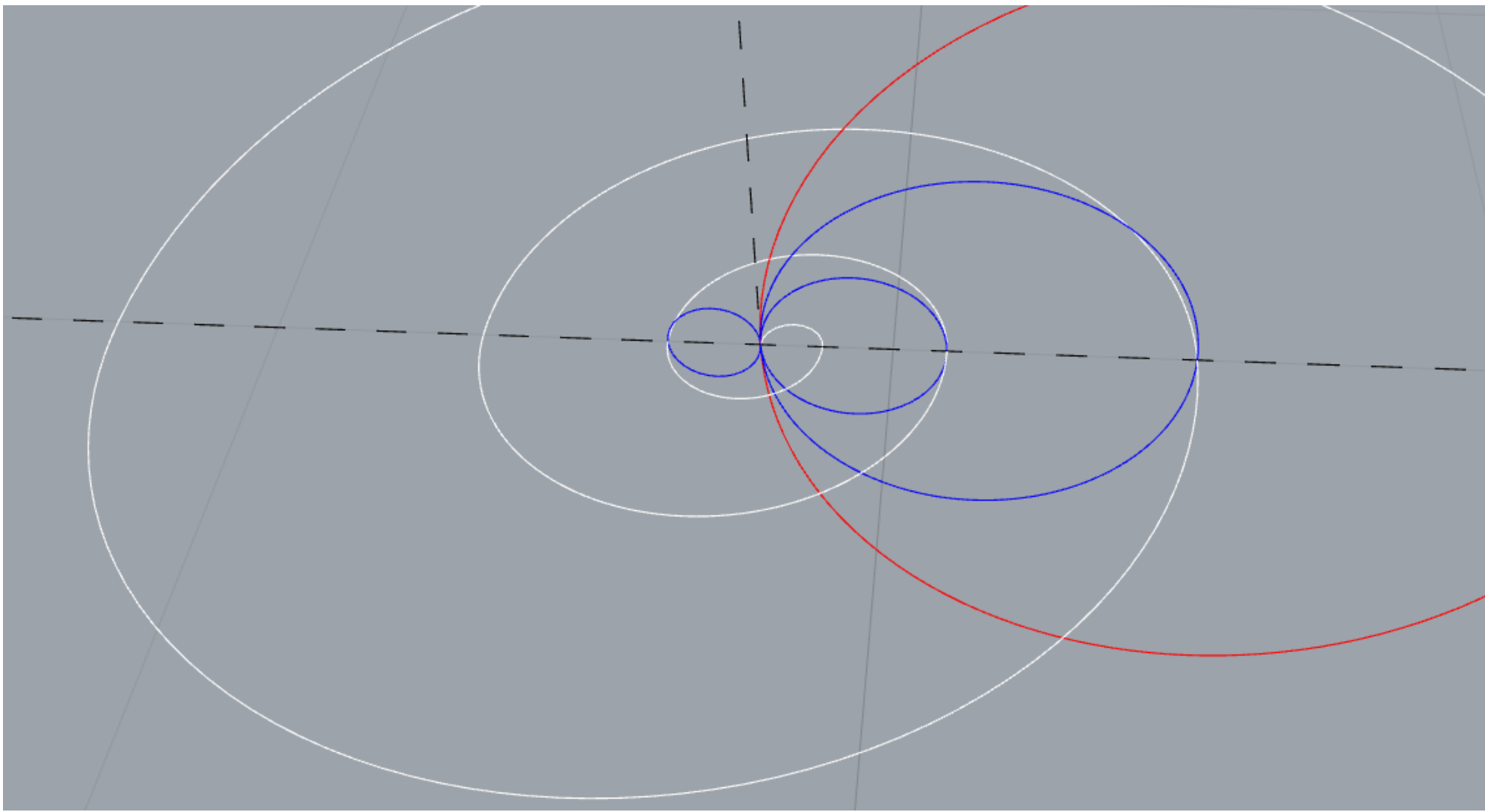
Aula 11- Planorbis



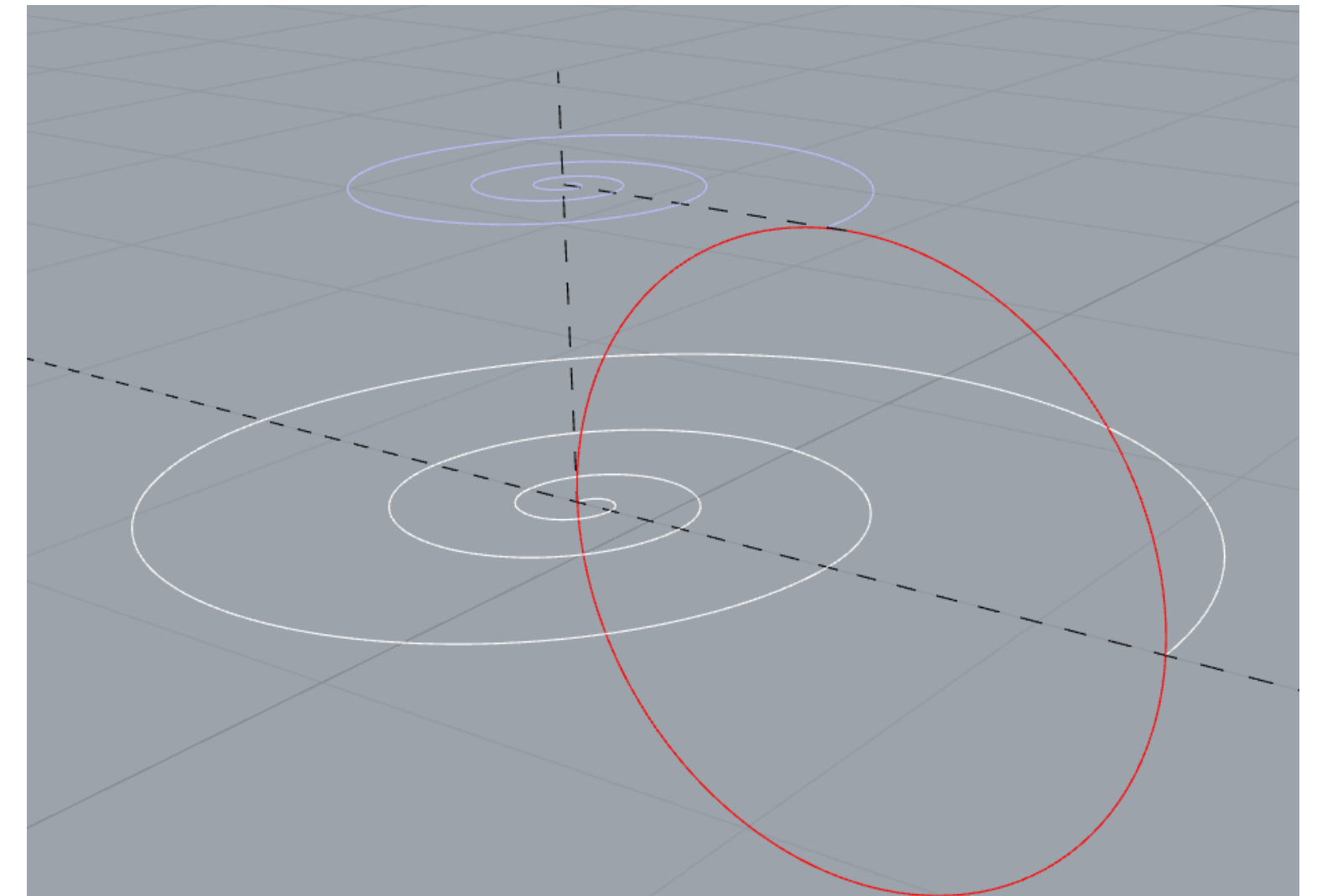
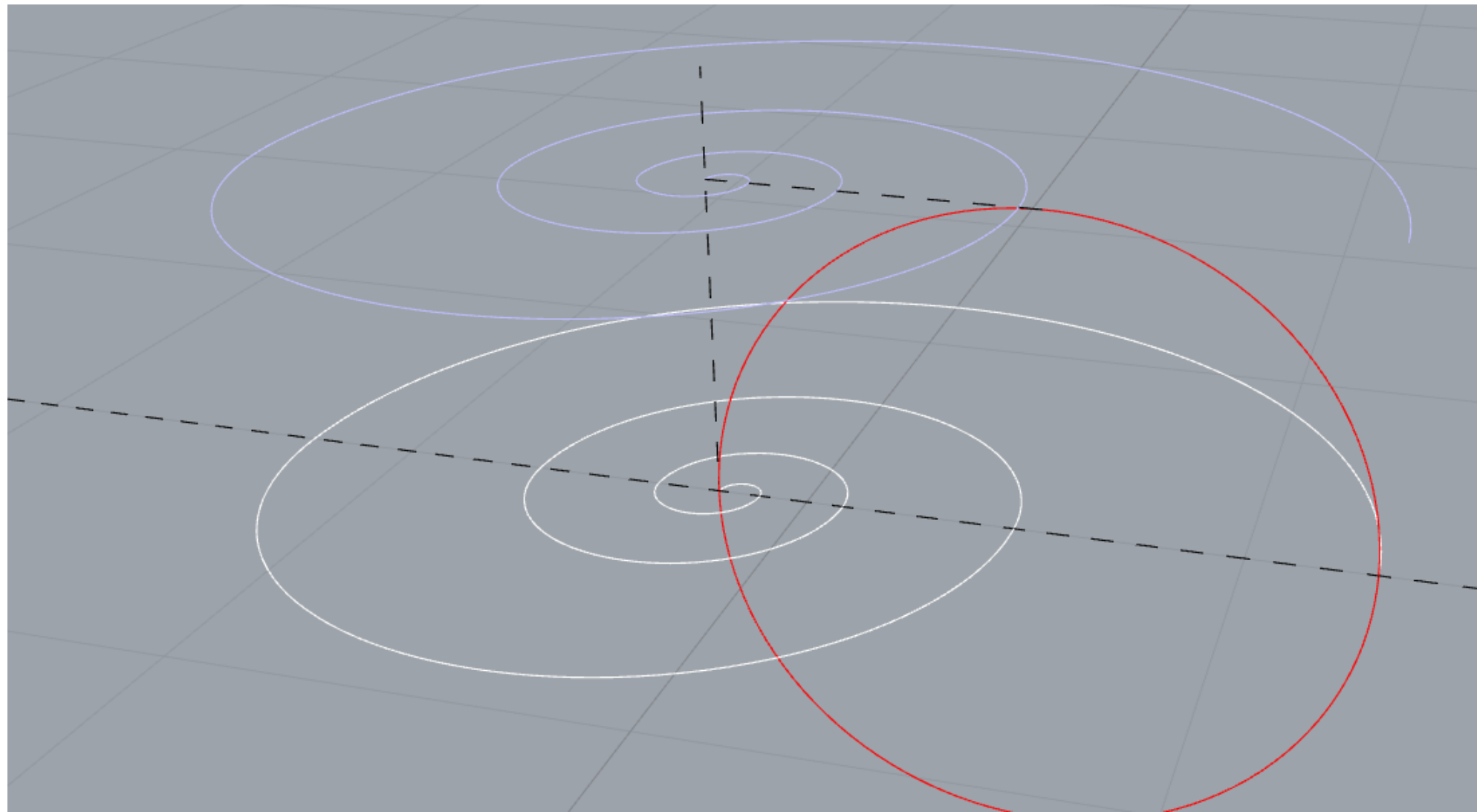
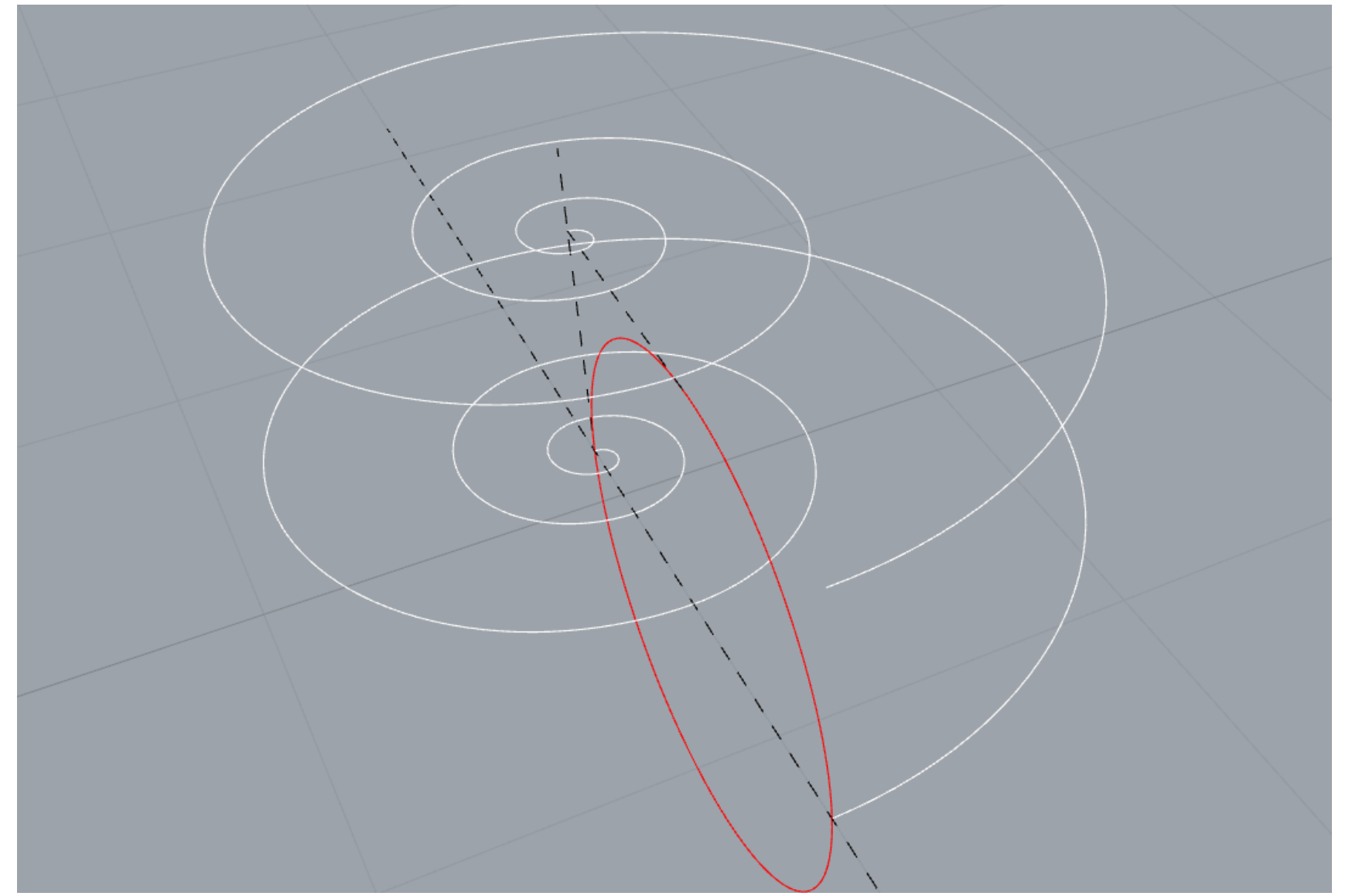
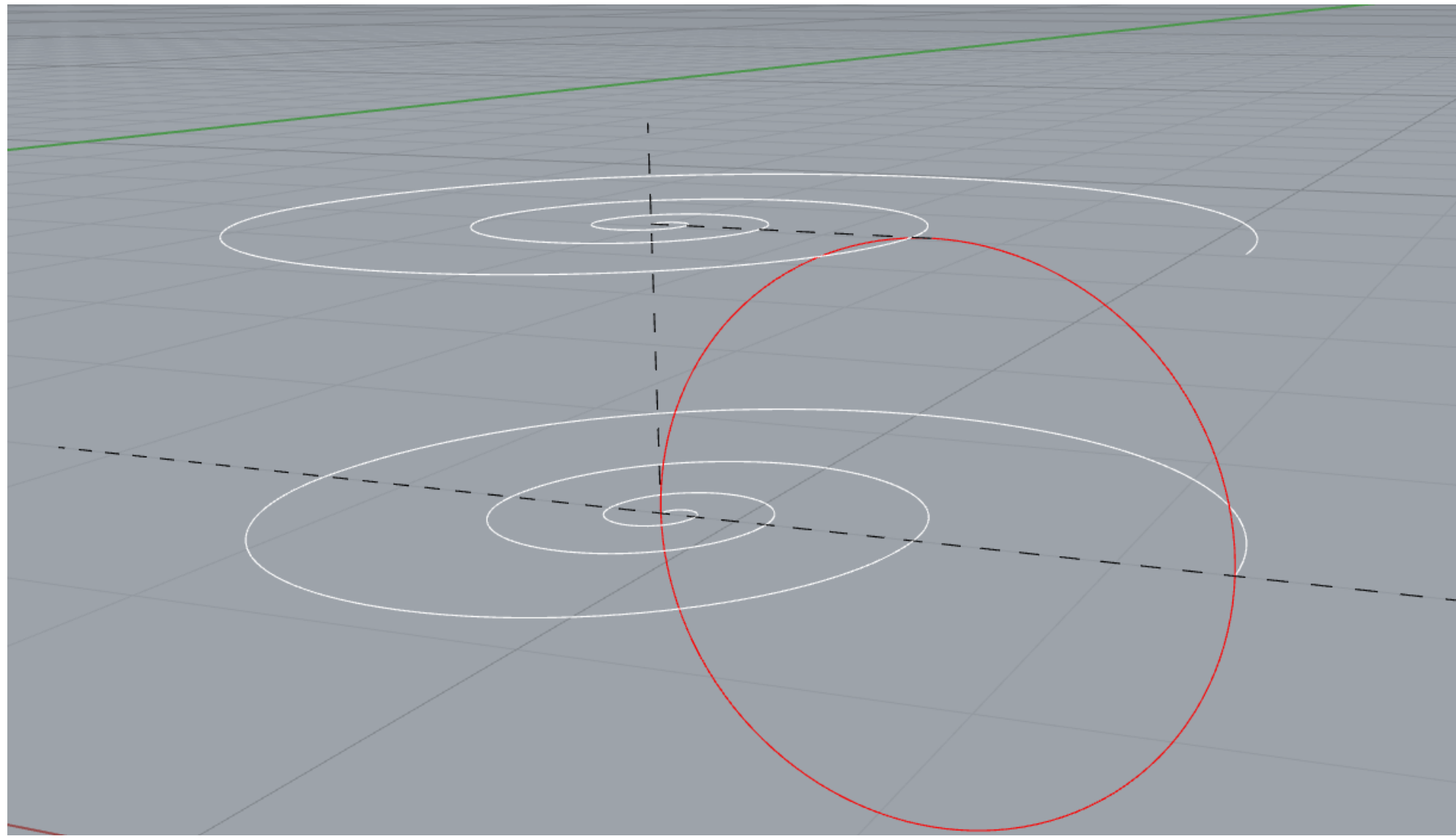
Aula 11- Nautilus



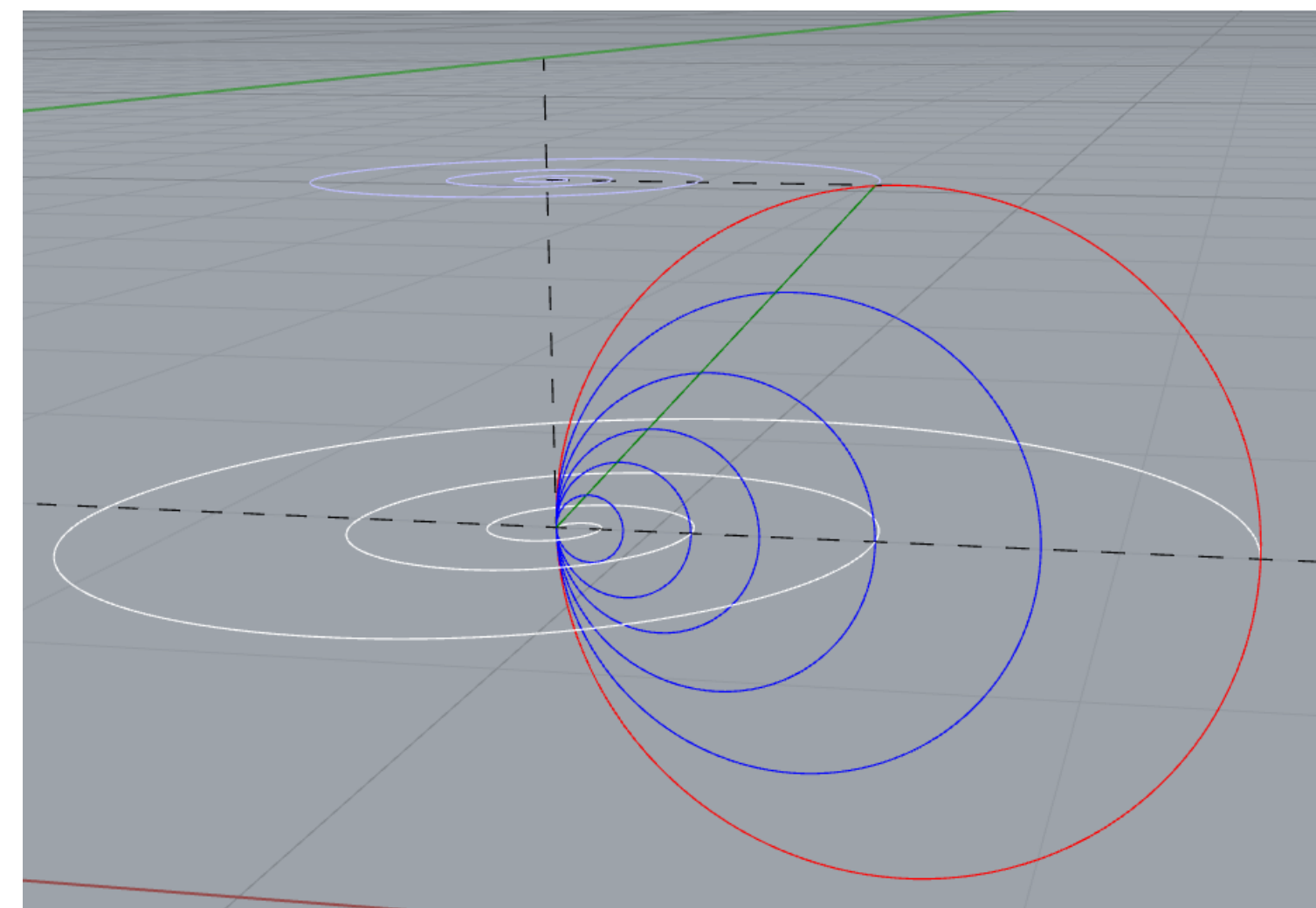
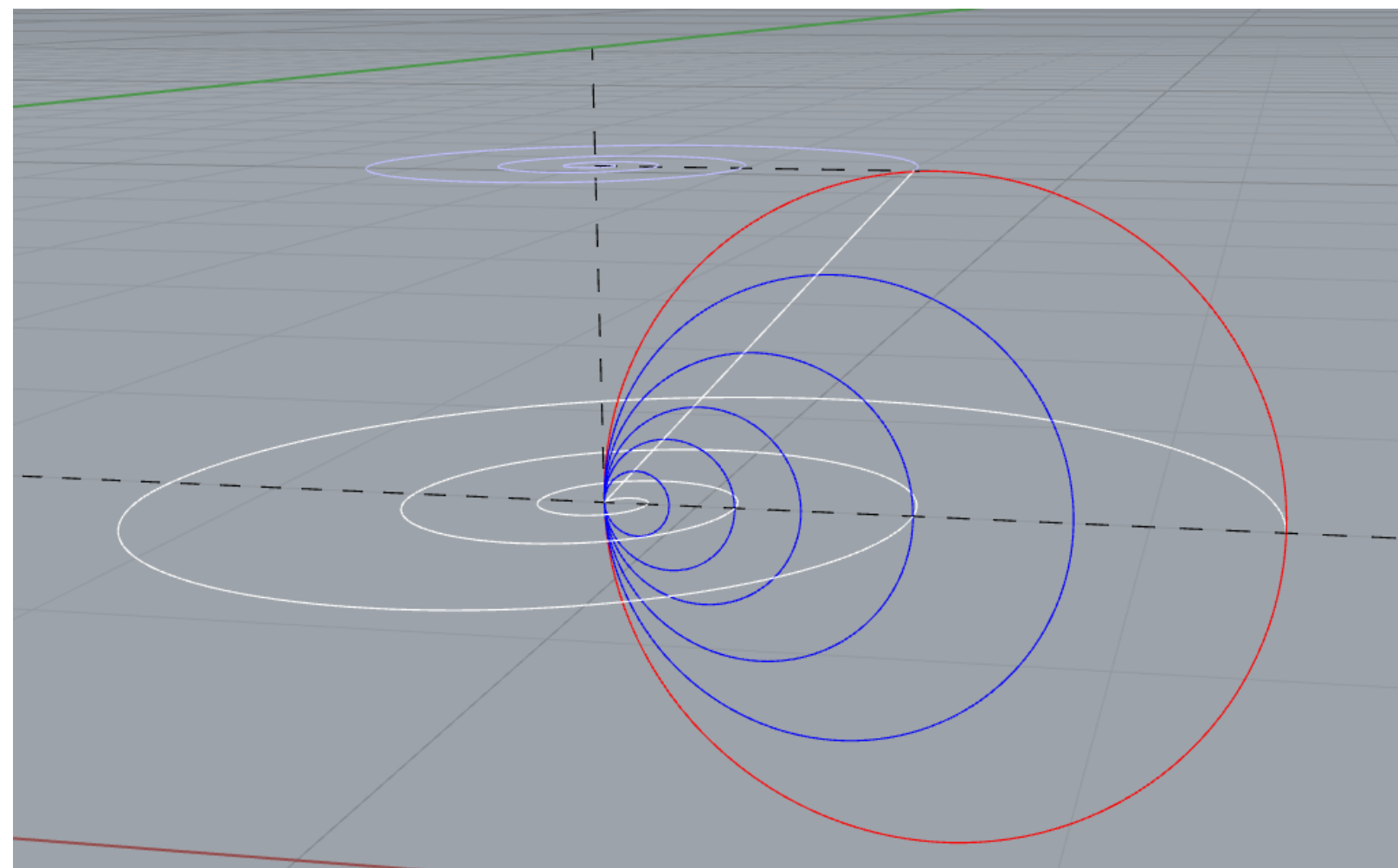
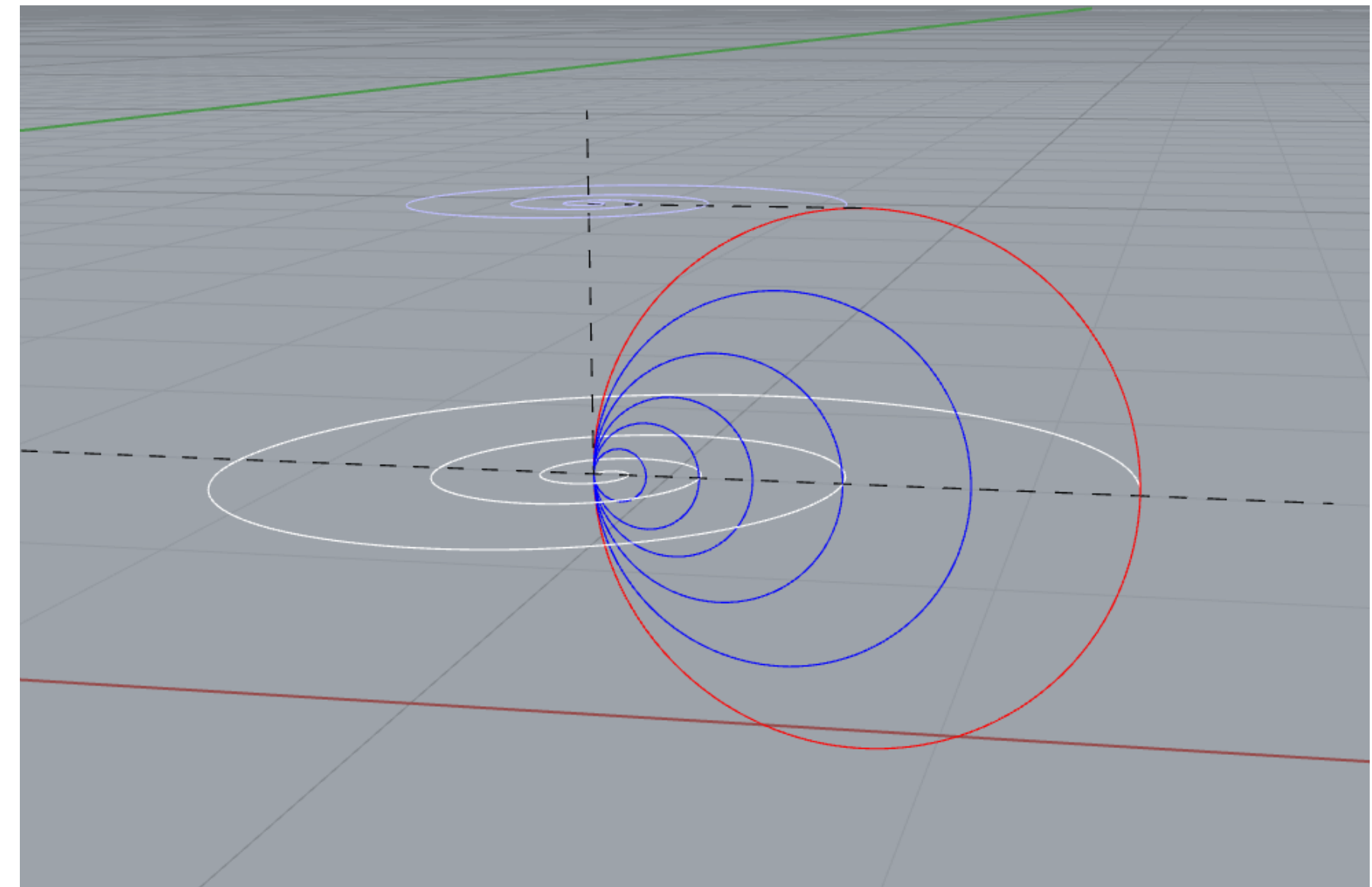
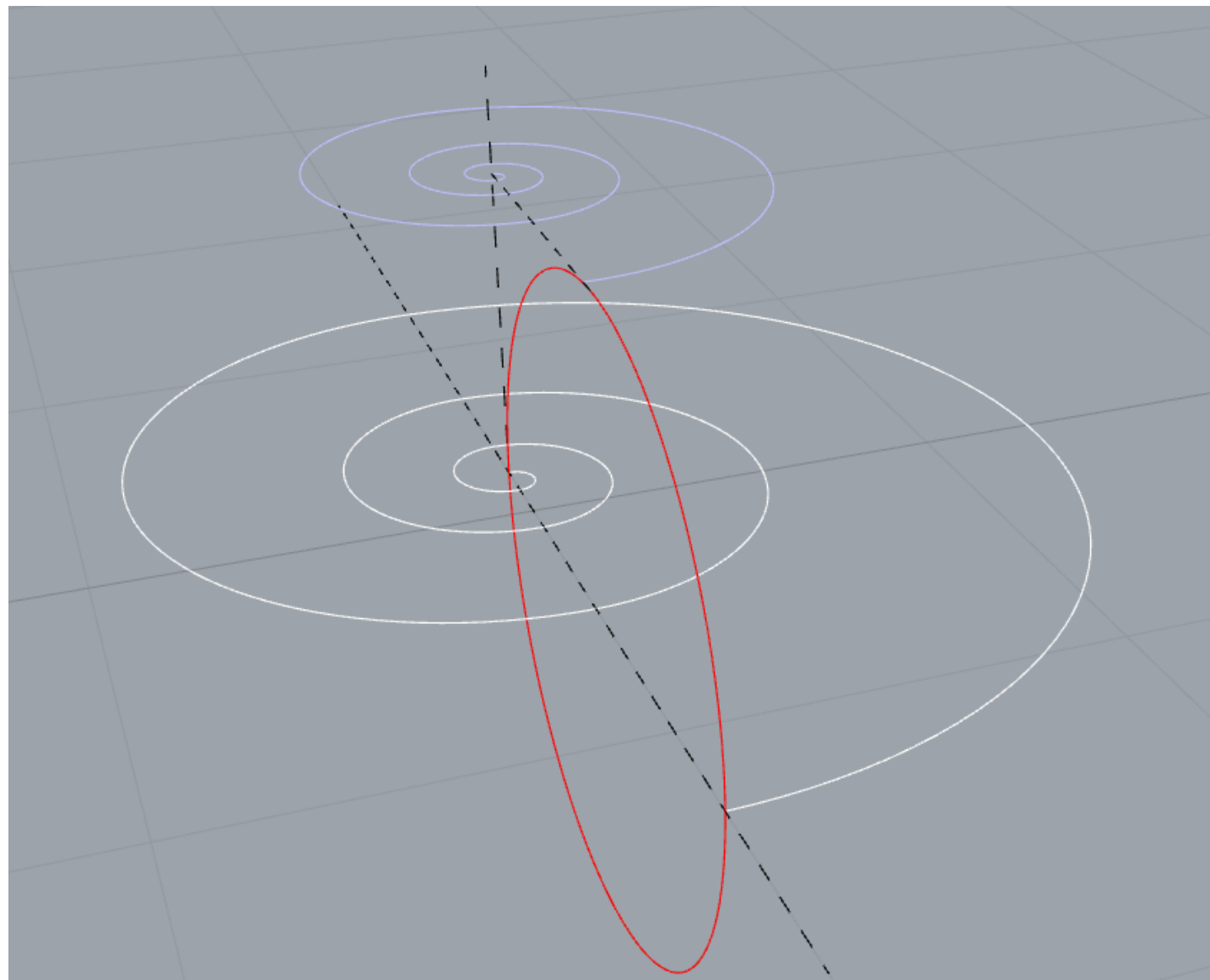
Aula 11- Nautilus



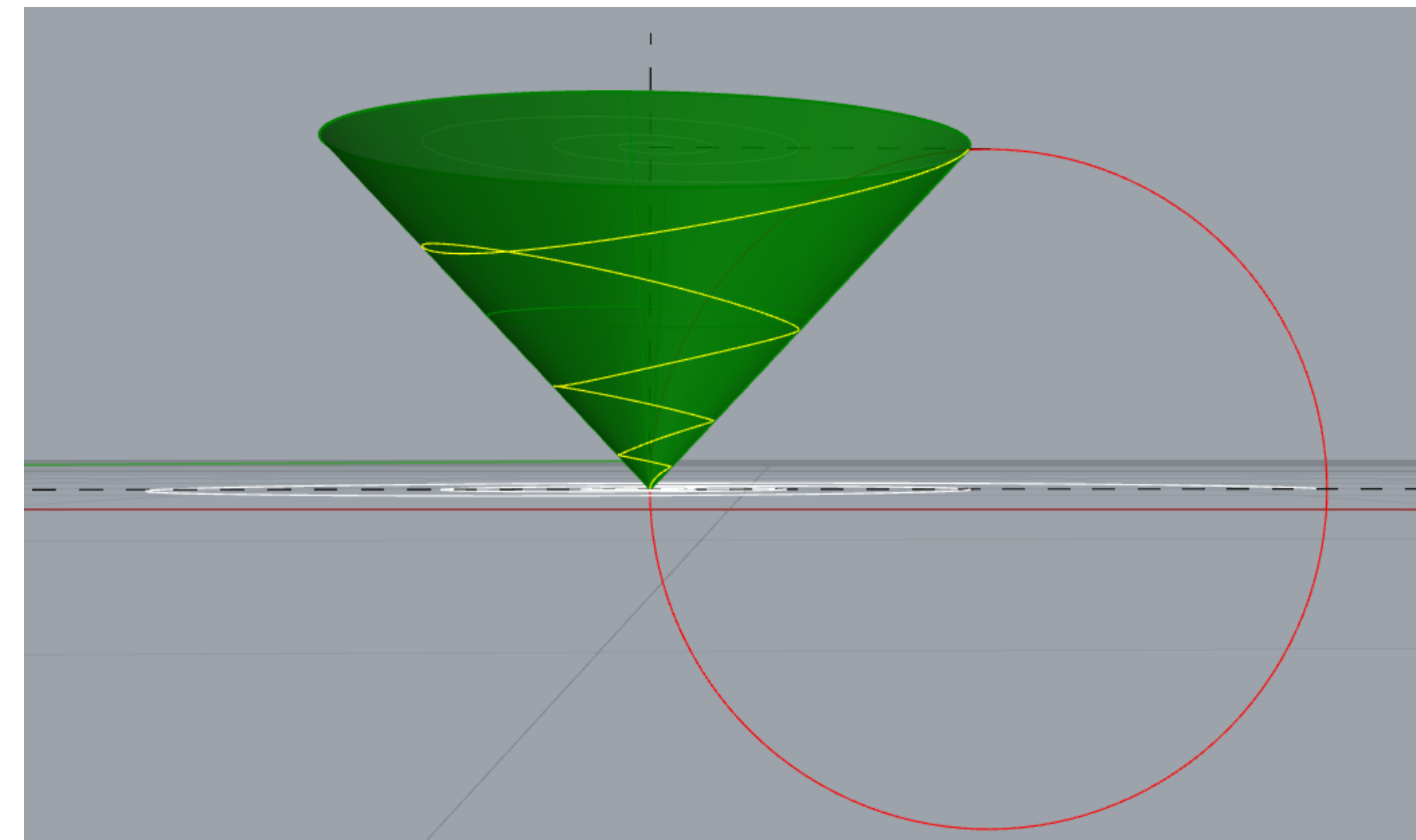
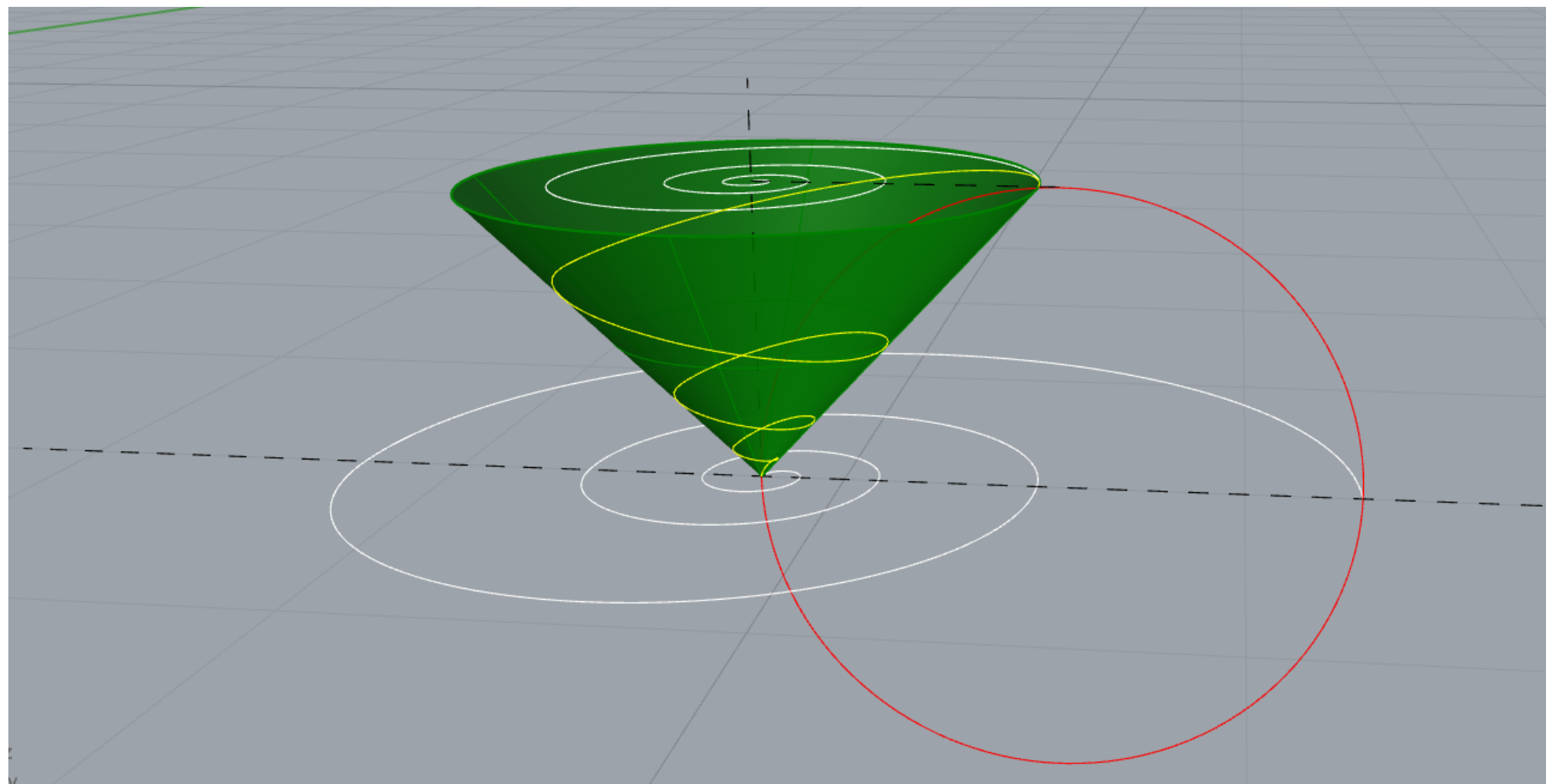
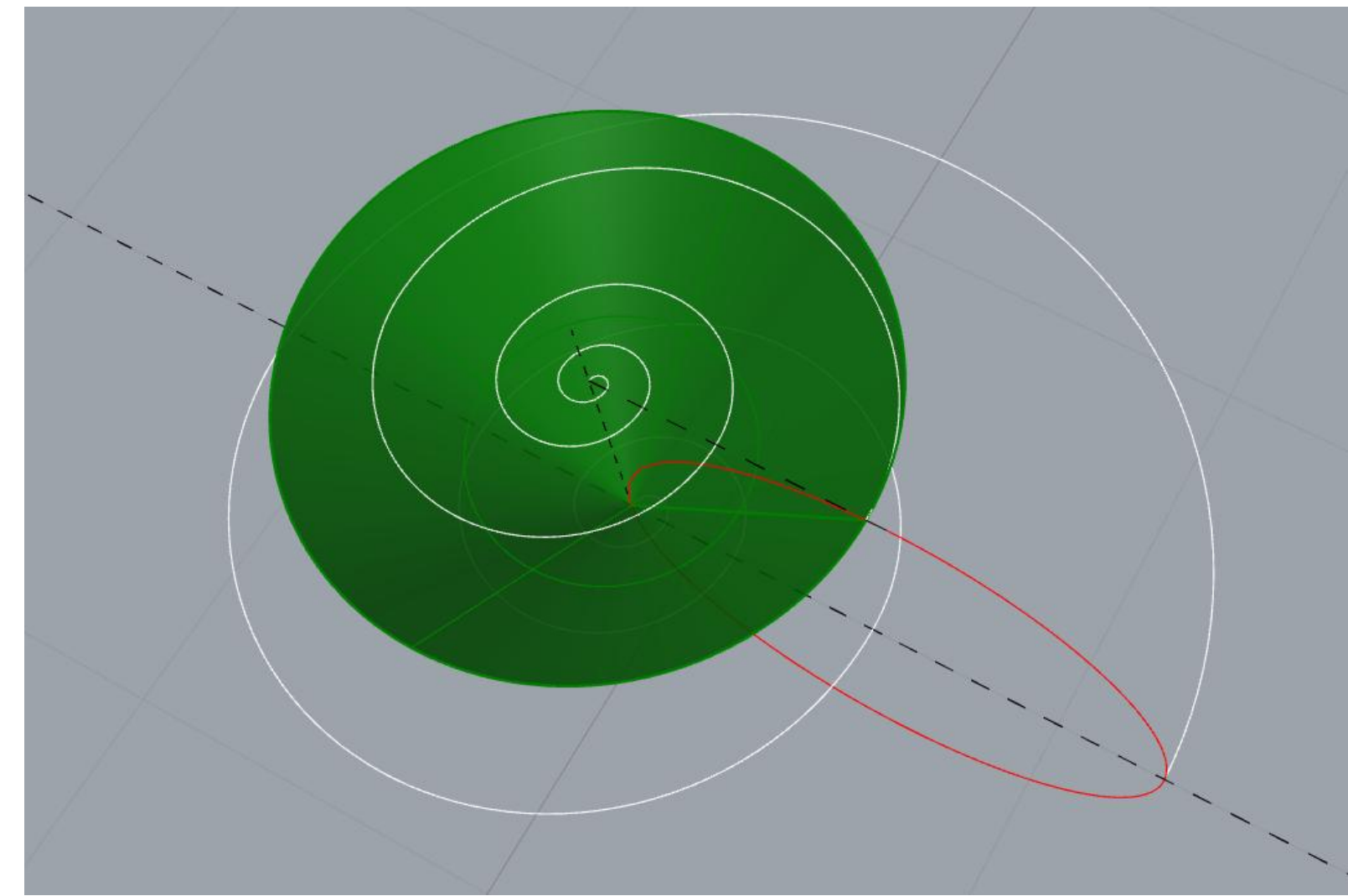
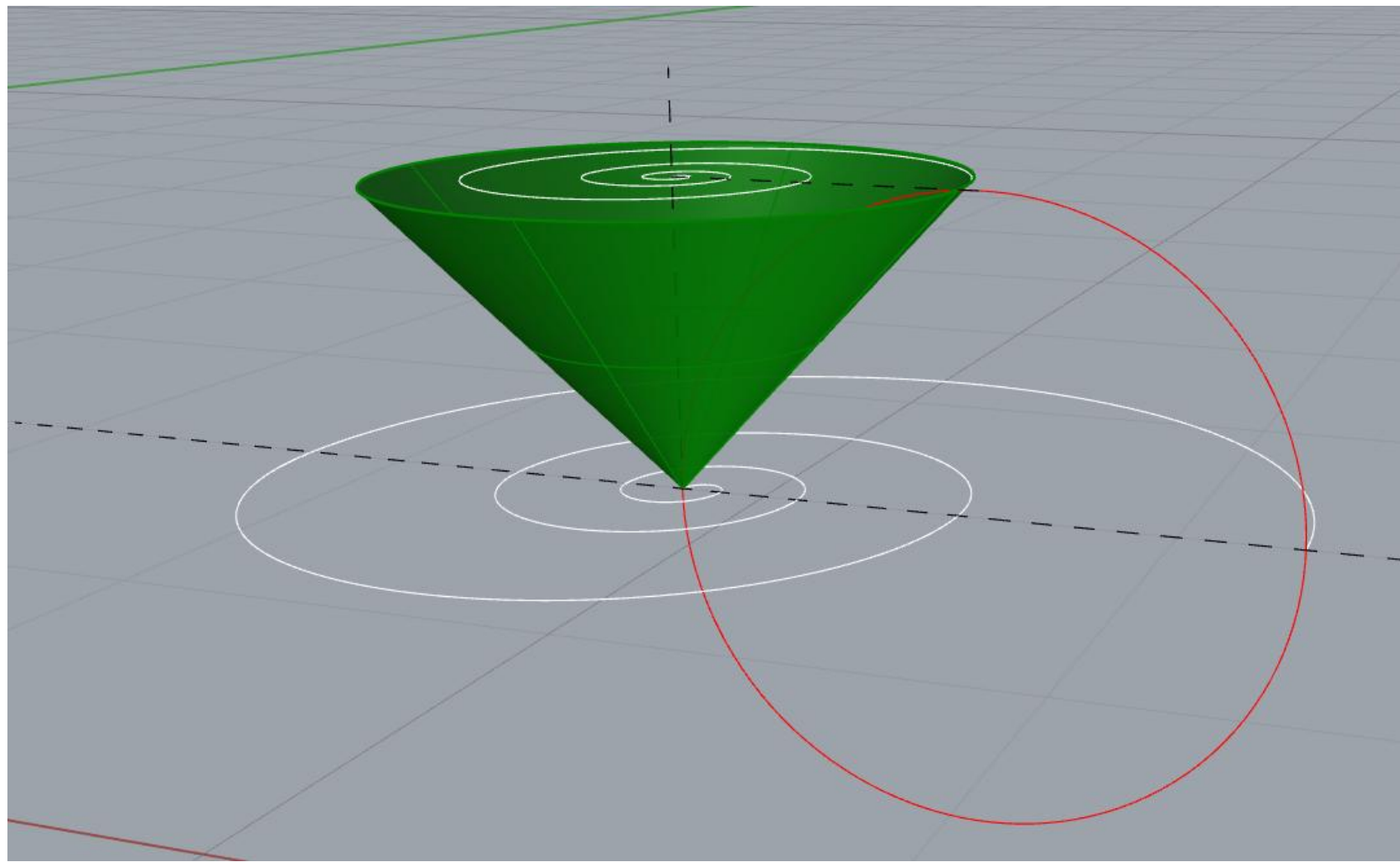
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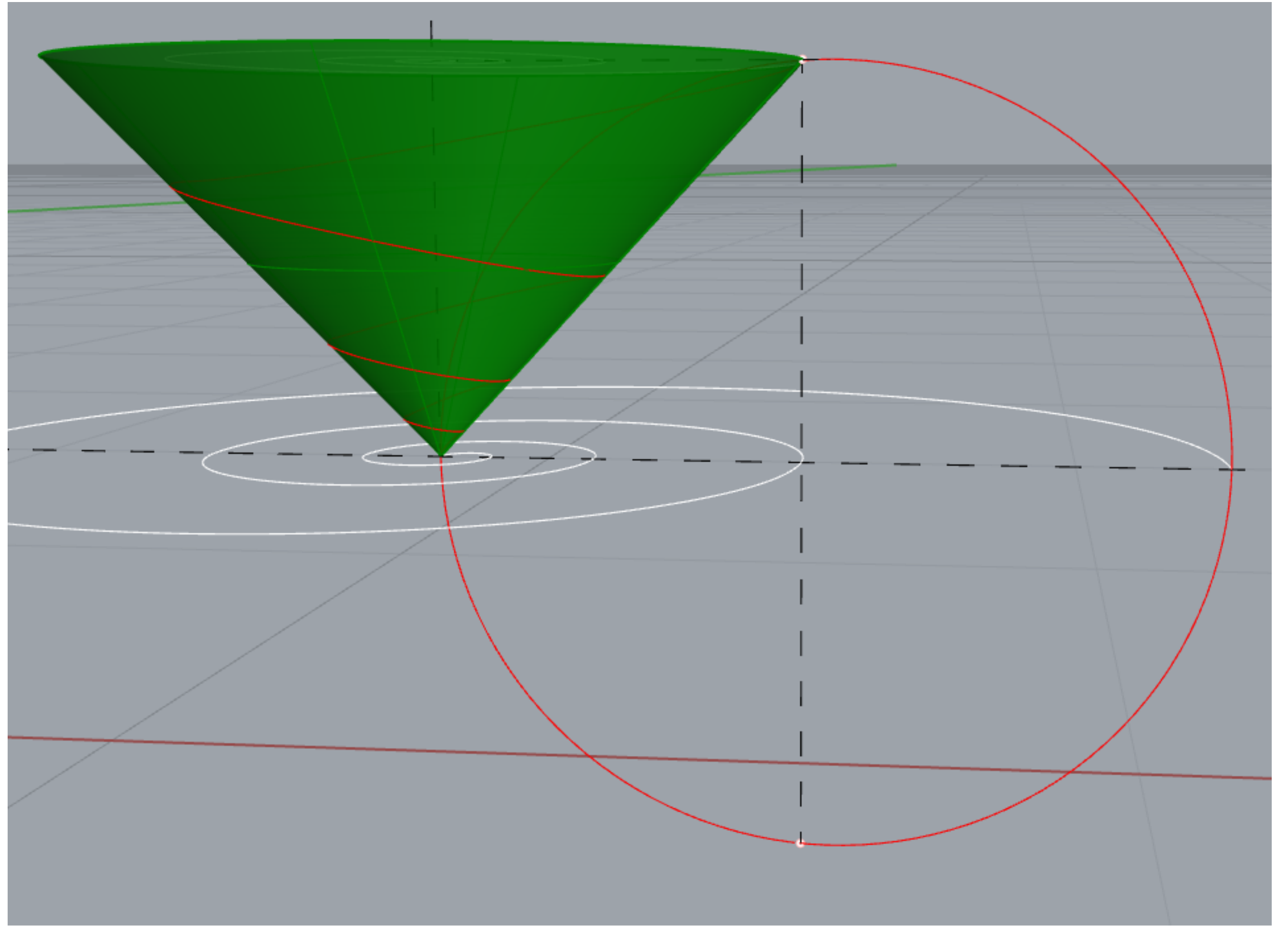
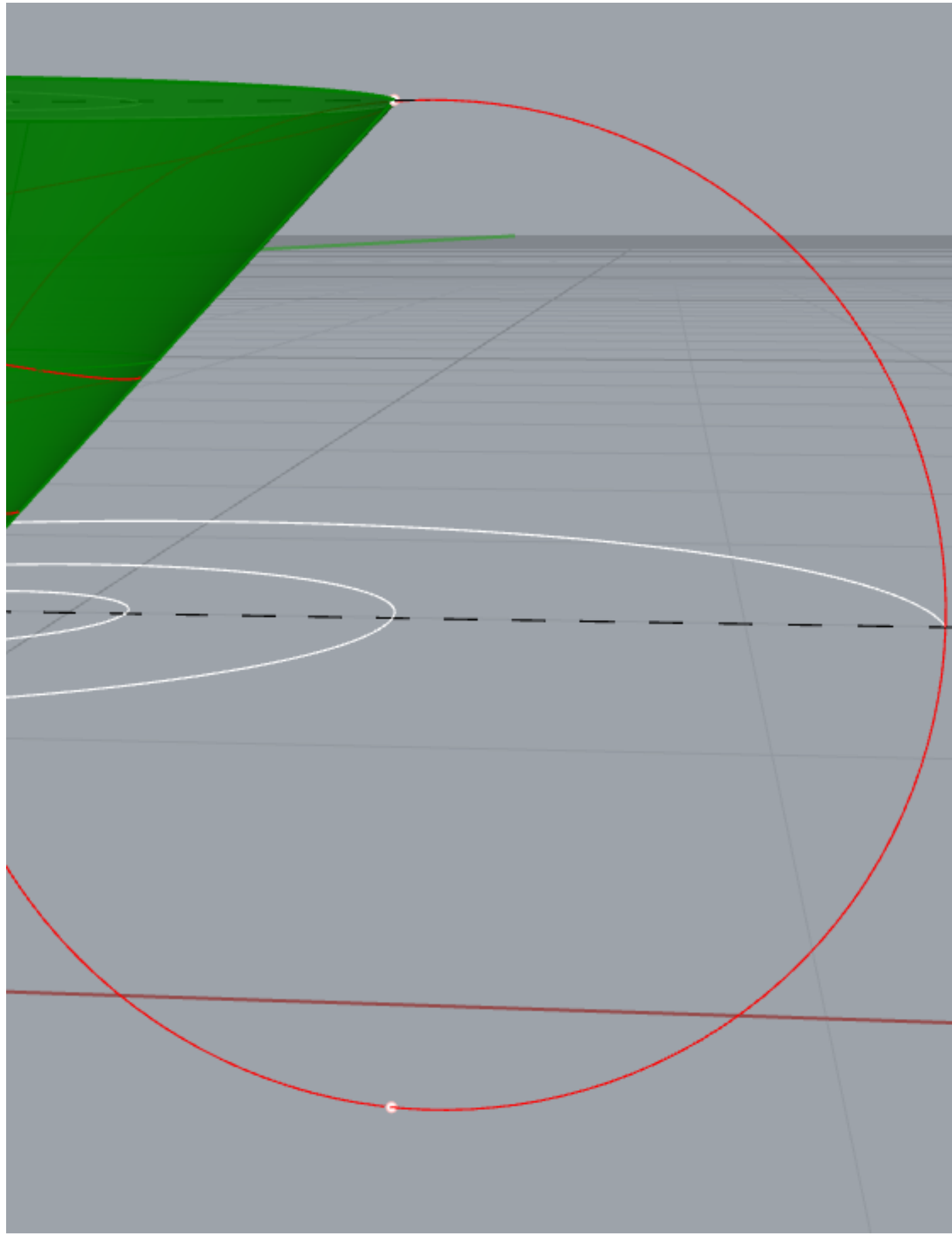
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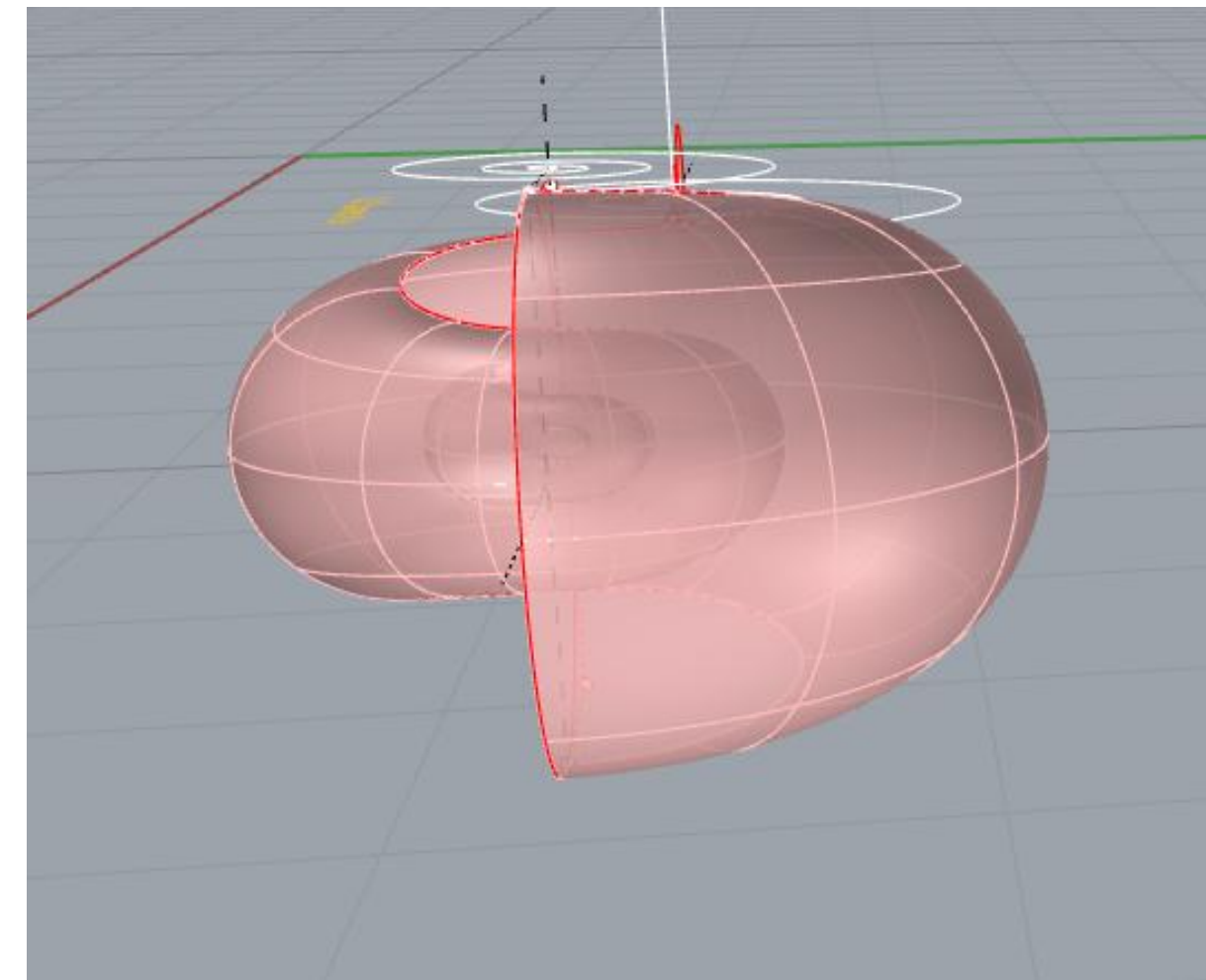
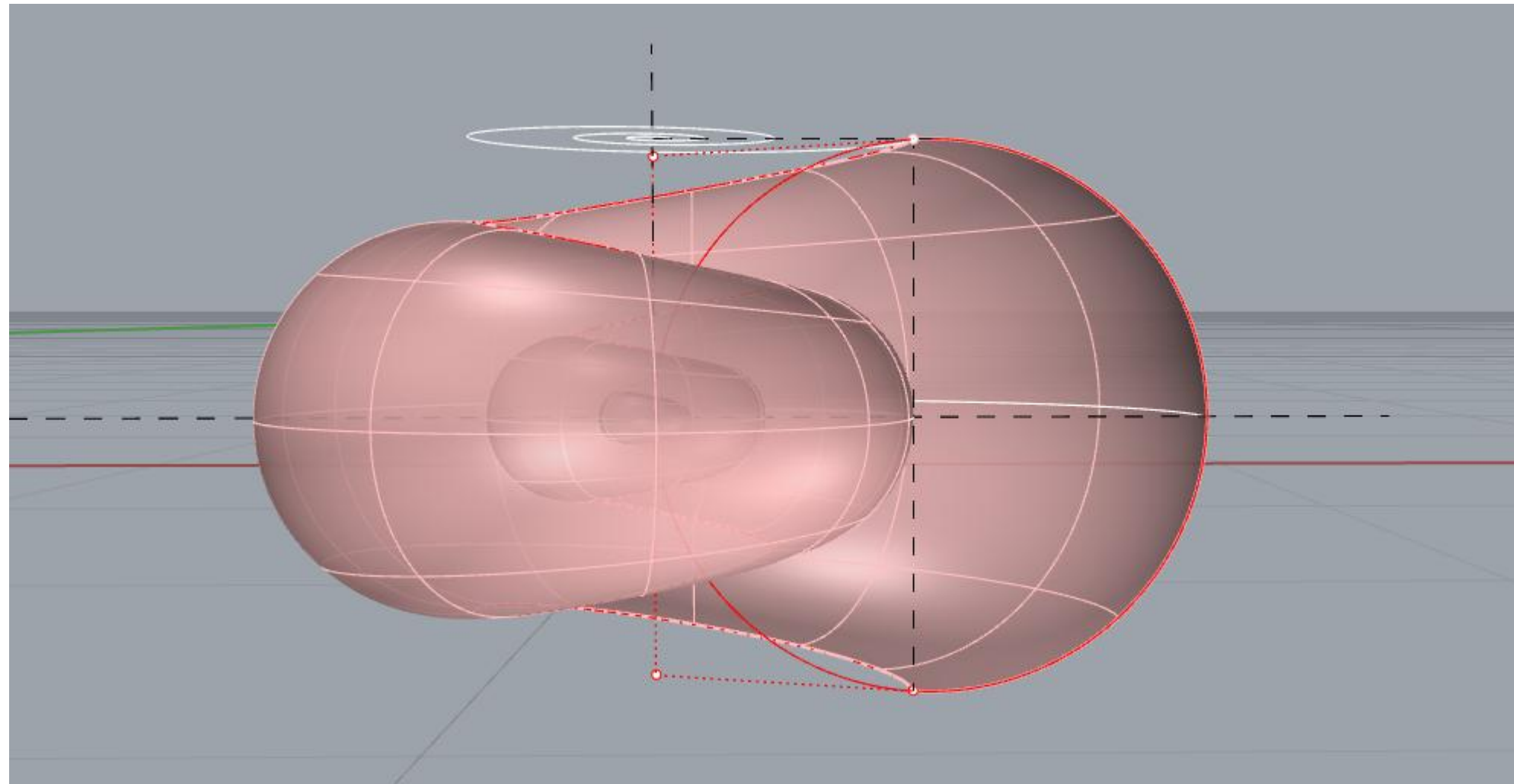
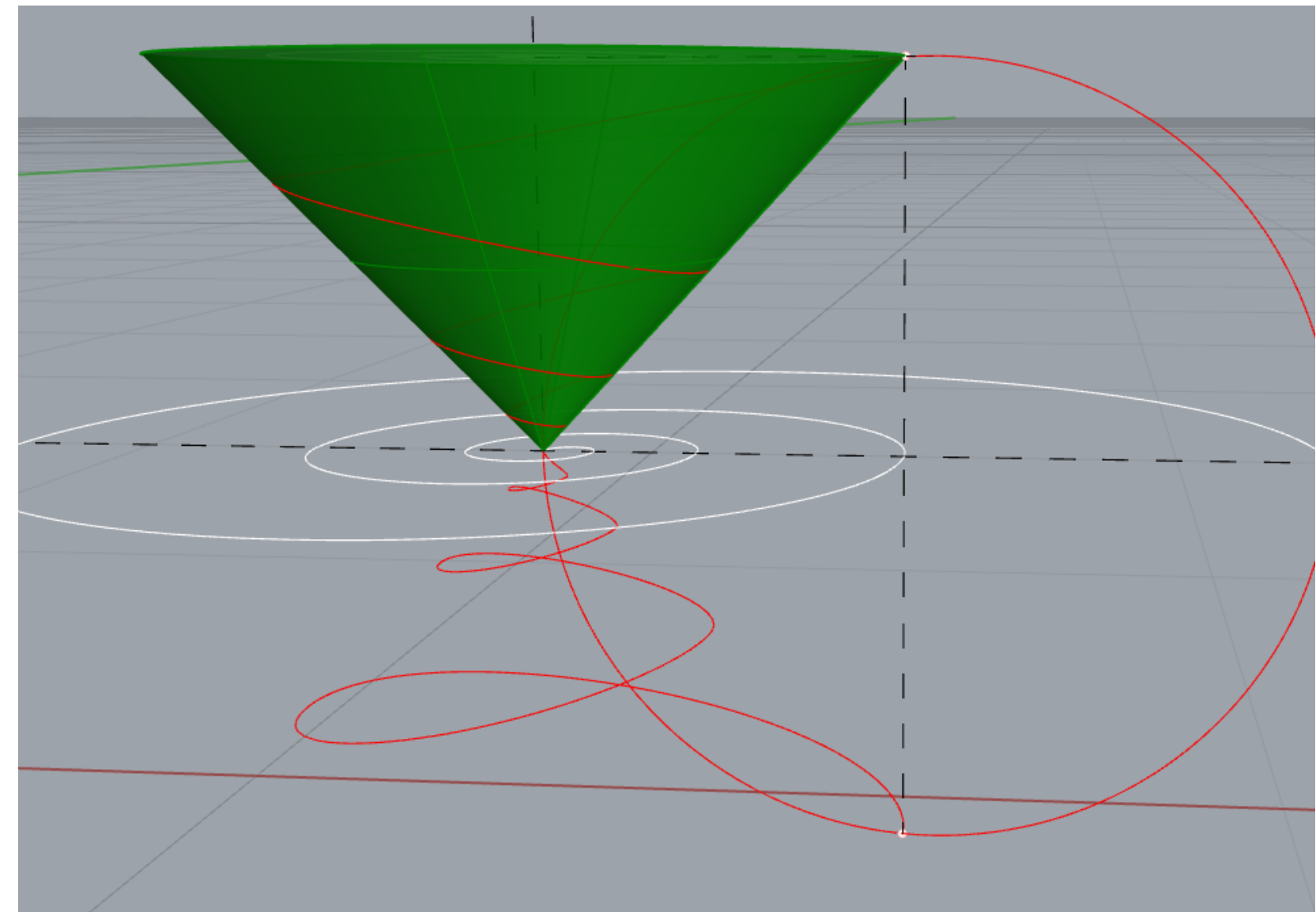
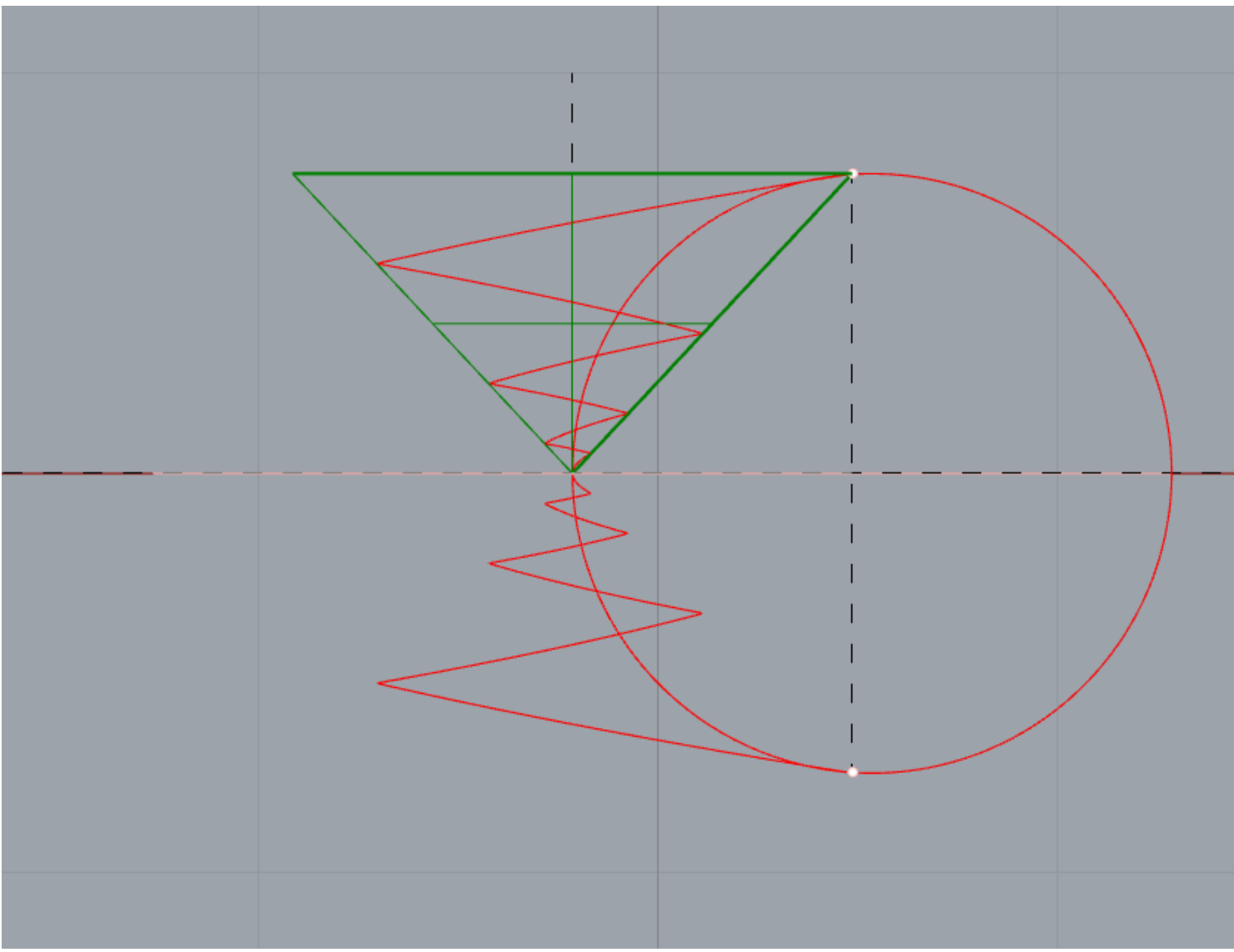
Aula 11- Nautilus



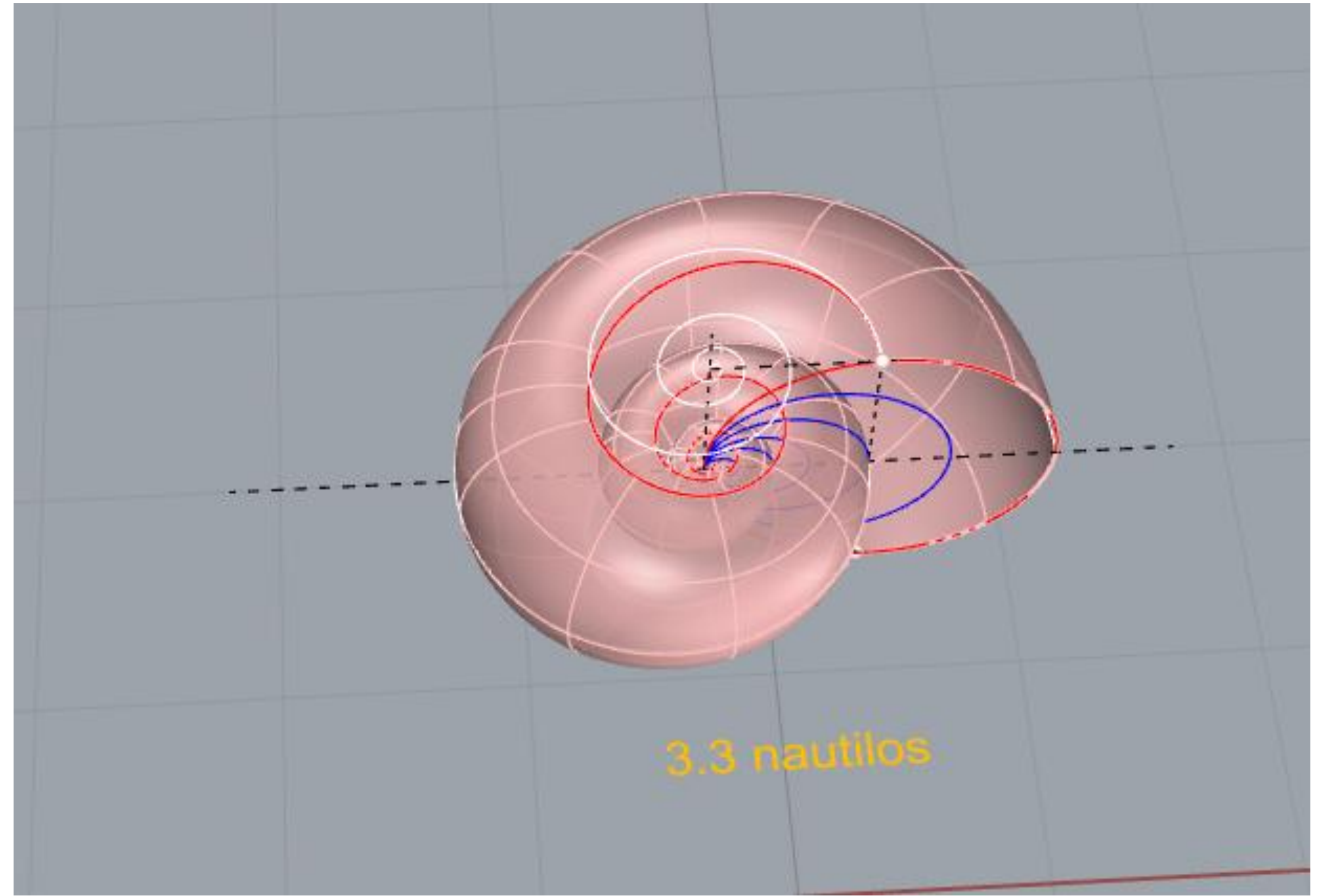
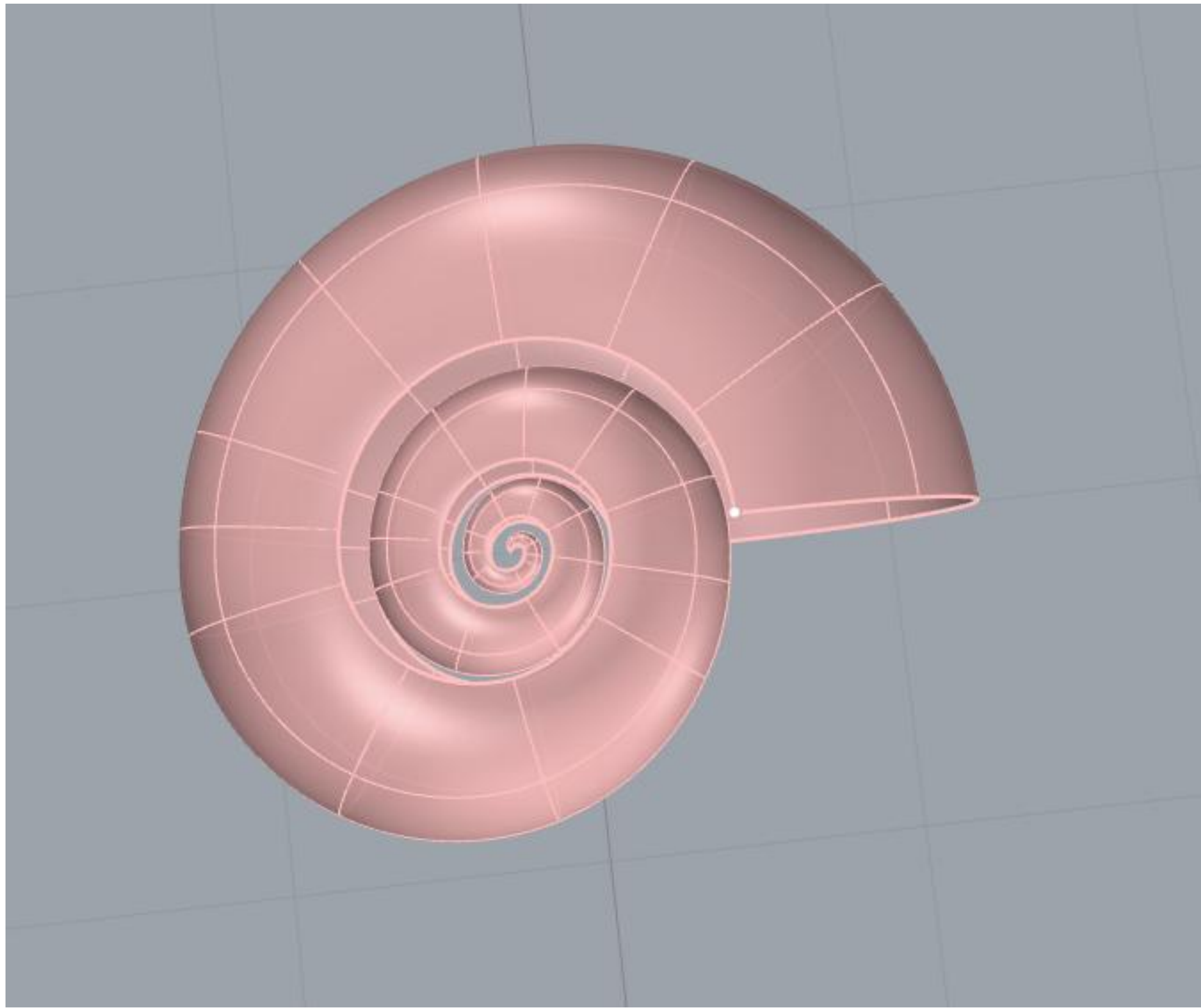
Aula 11- Nautilus



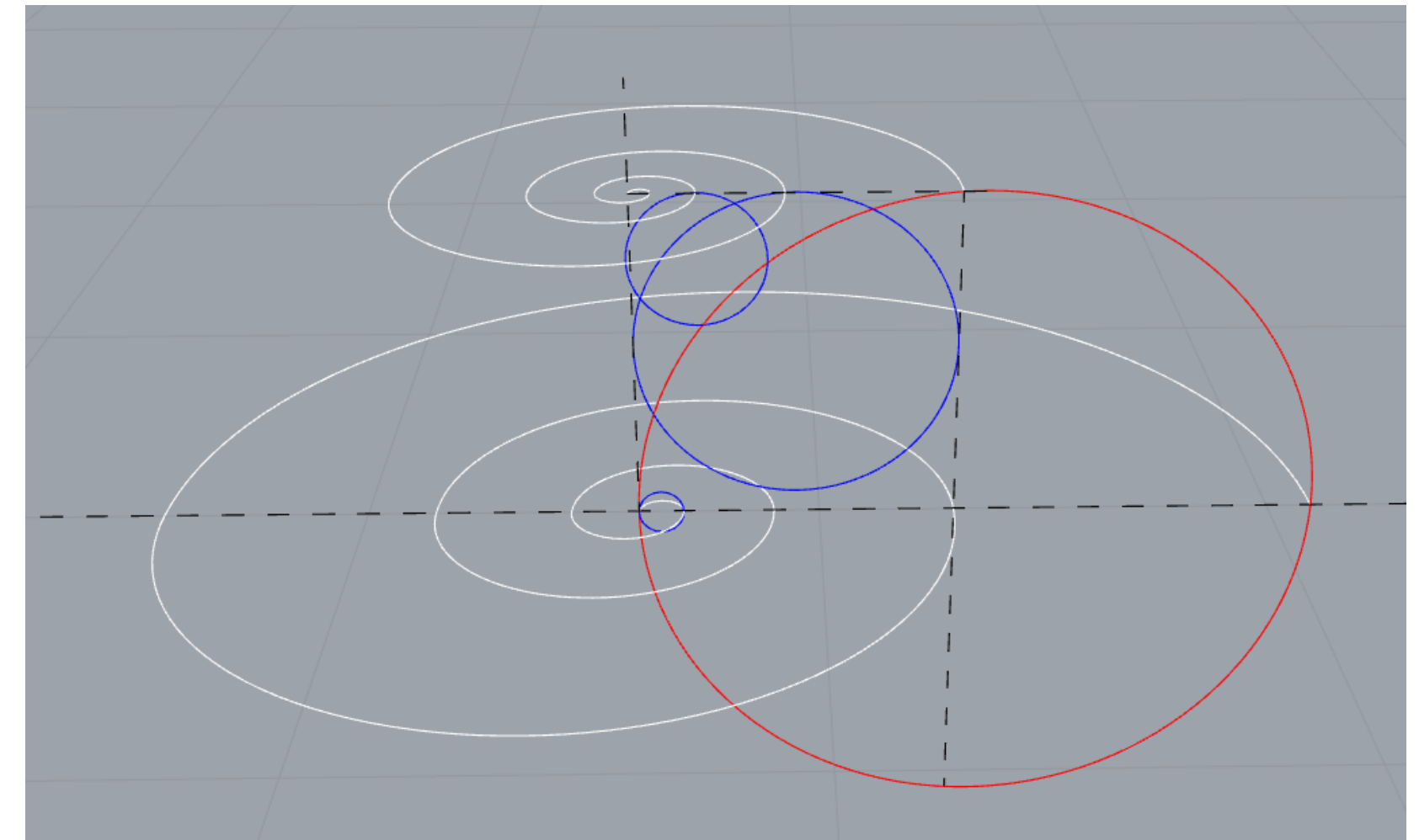
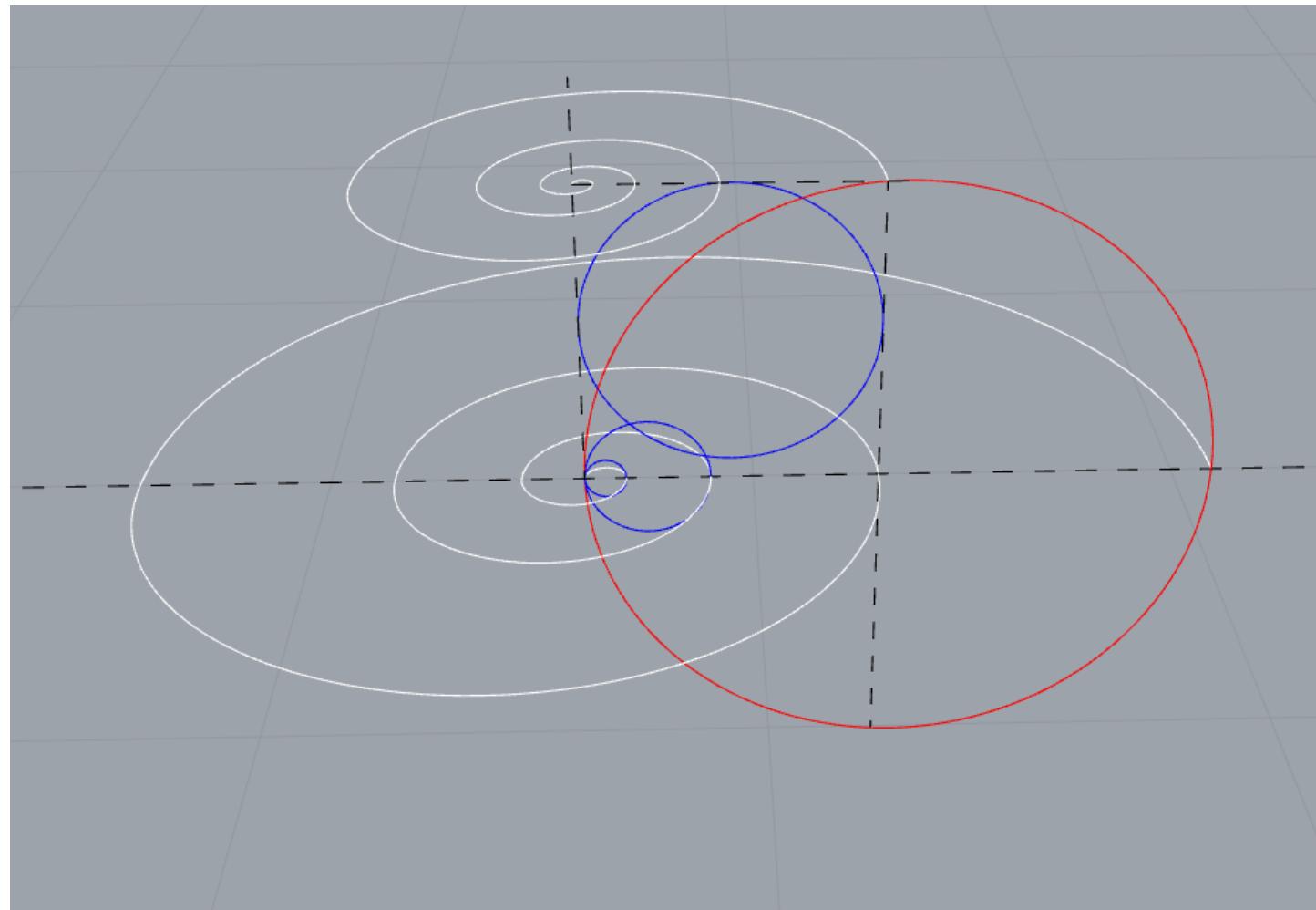
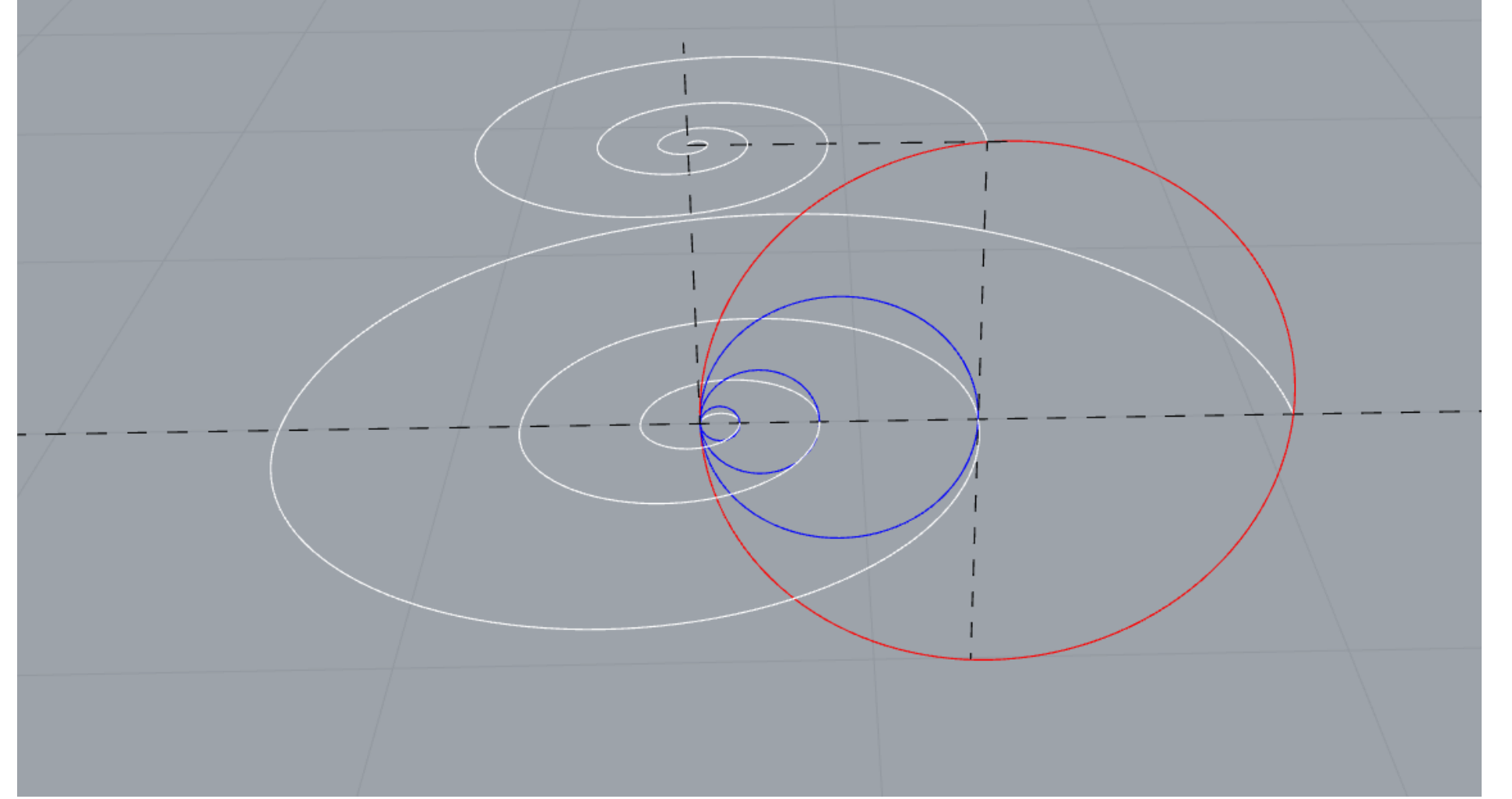
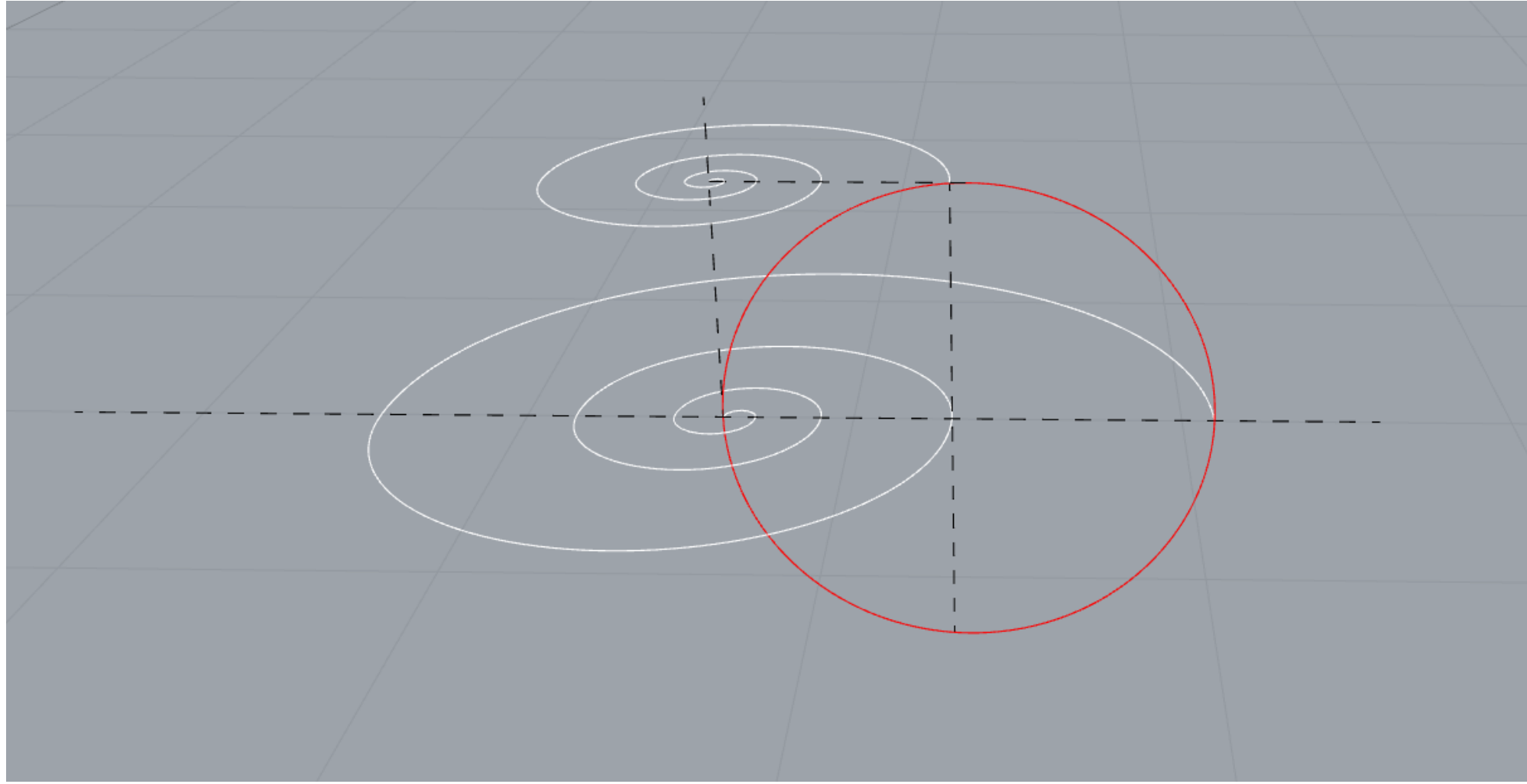
Aula 11- Nautilus



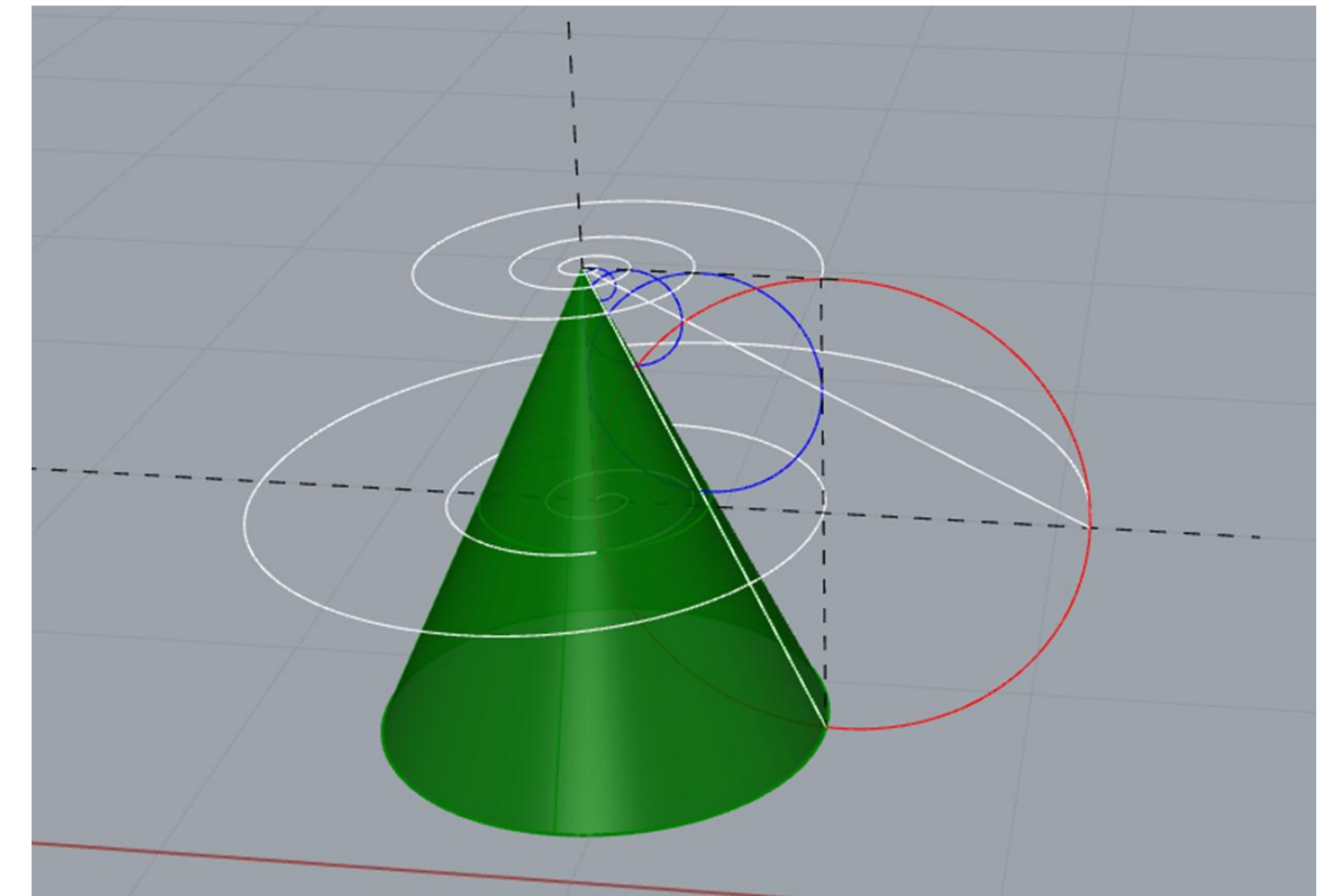
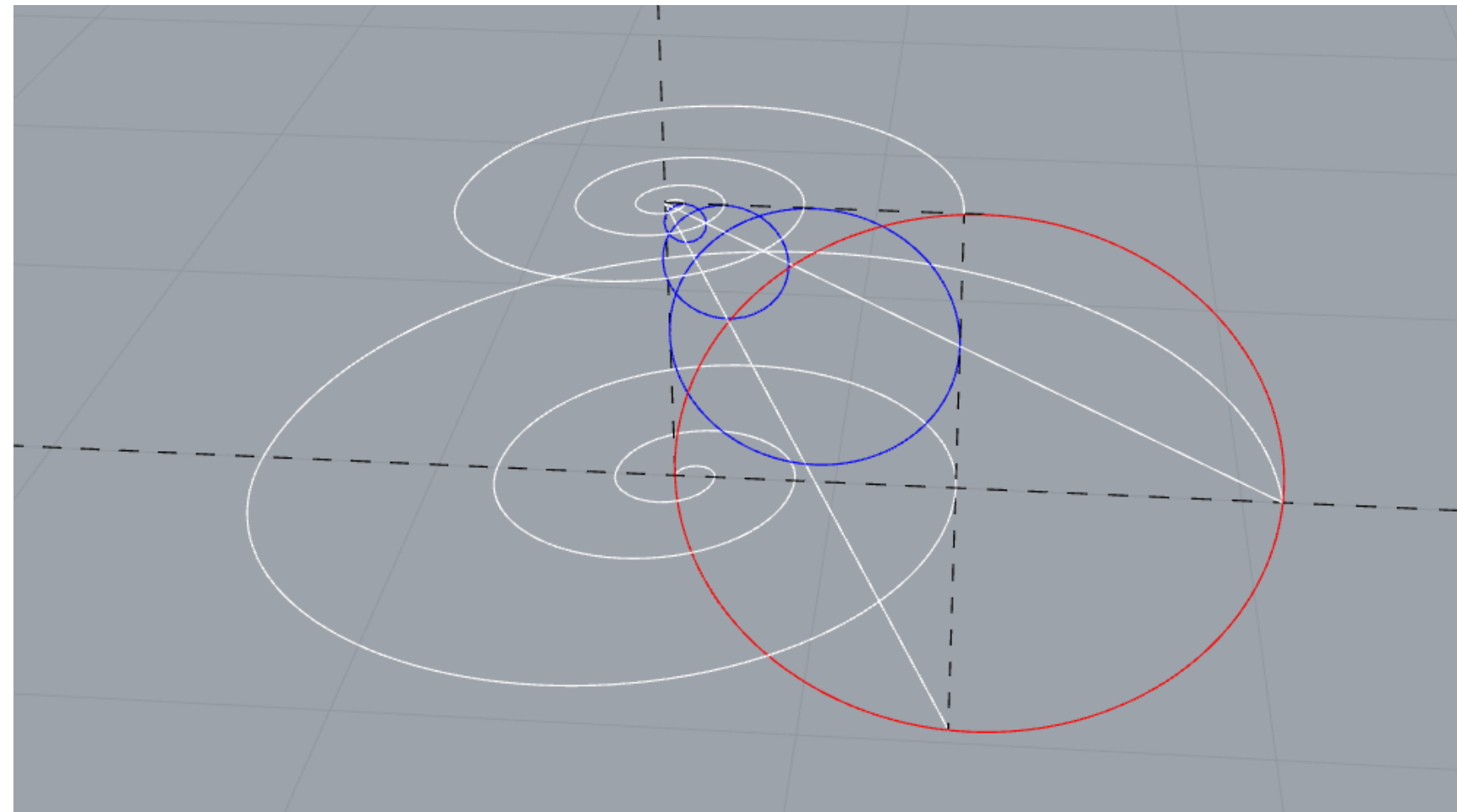
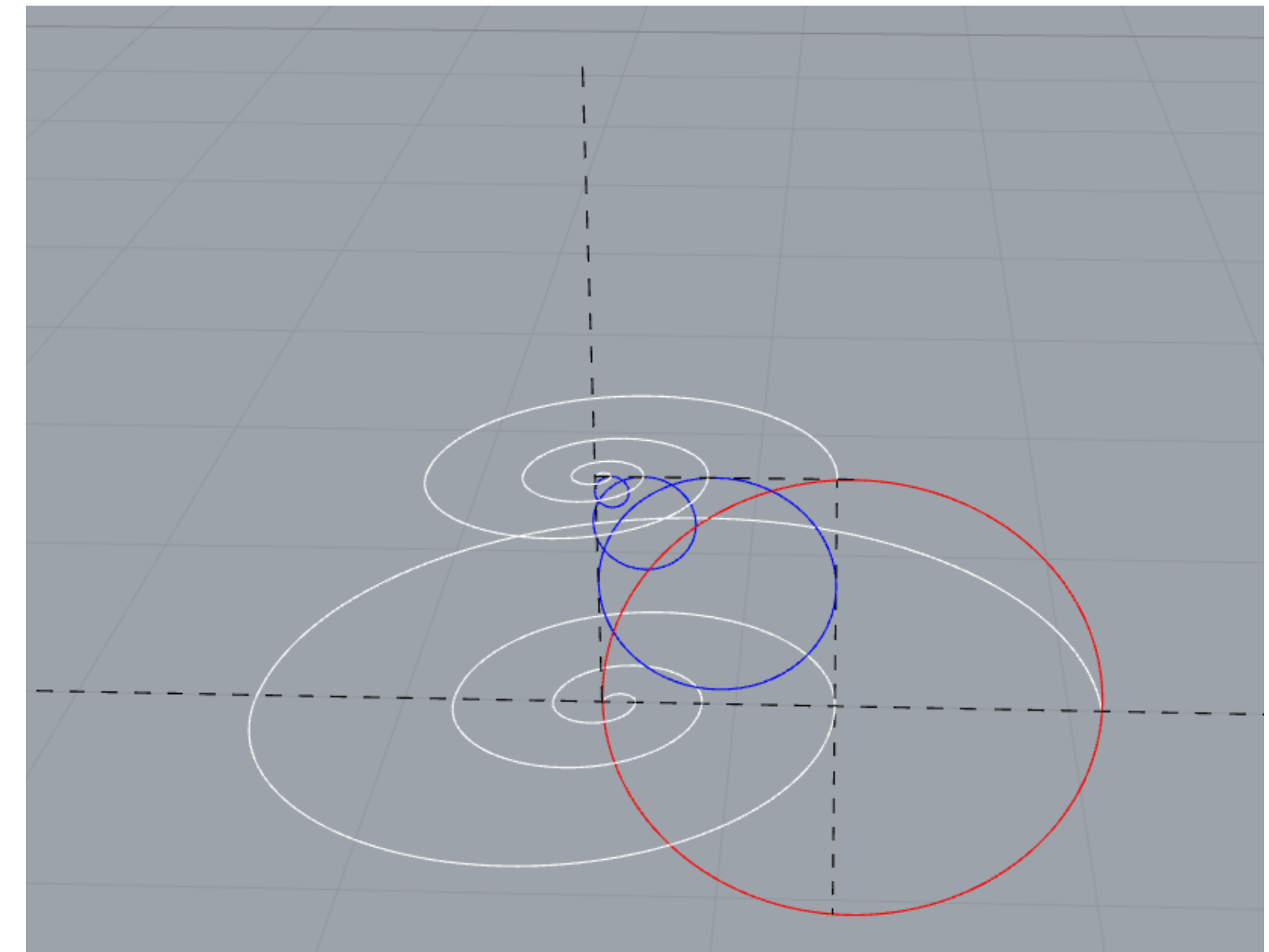
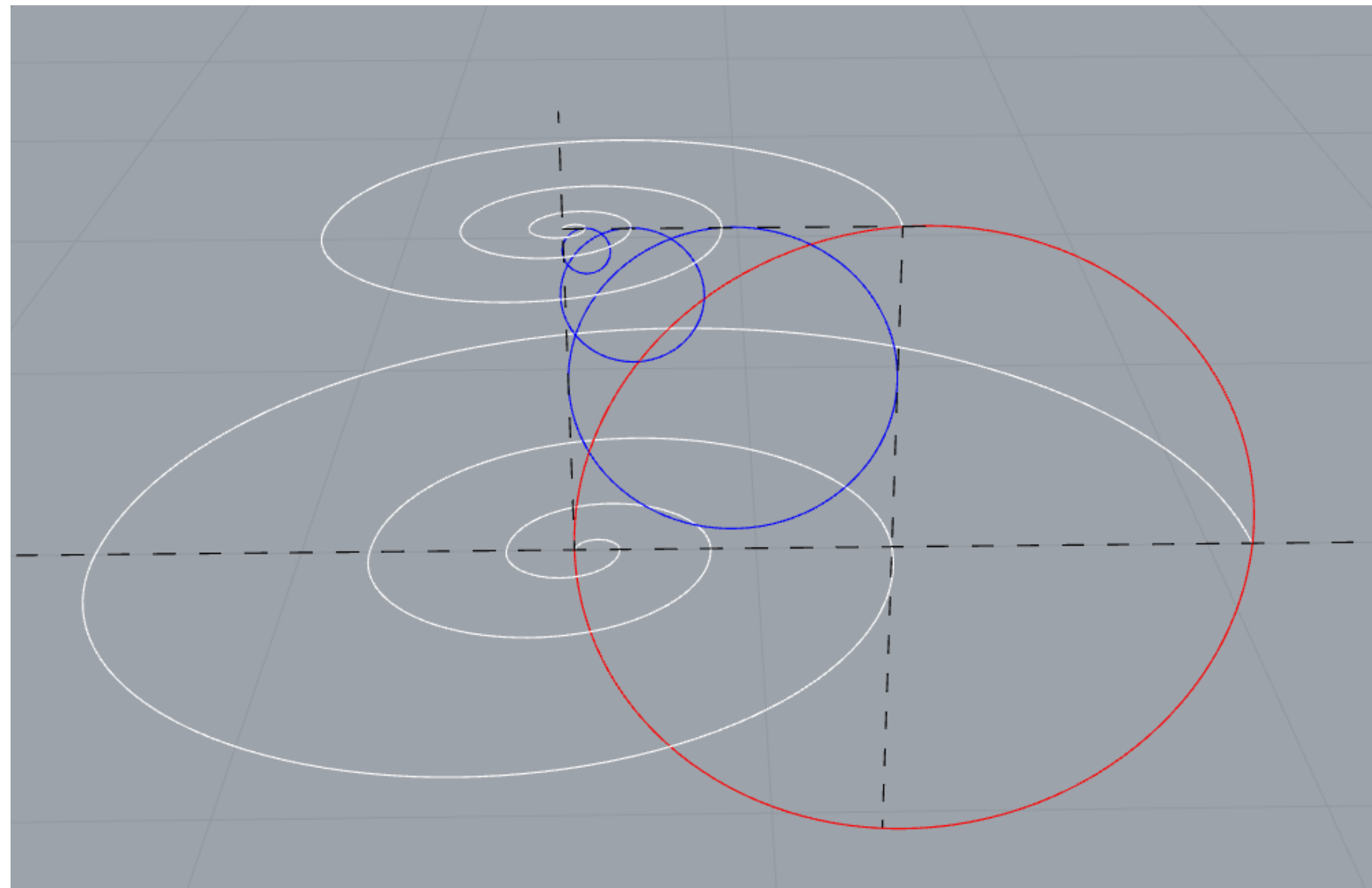
Aula 11- Nautilus



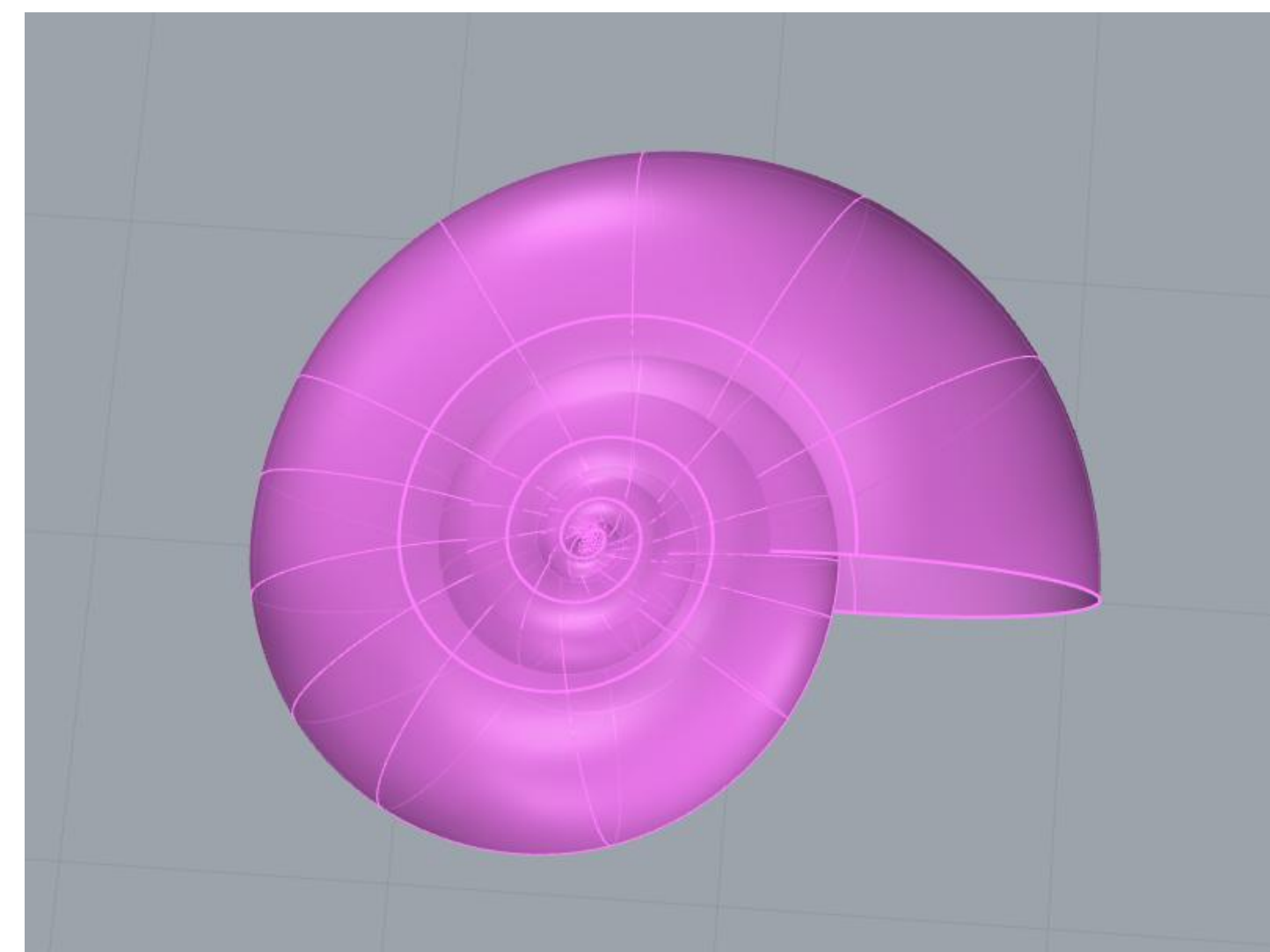
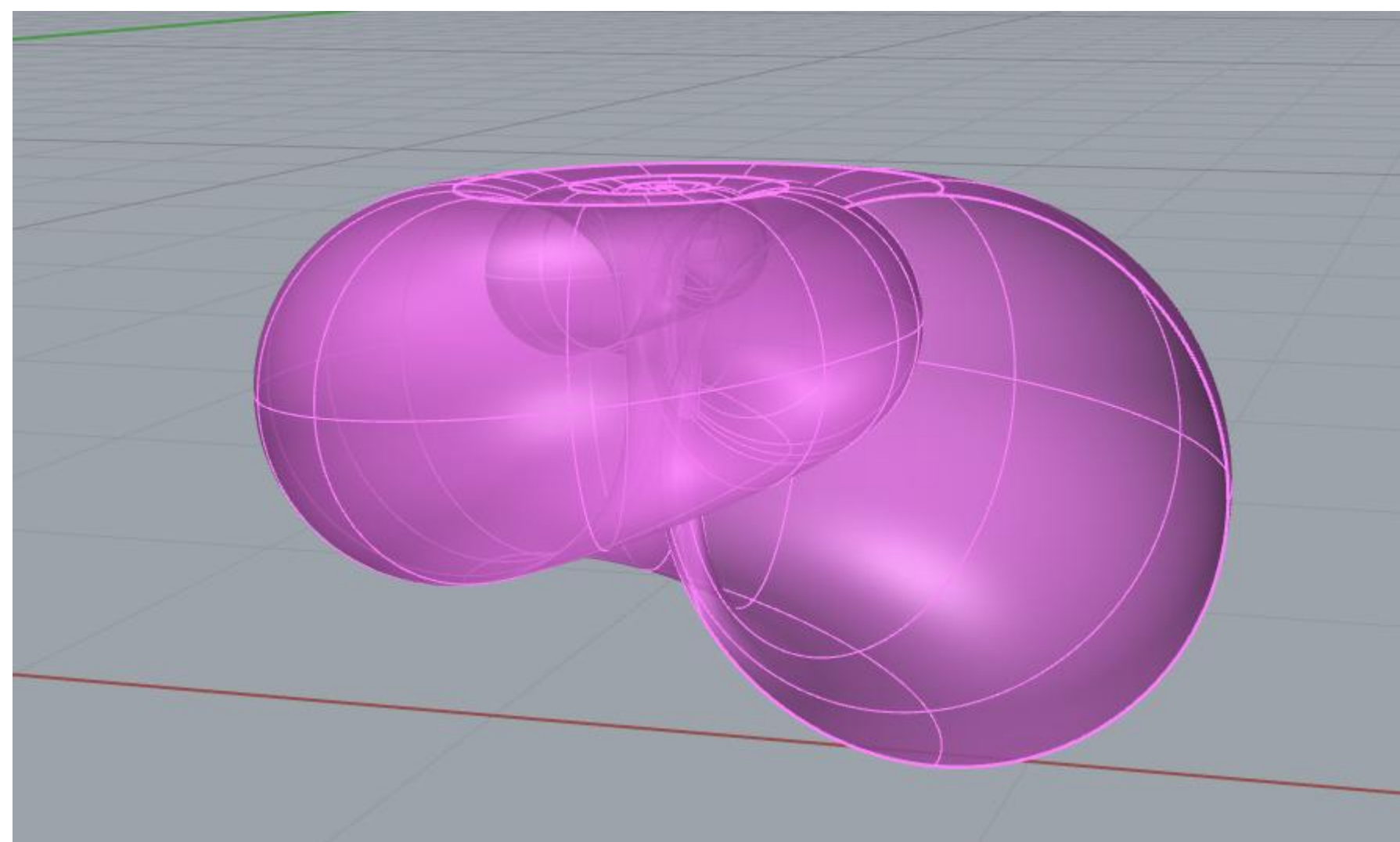
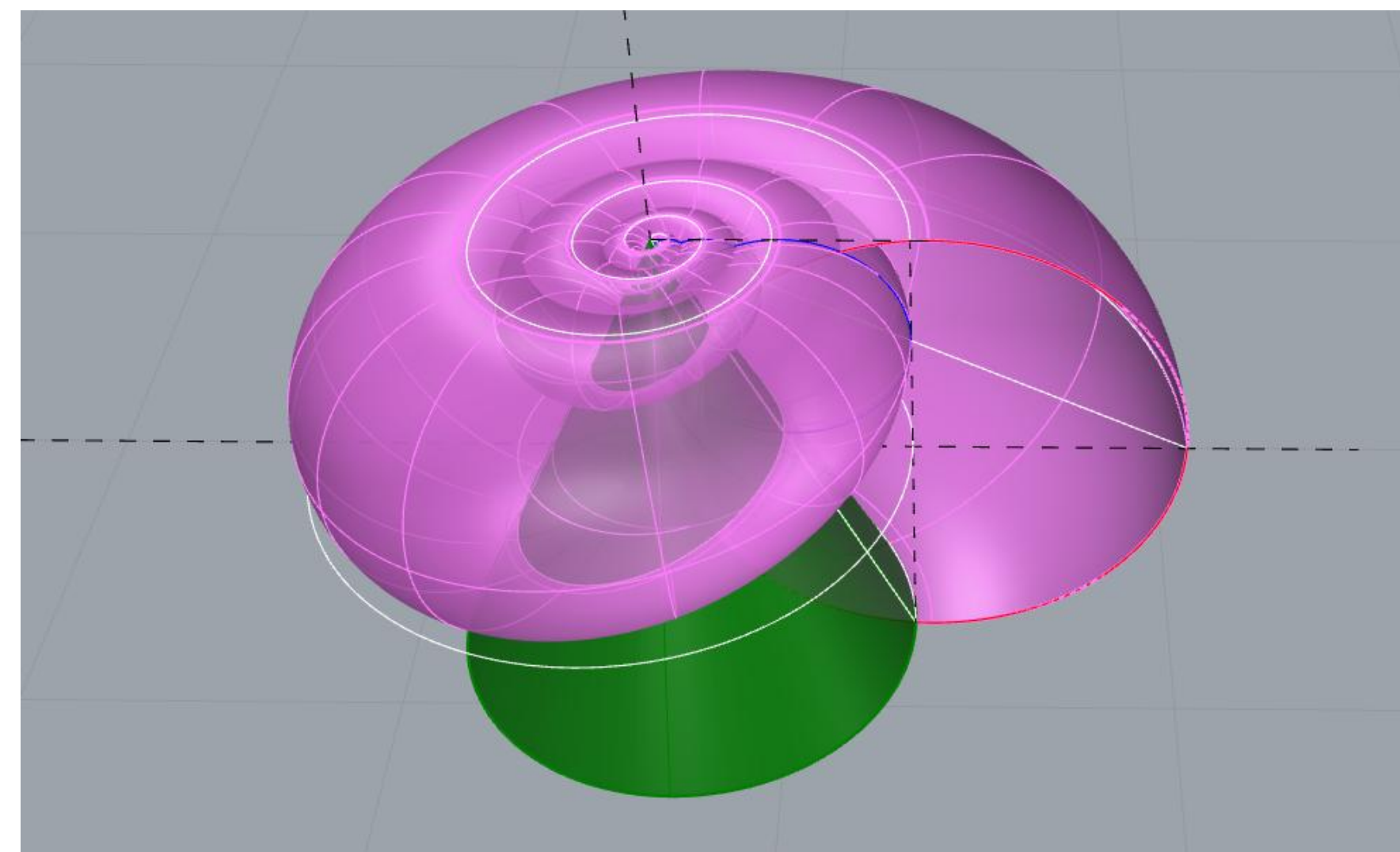
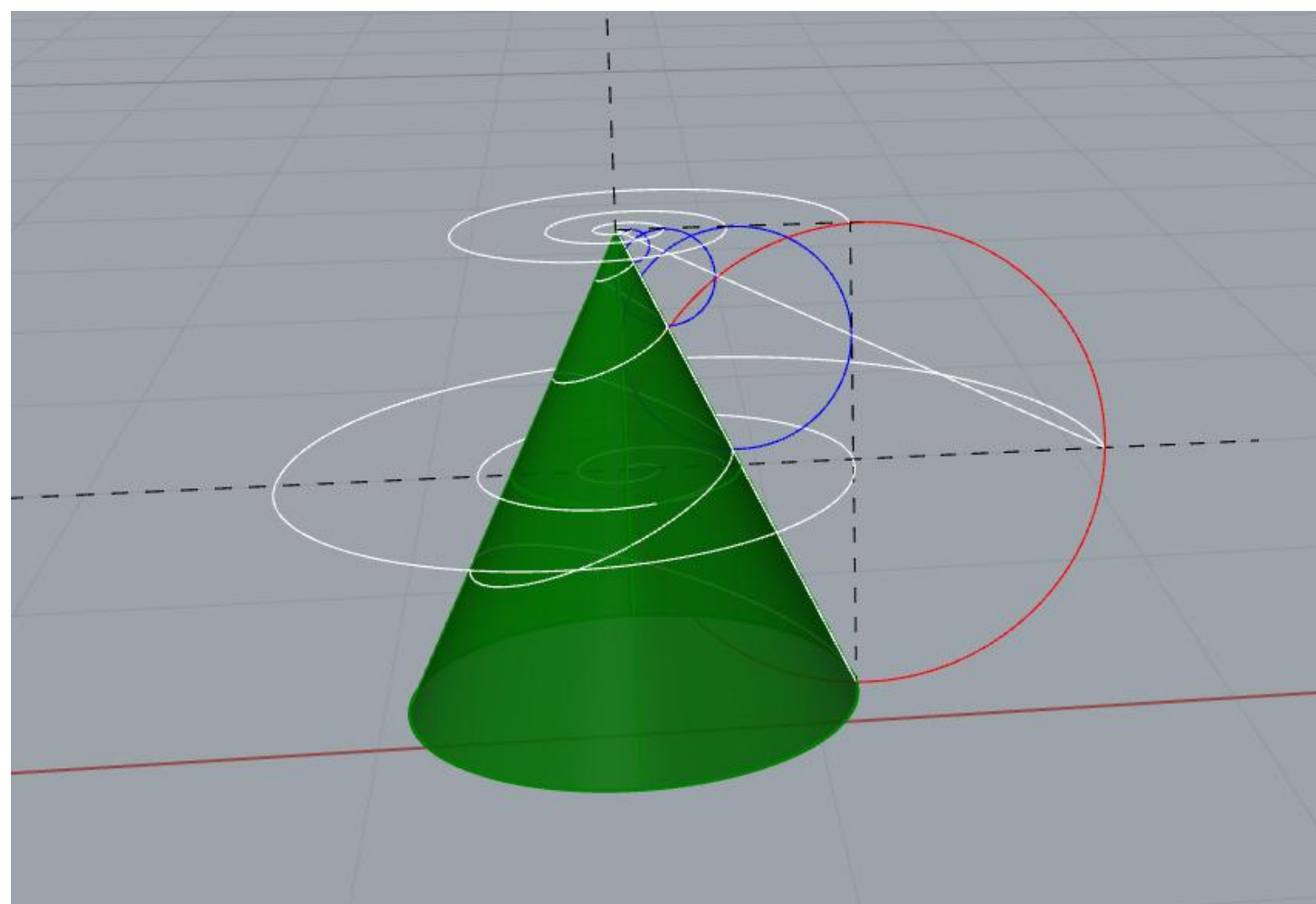
Aula 11- Nautilus



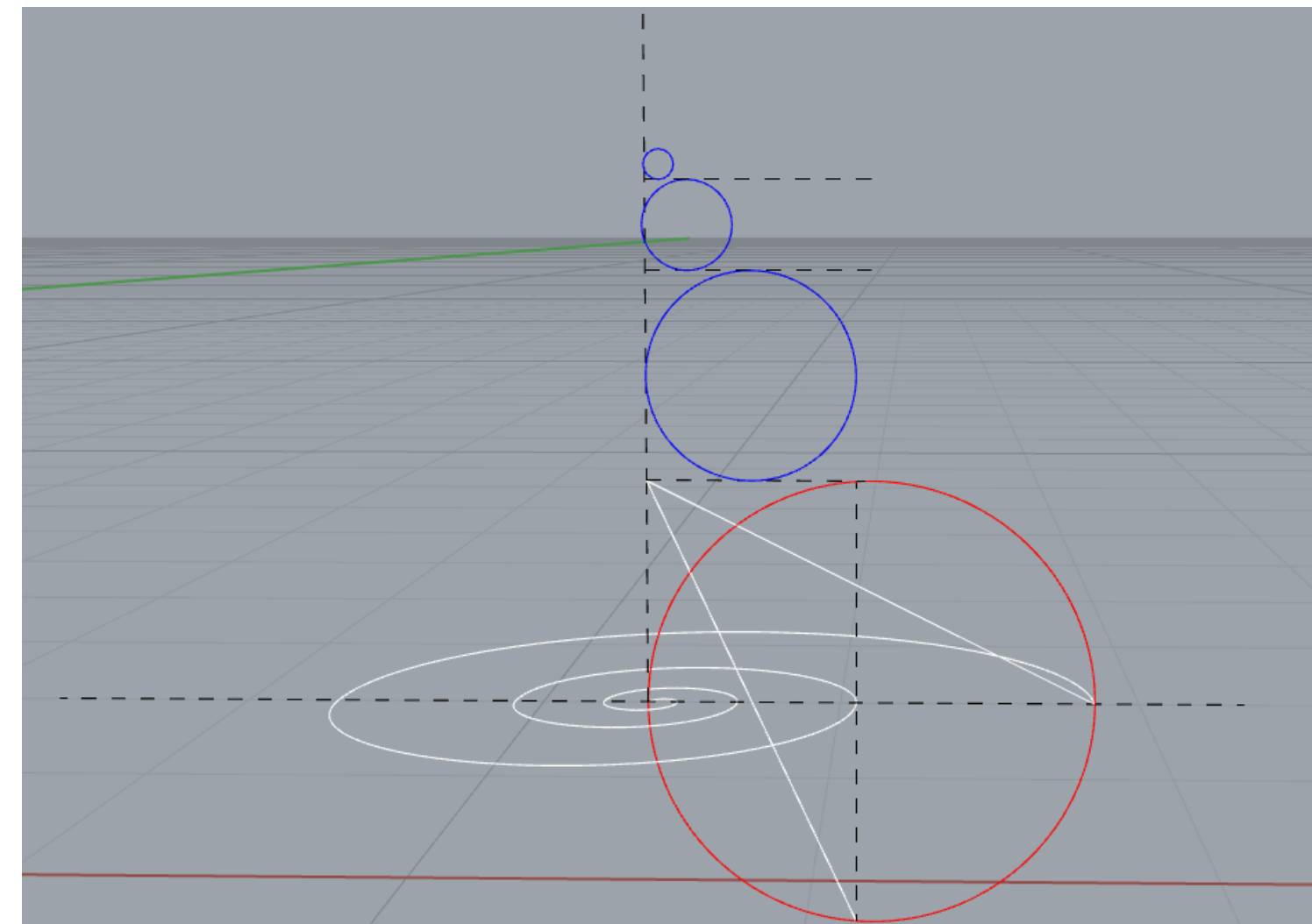
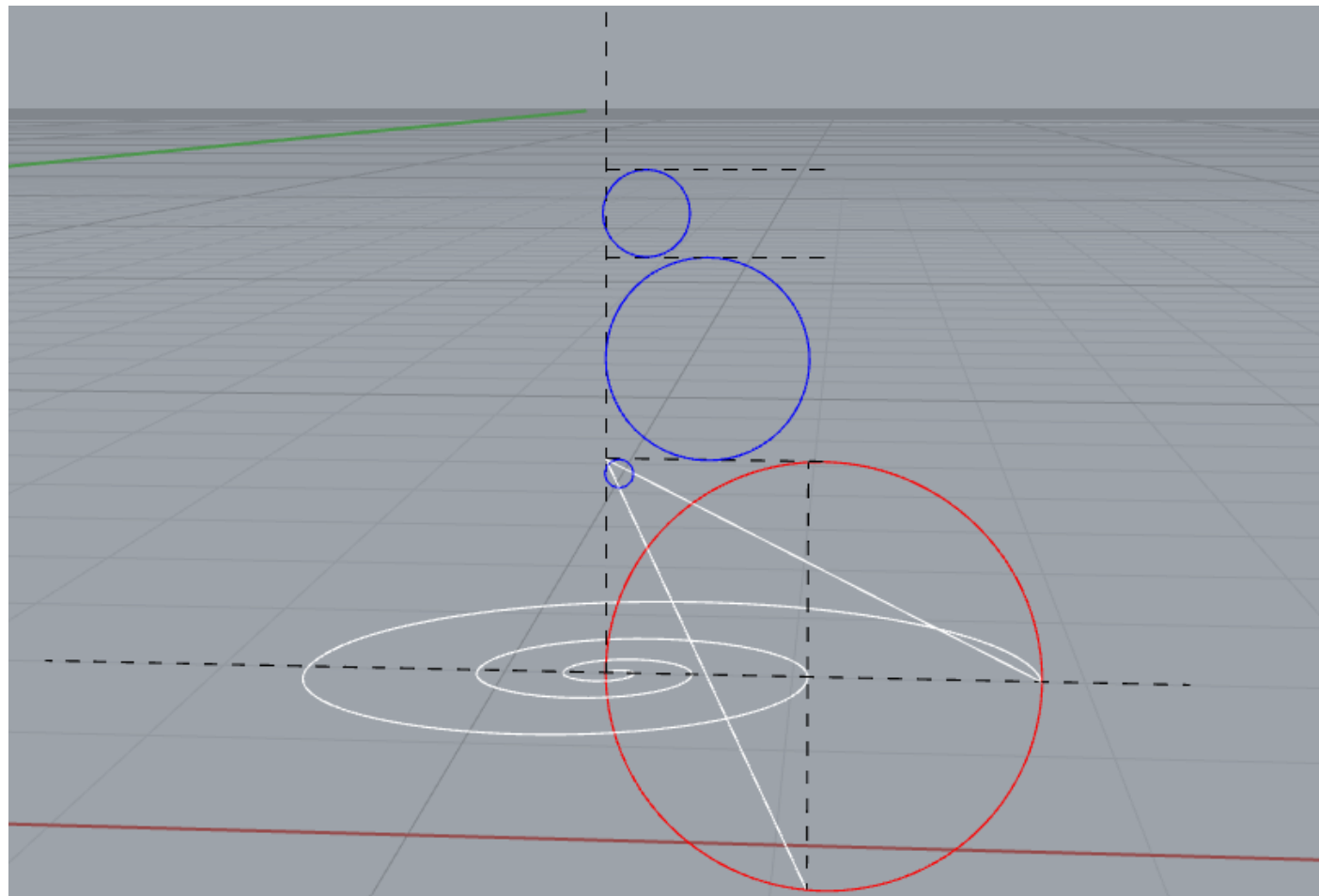
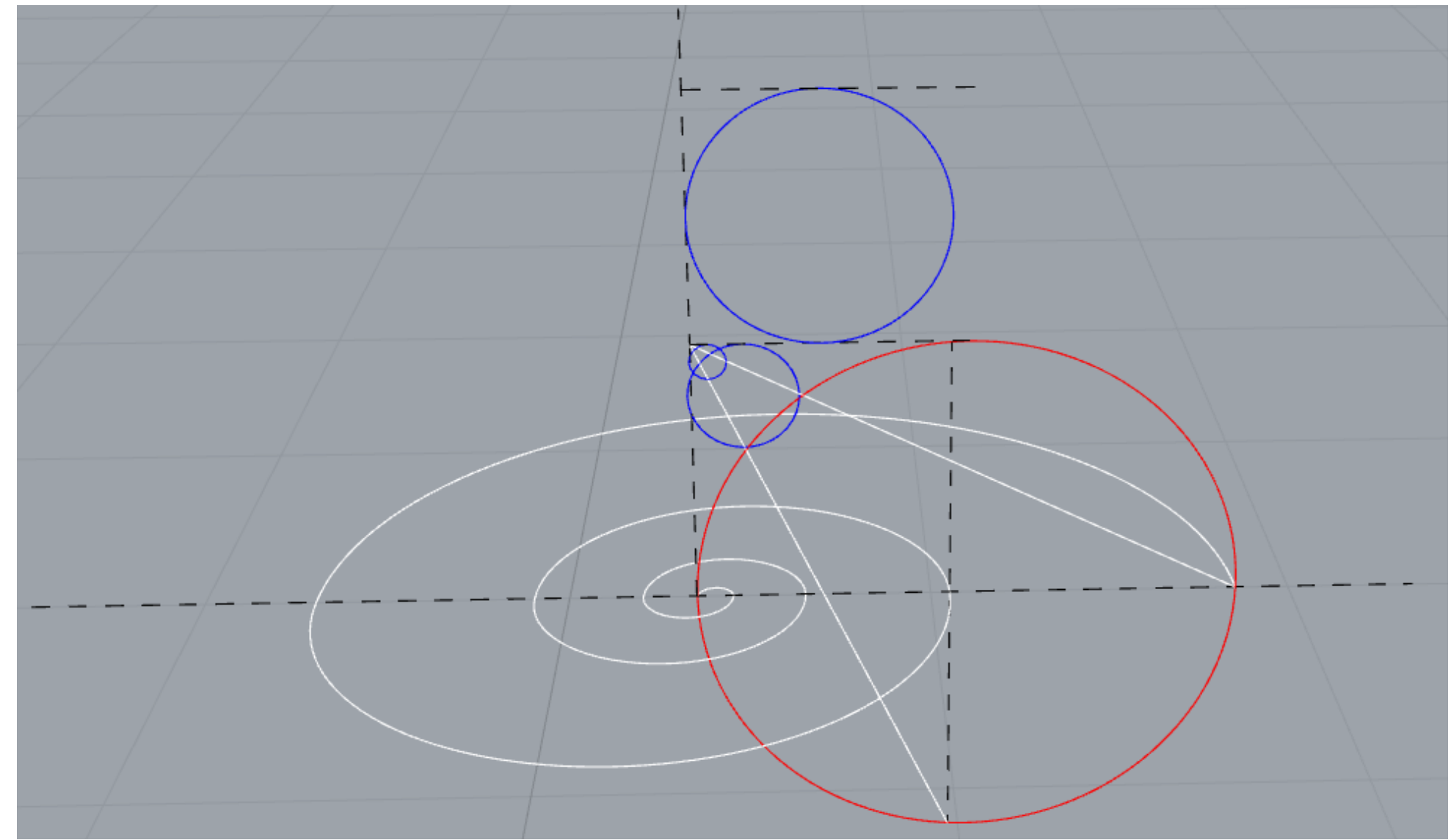
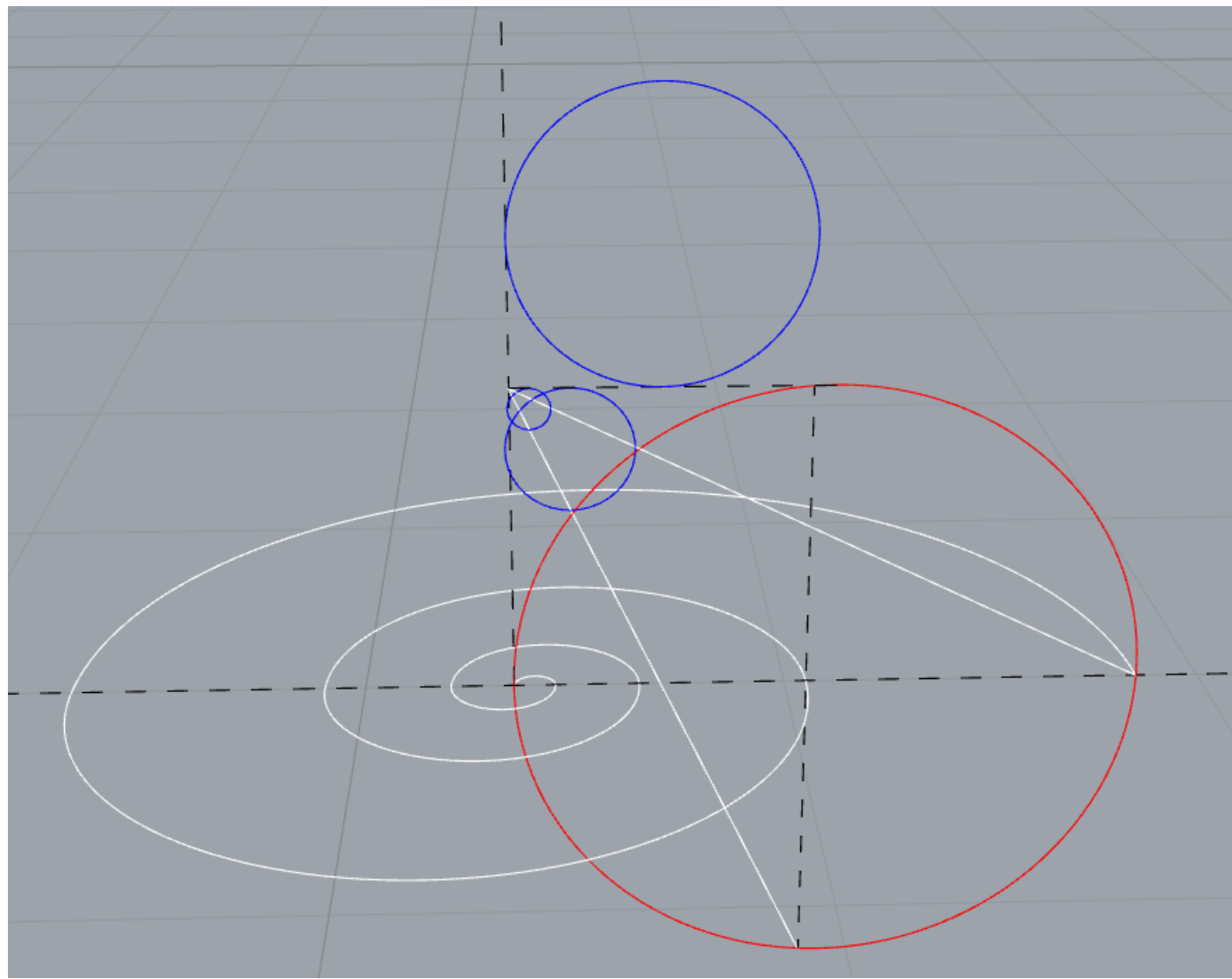
Aula 12- Caracol



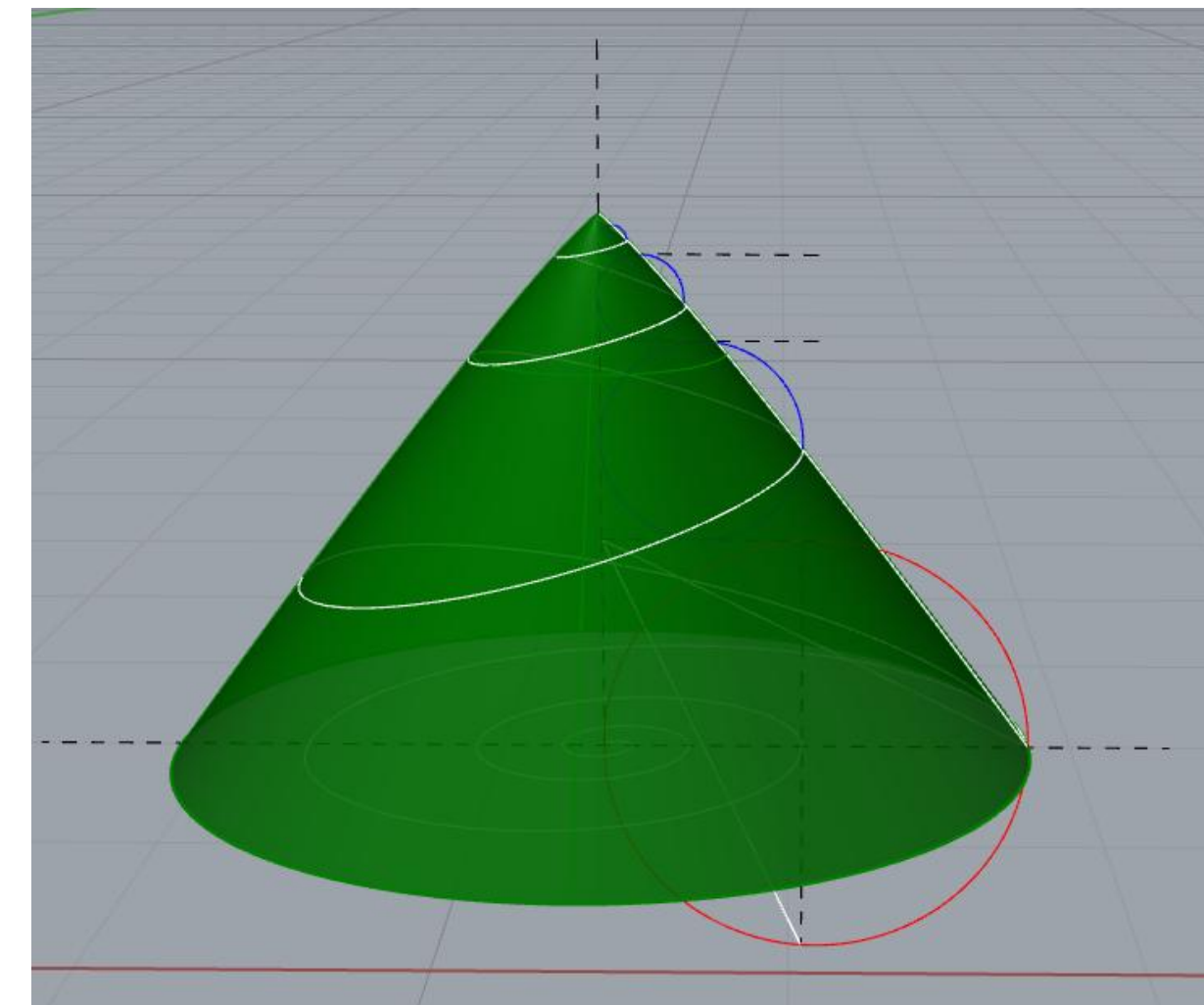
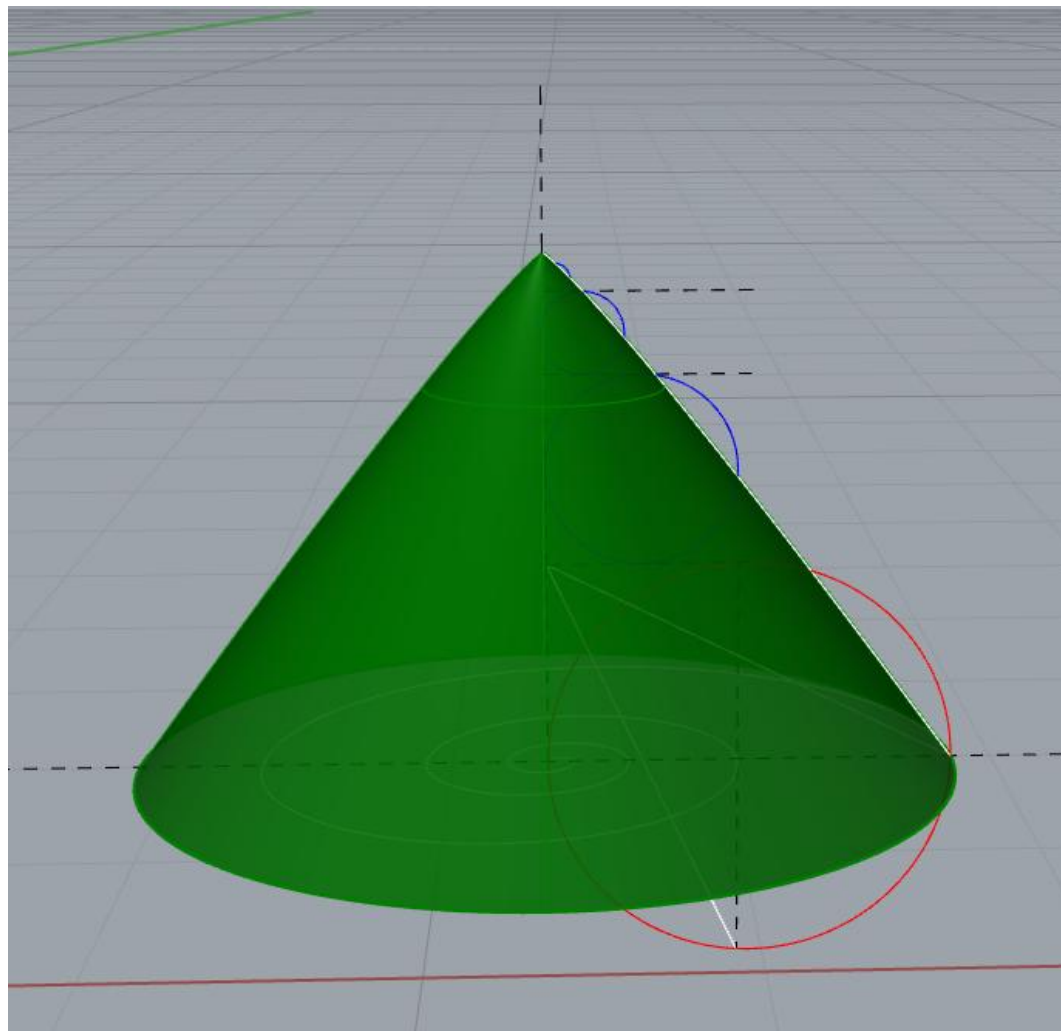
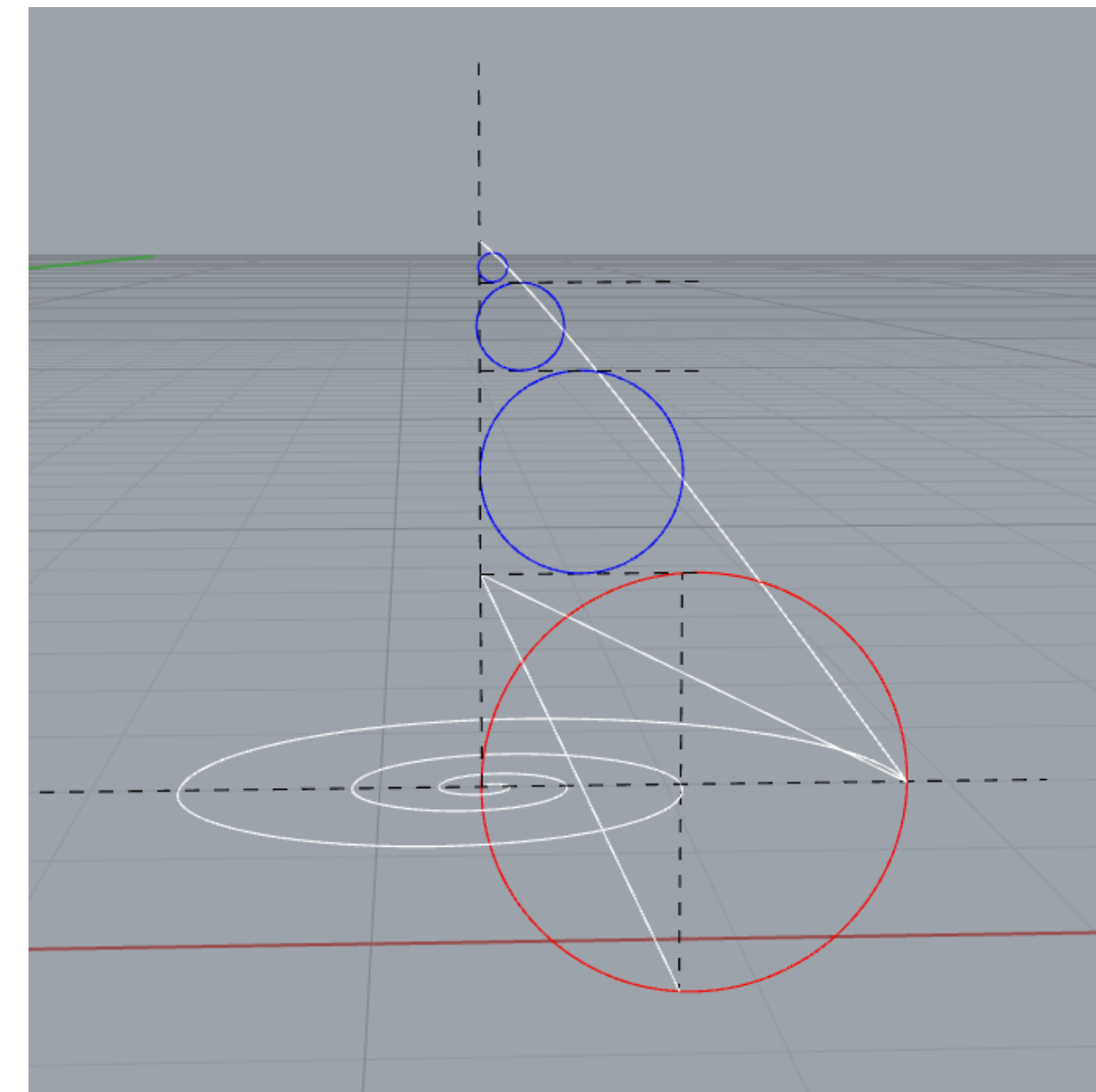
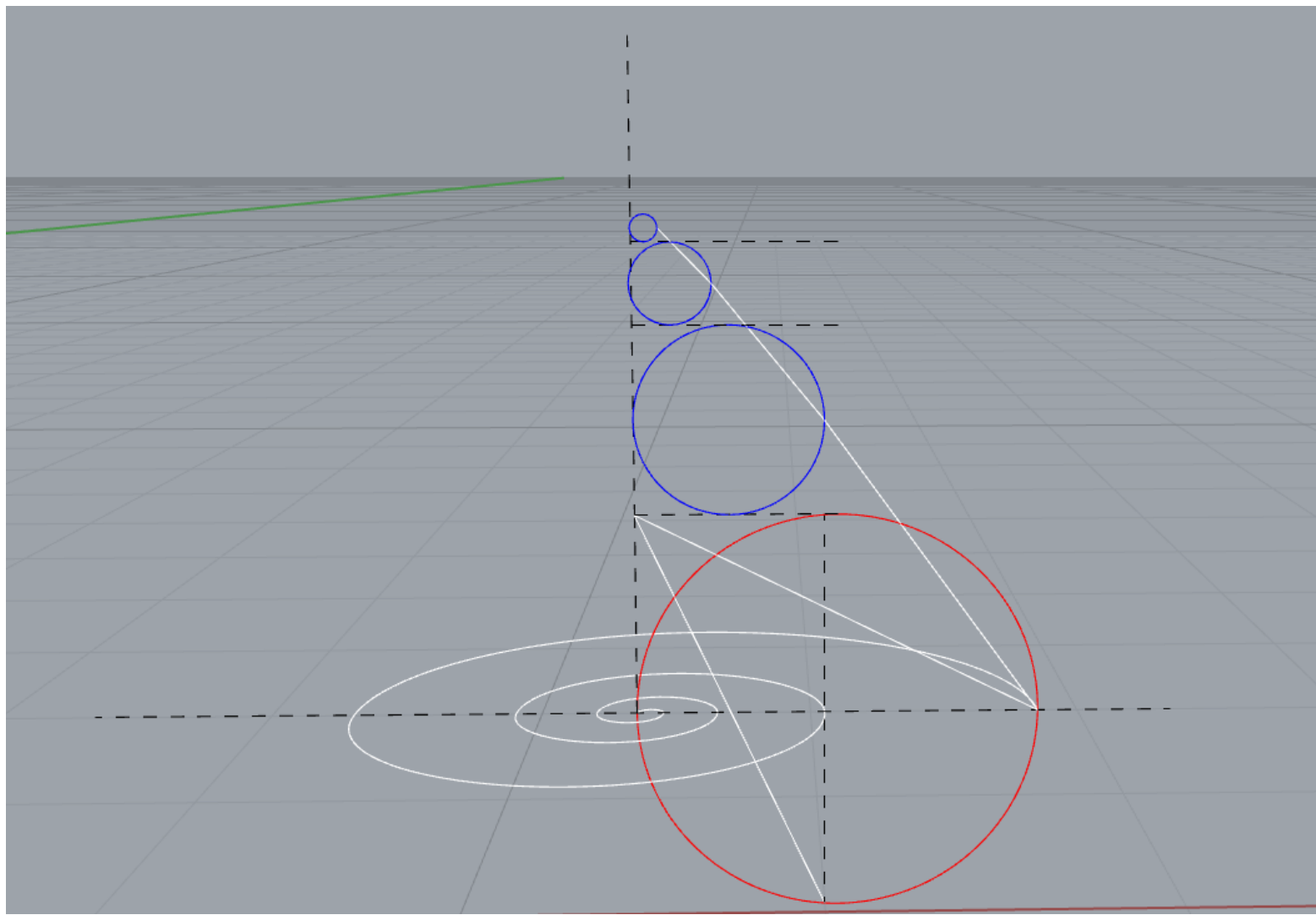
Aula 12- Caracol



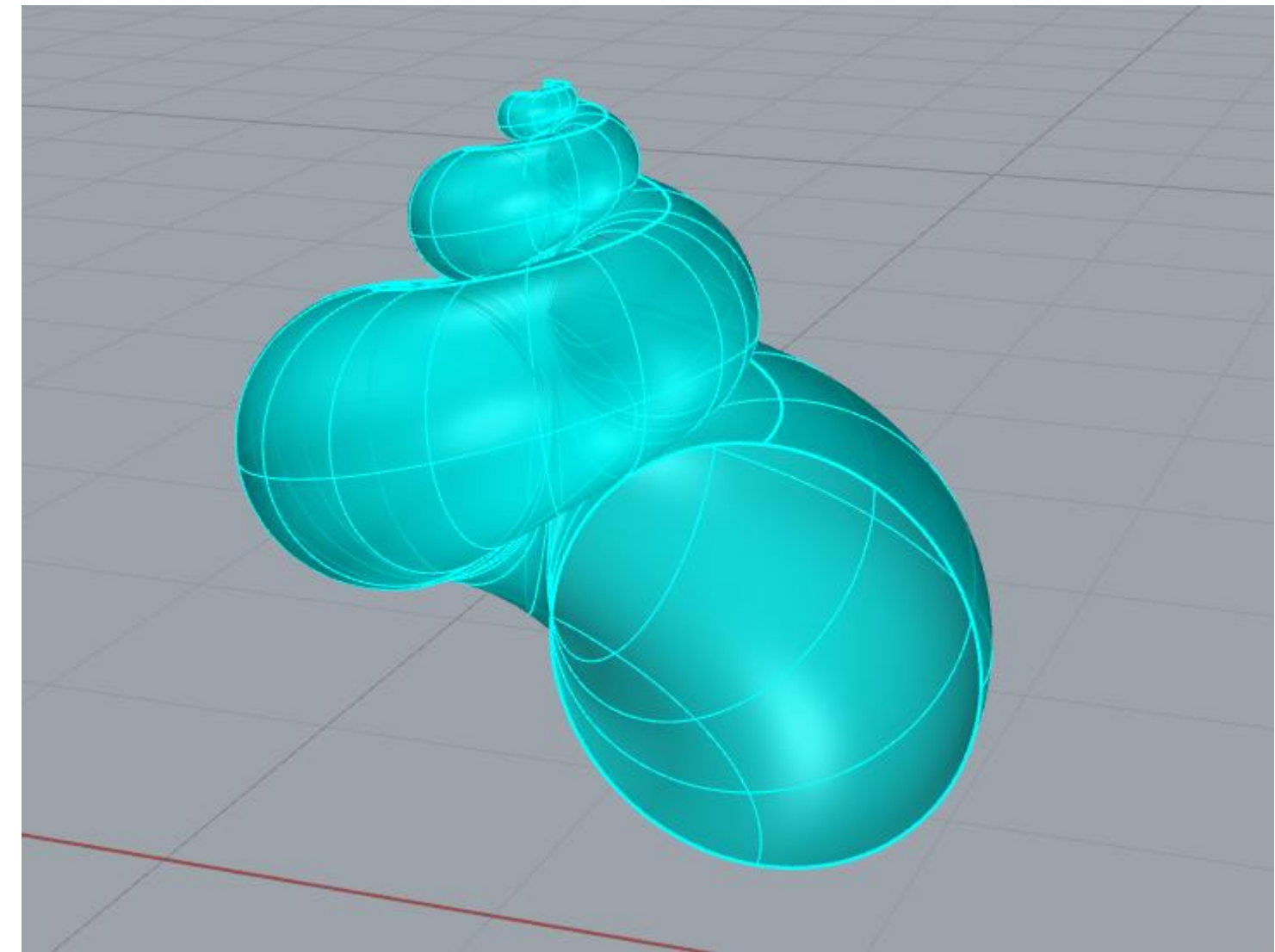
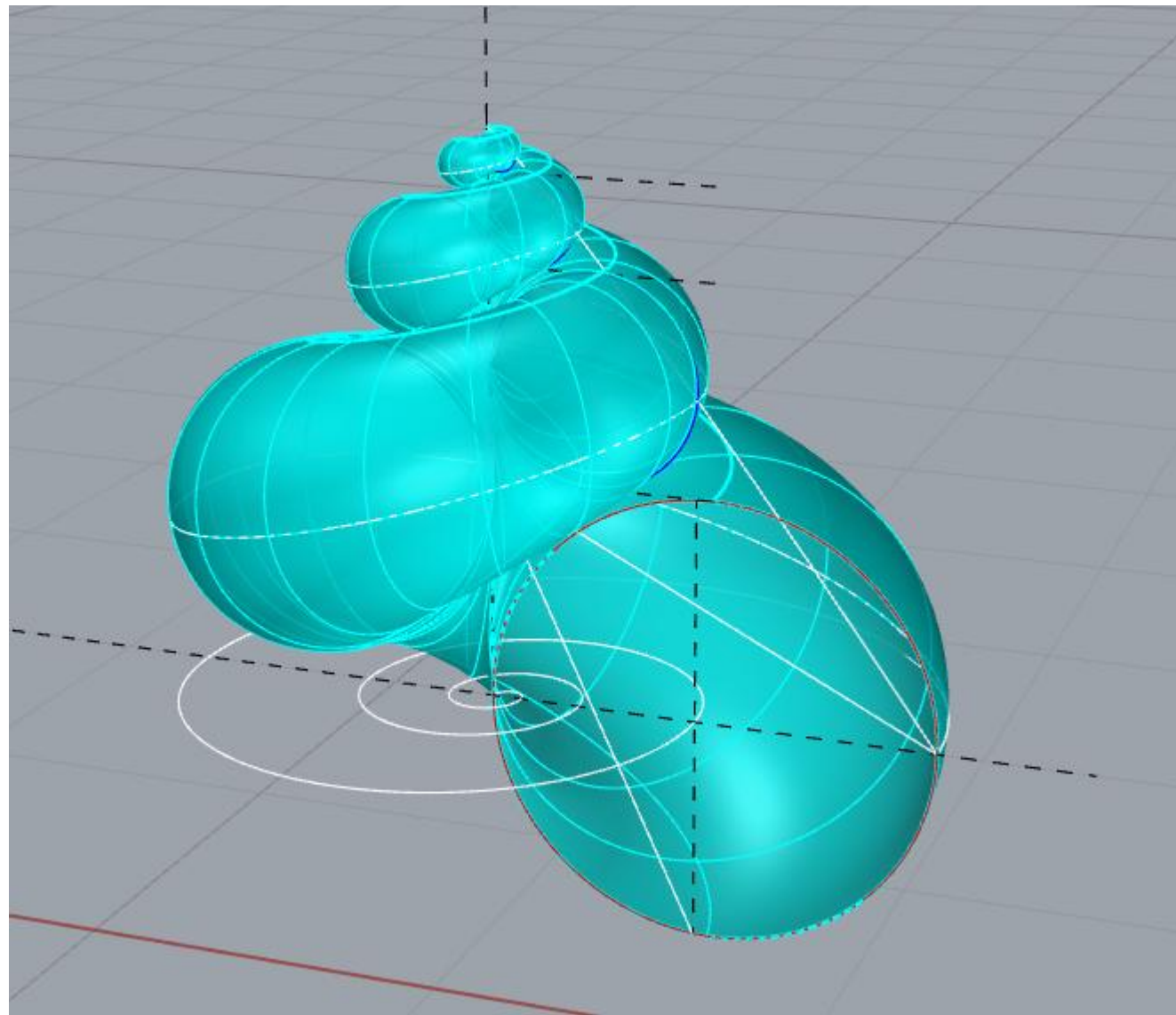
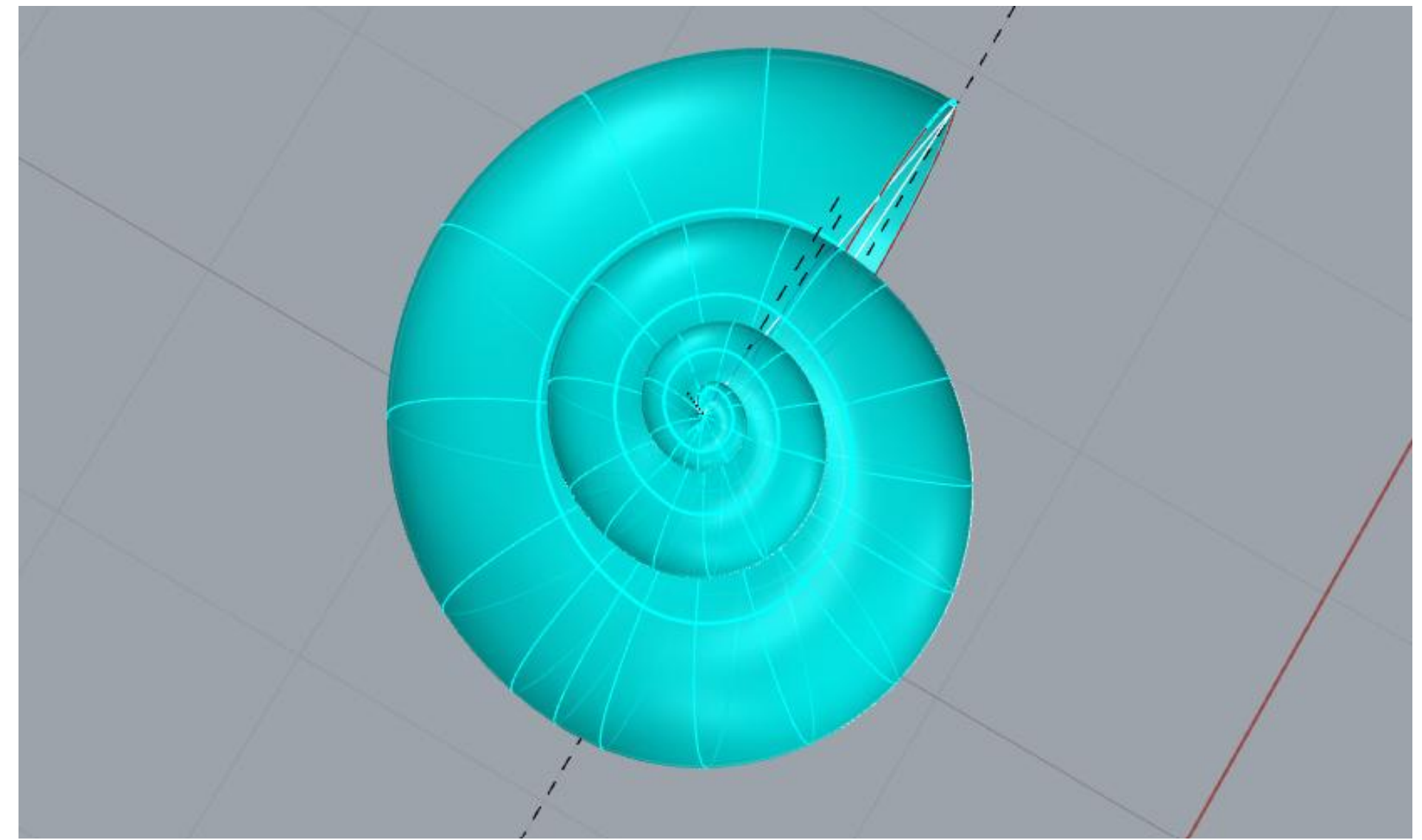
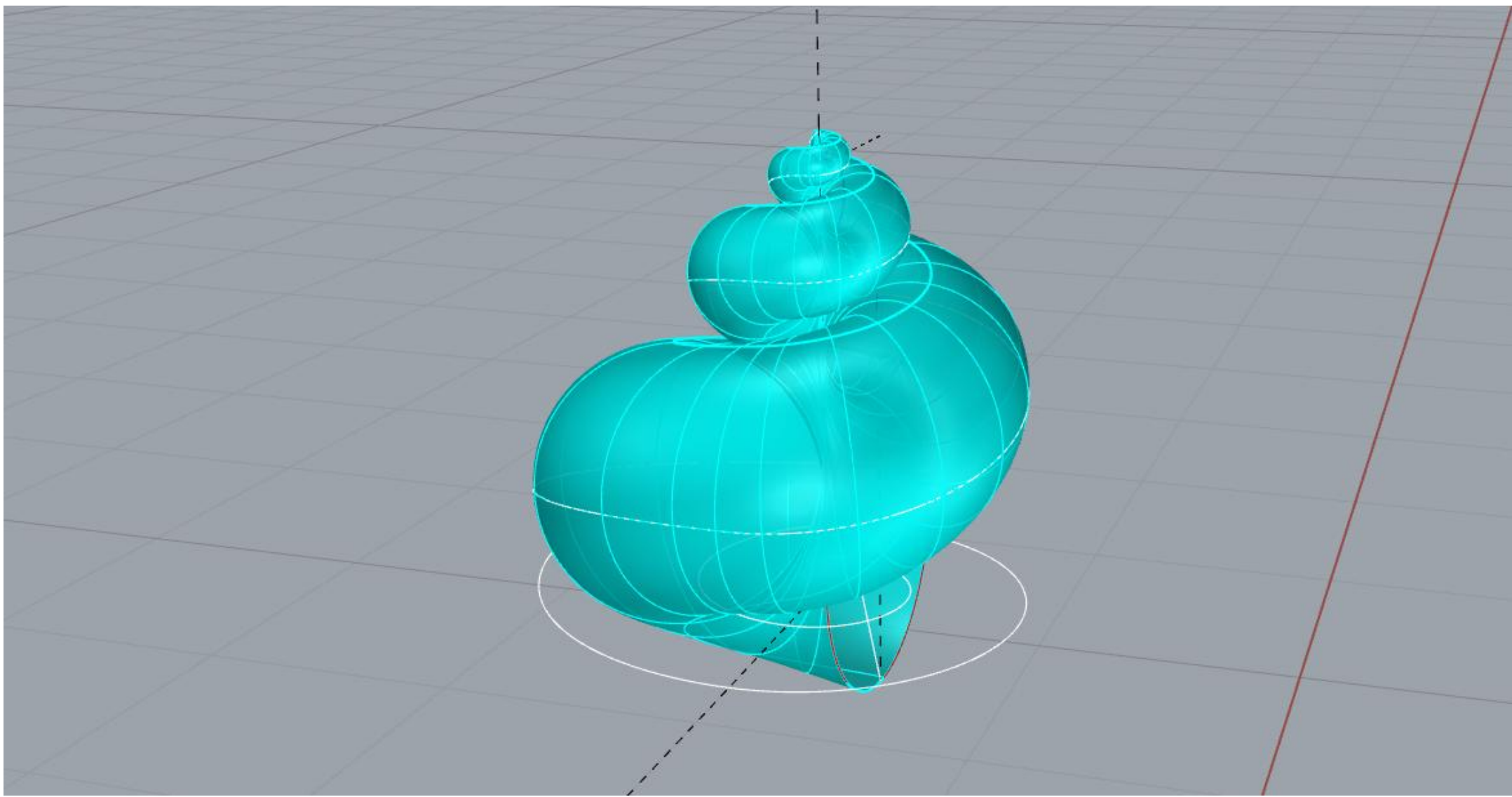
Aula 12- Caracol



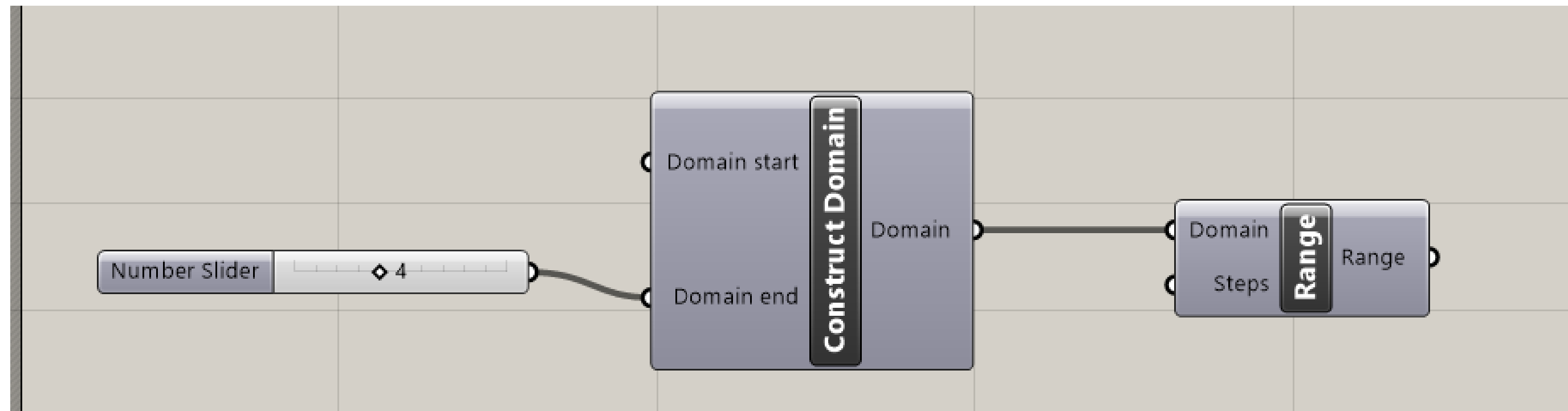
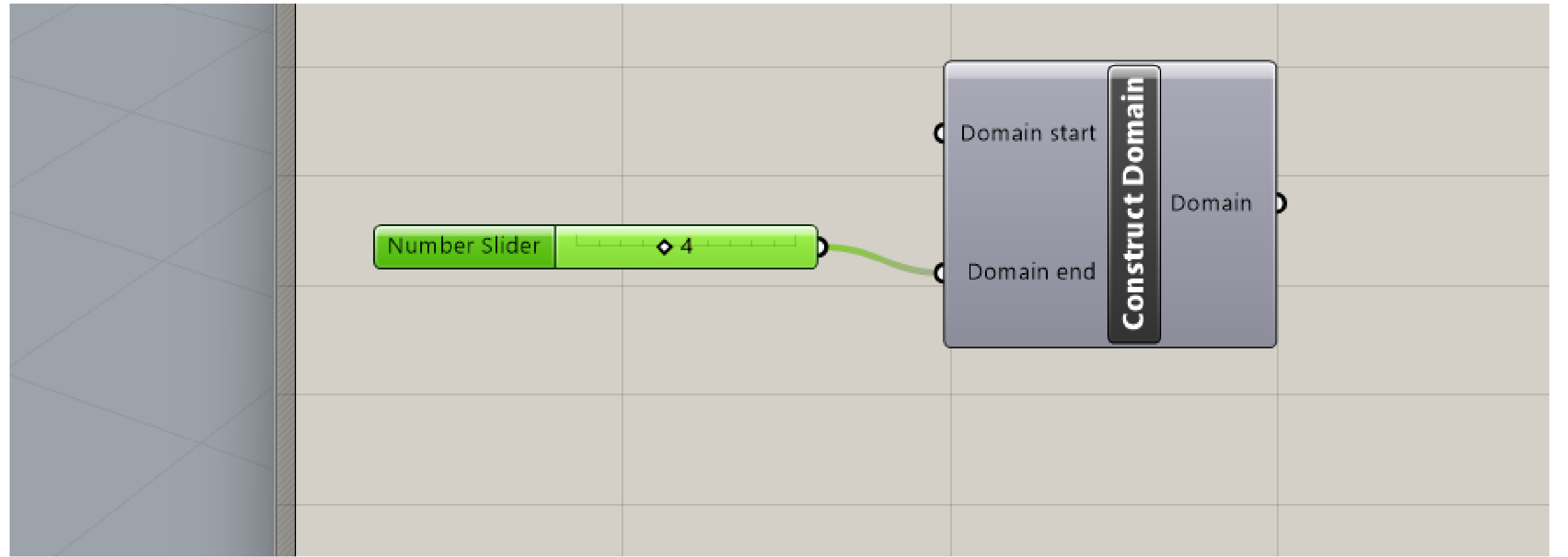
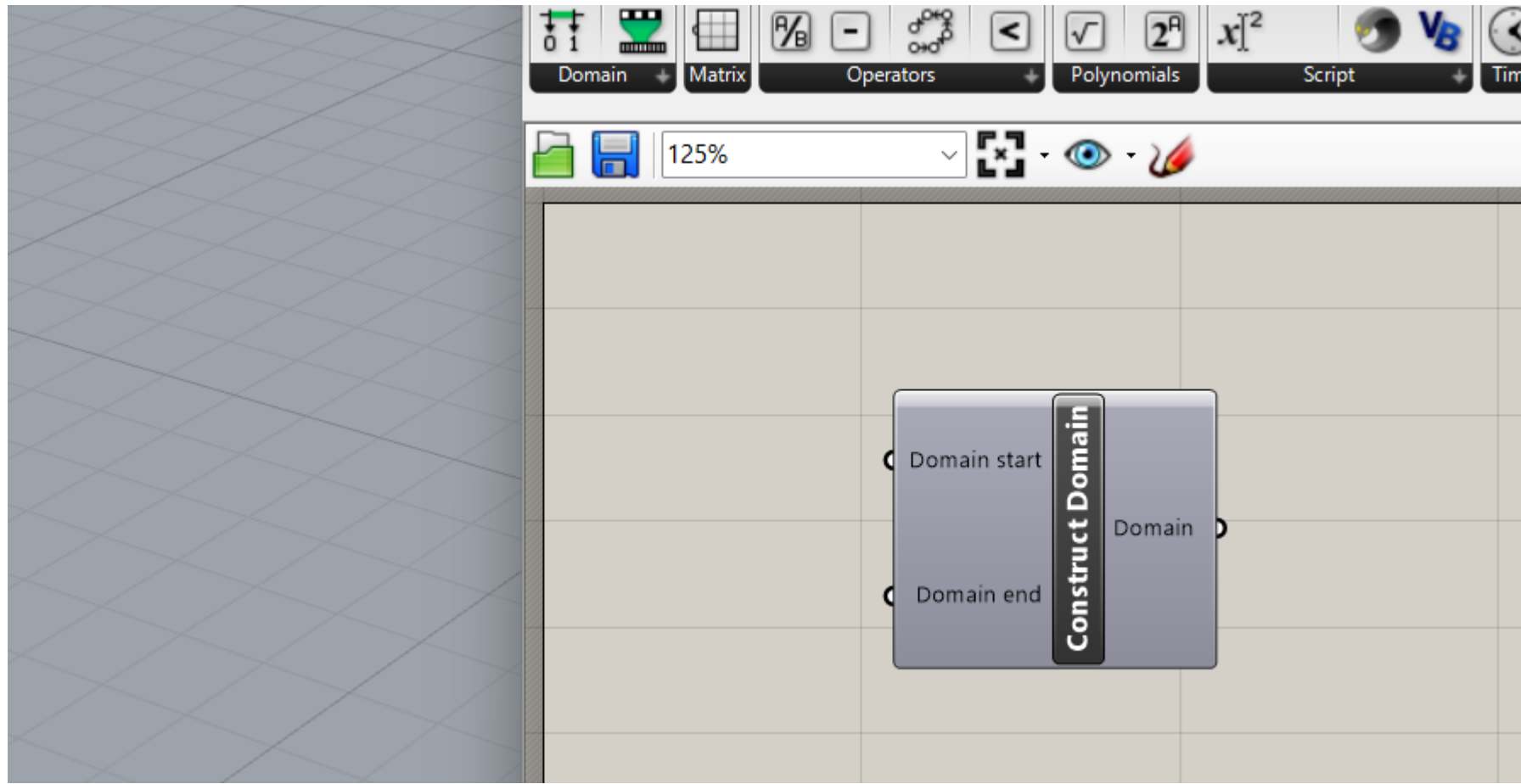
Aula 12- Caramujo



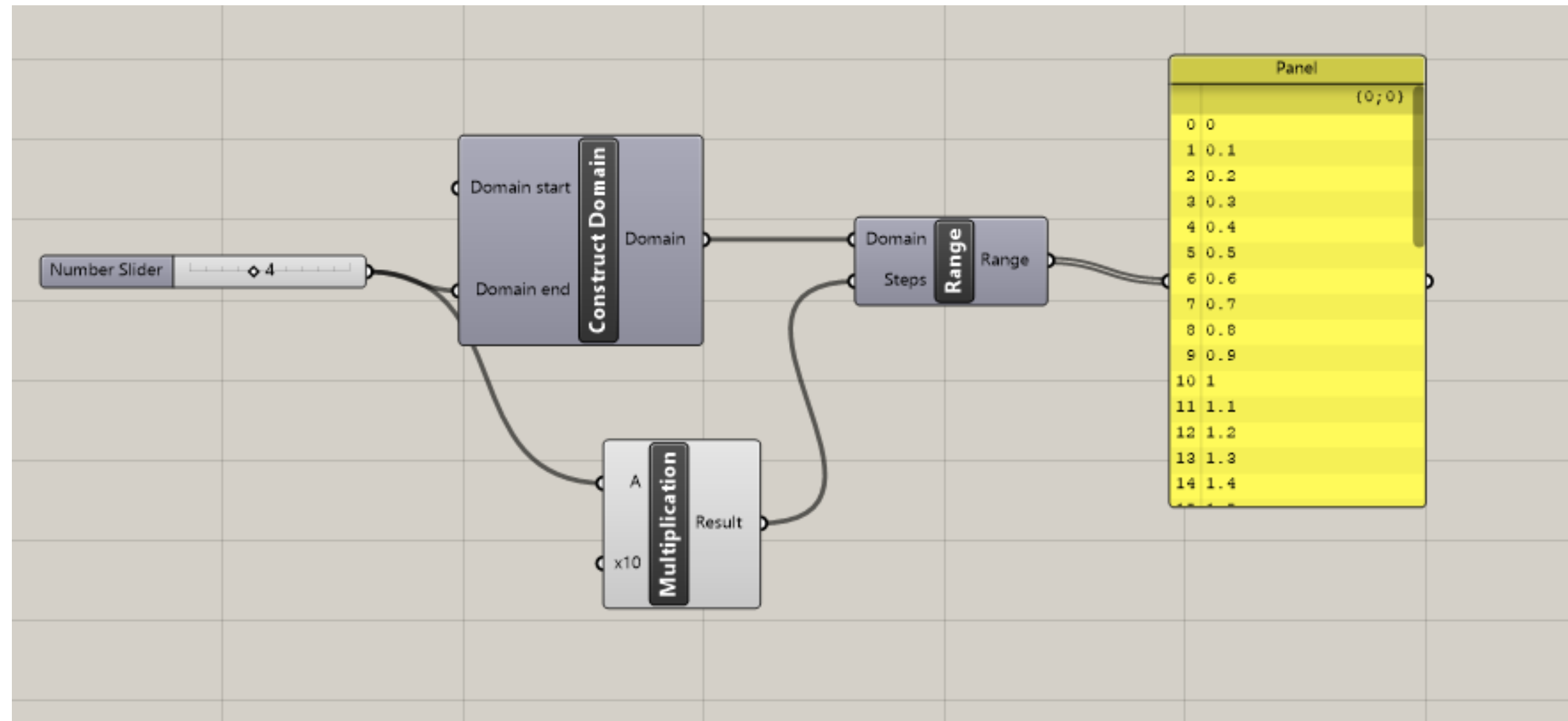
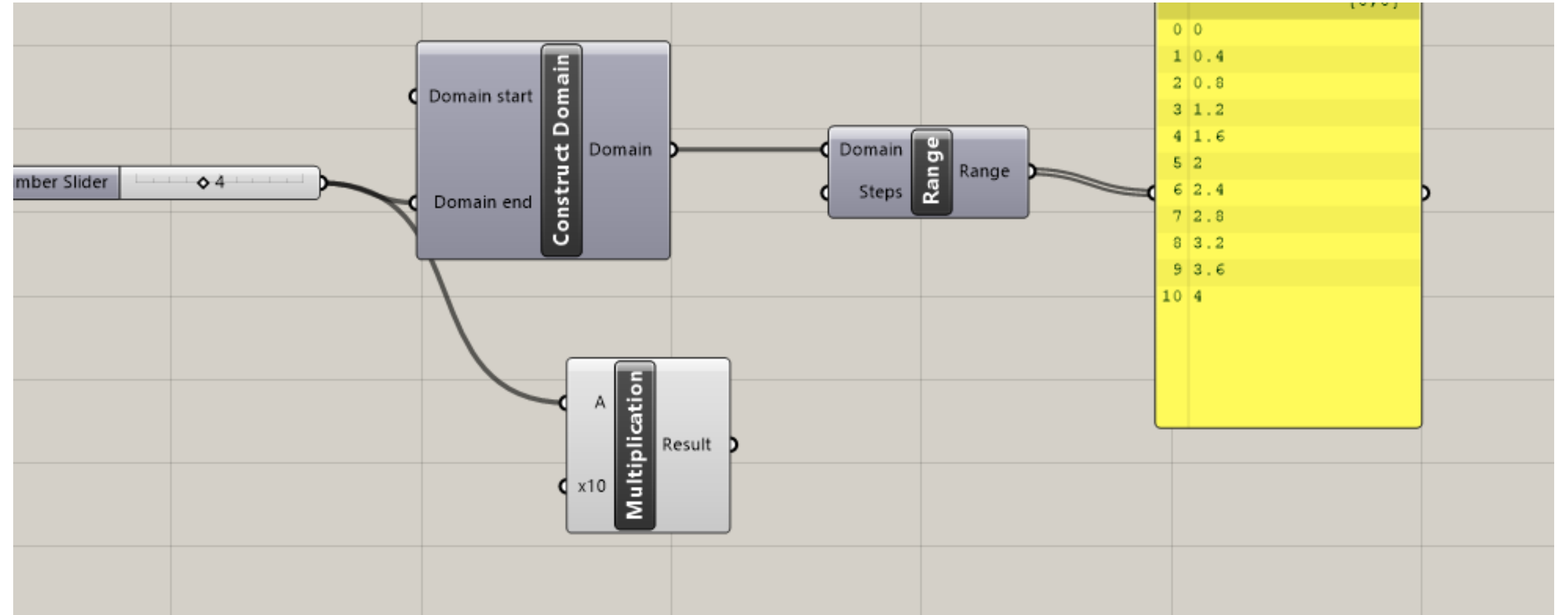
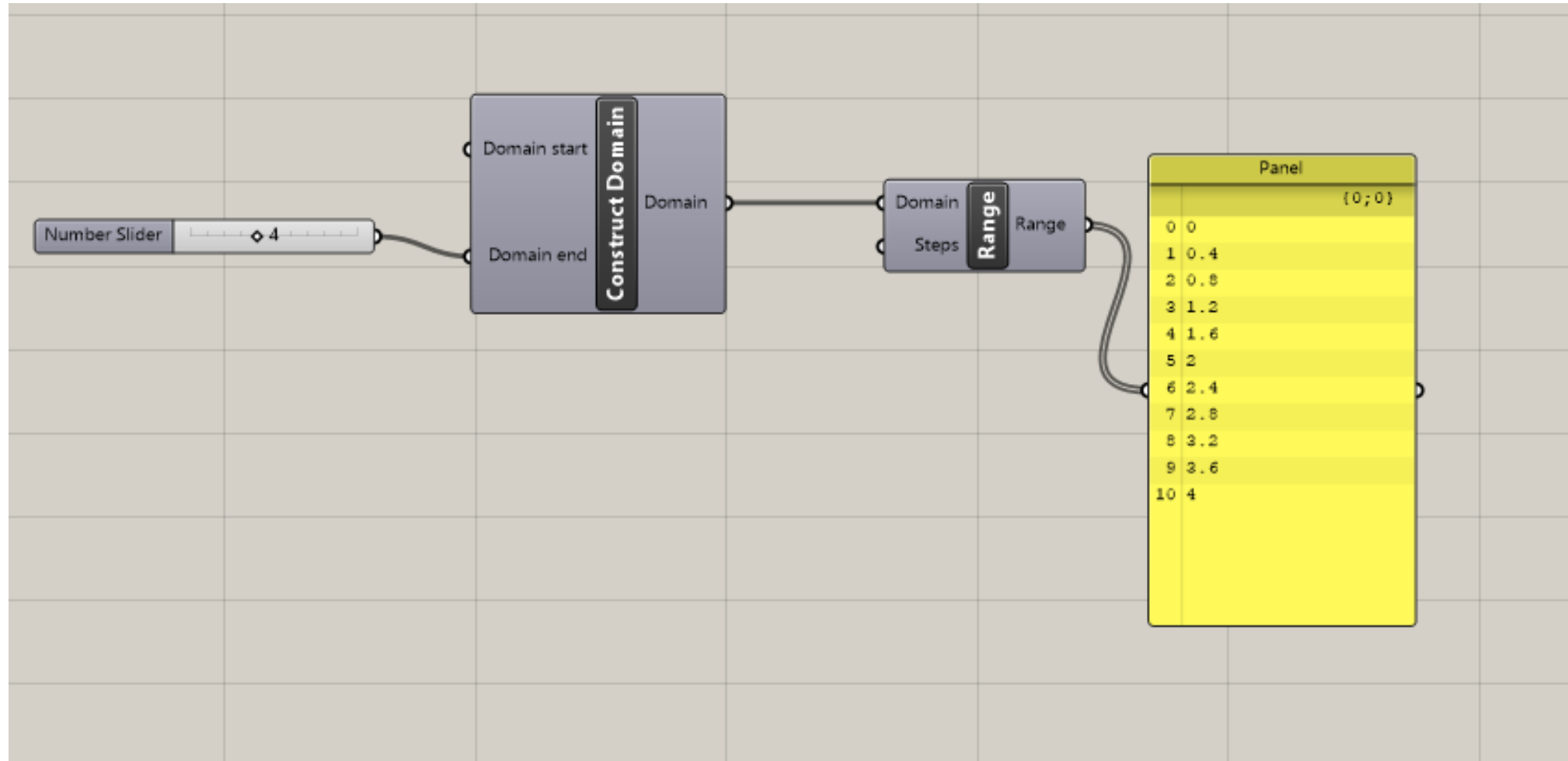
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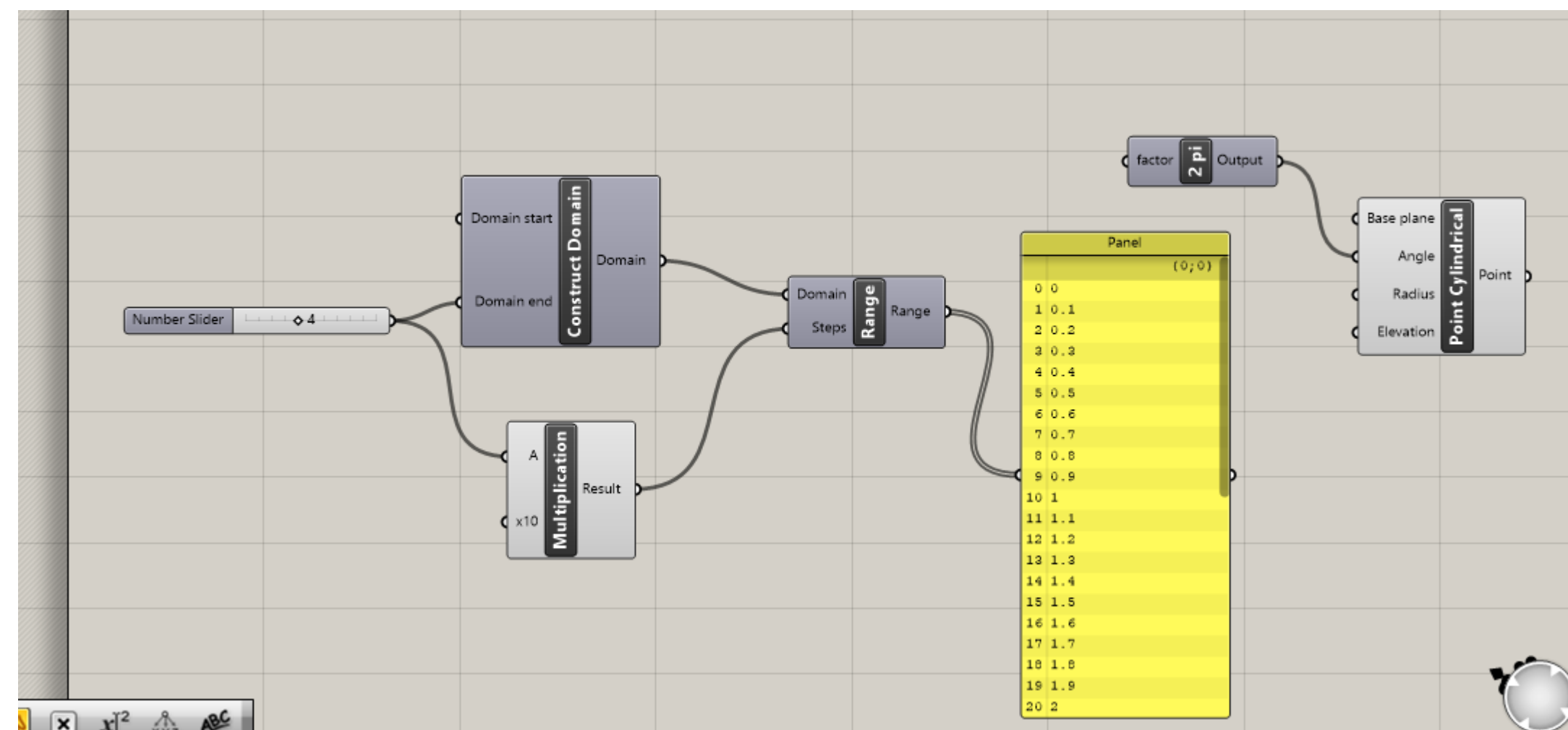
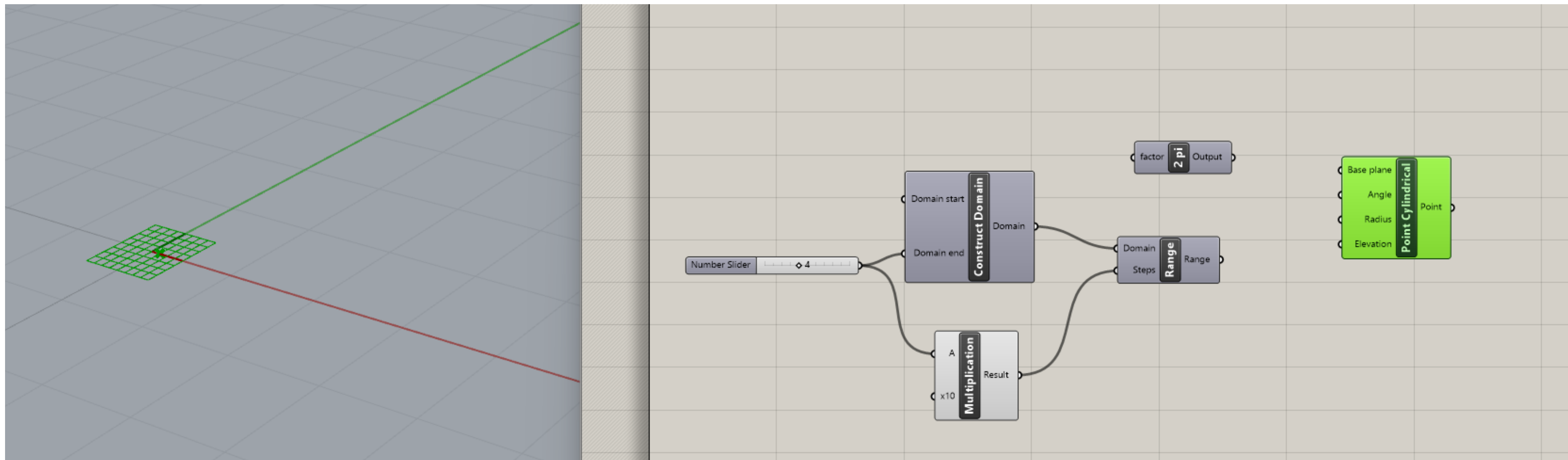
Aula 12- Caramujo



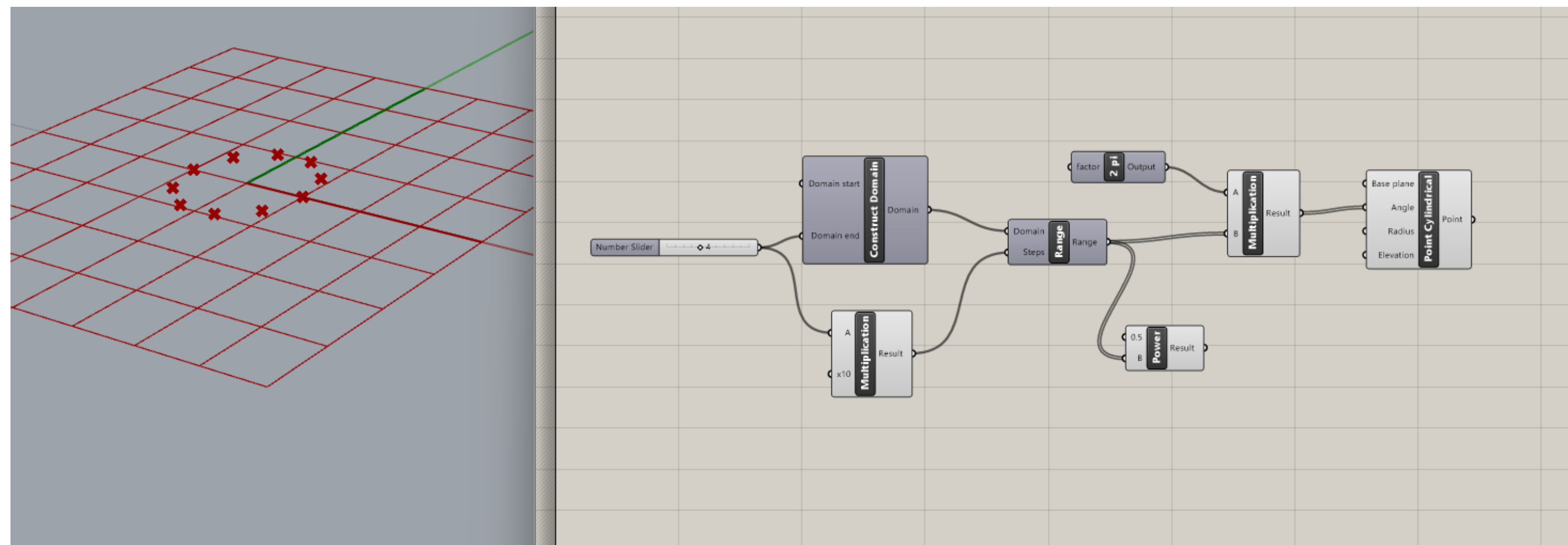
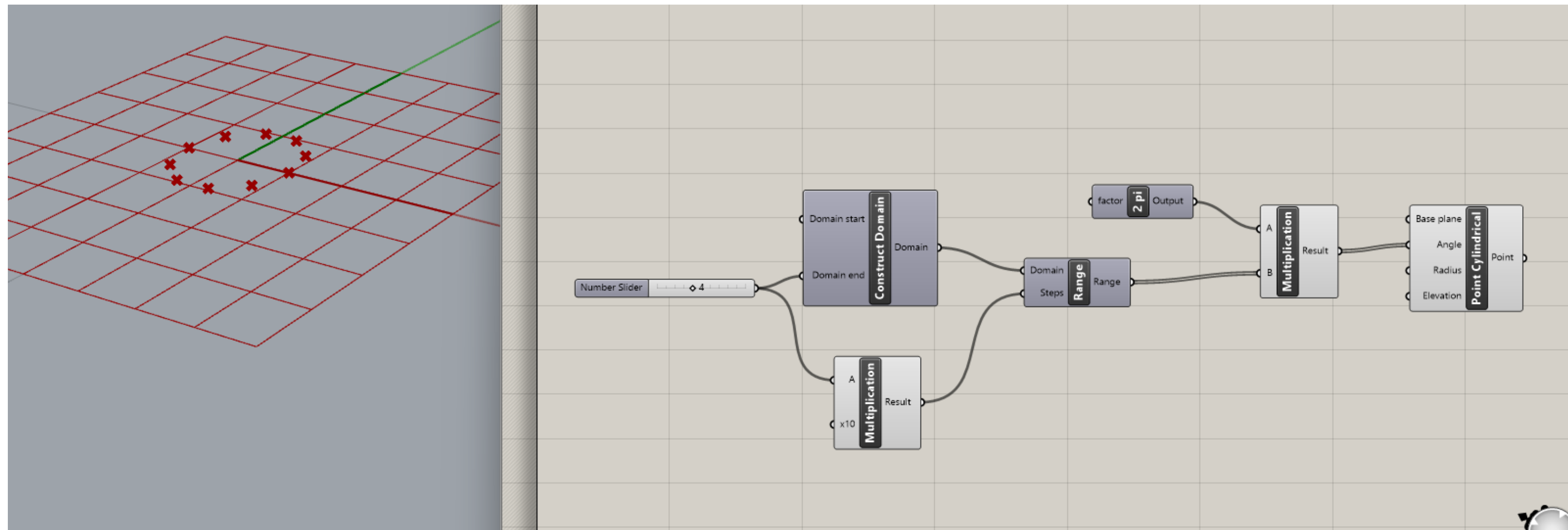
Aula 12- Caramujo no Grasshopper



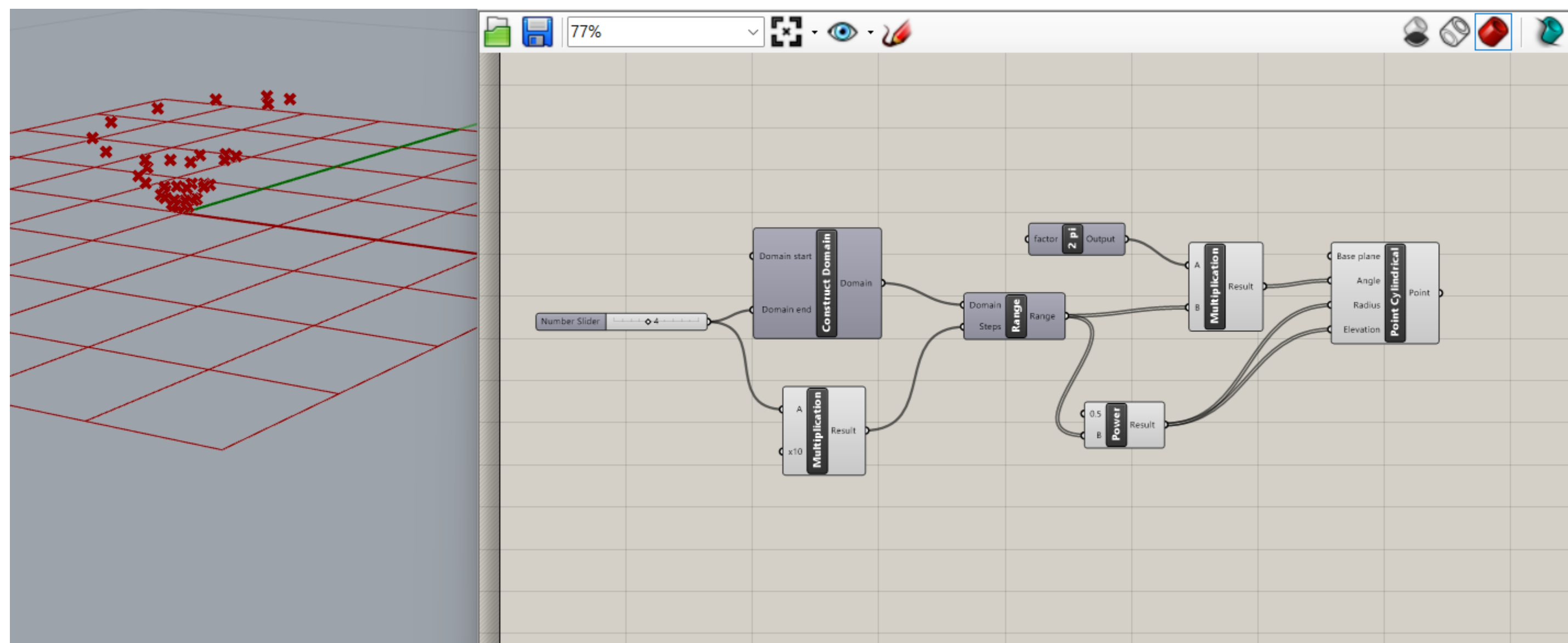
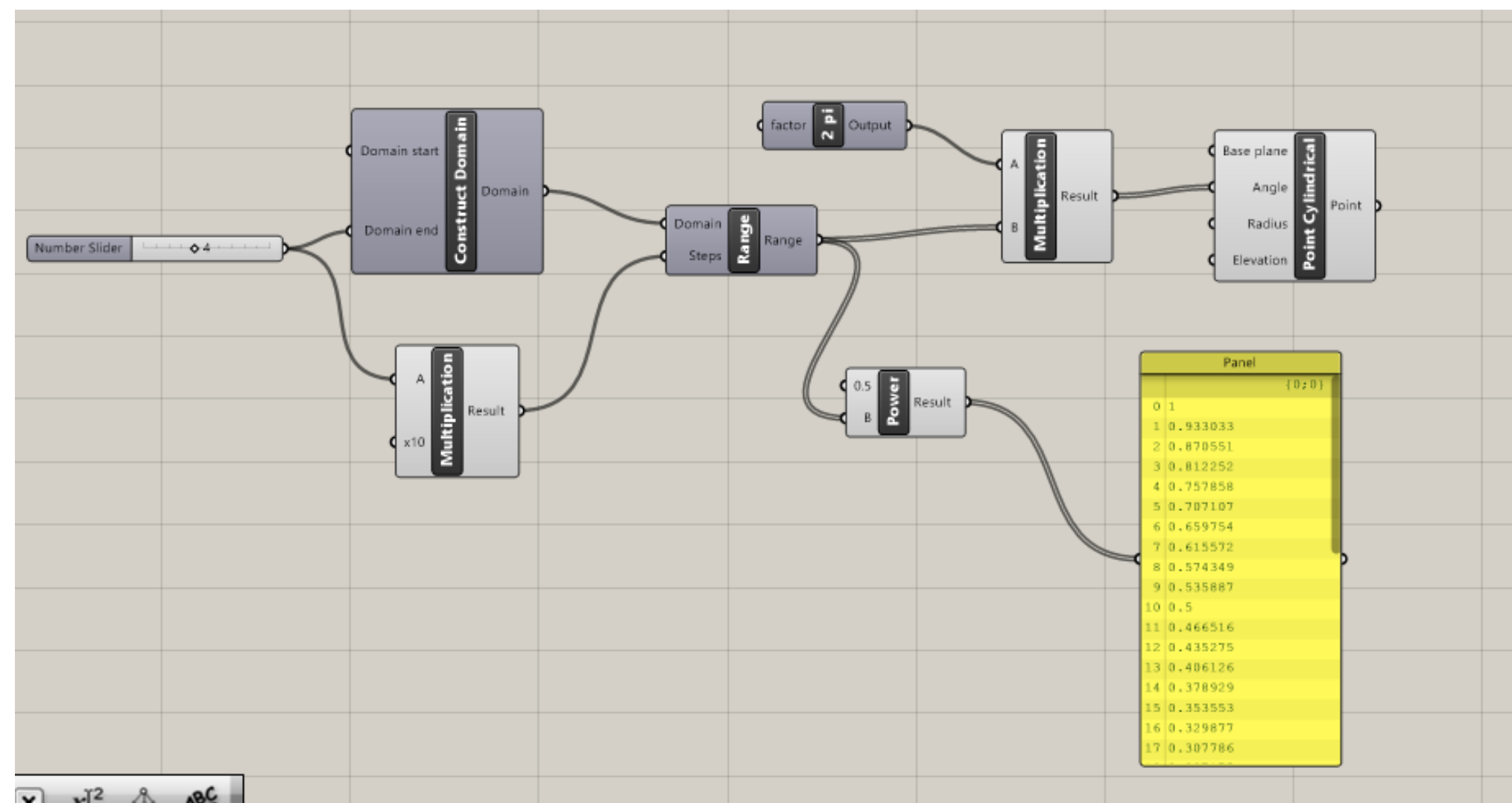
Aula 12- Caramujo no Grasshopper



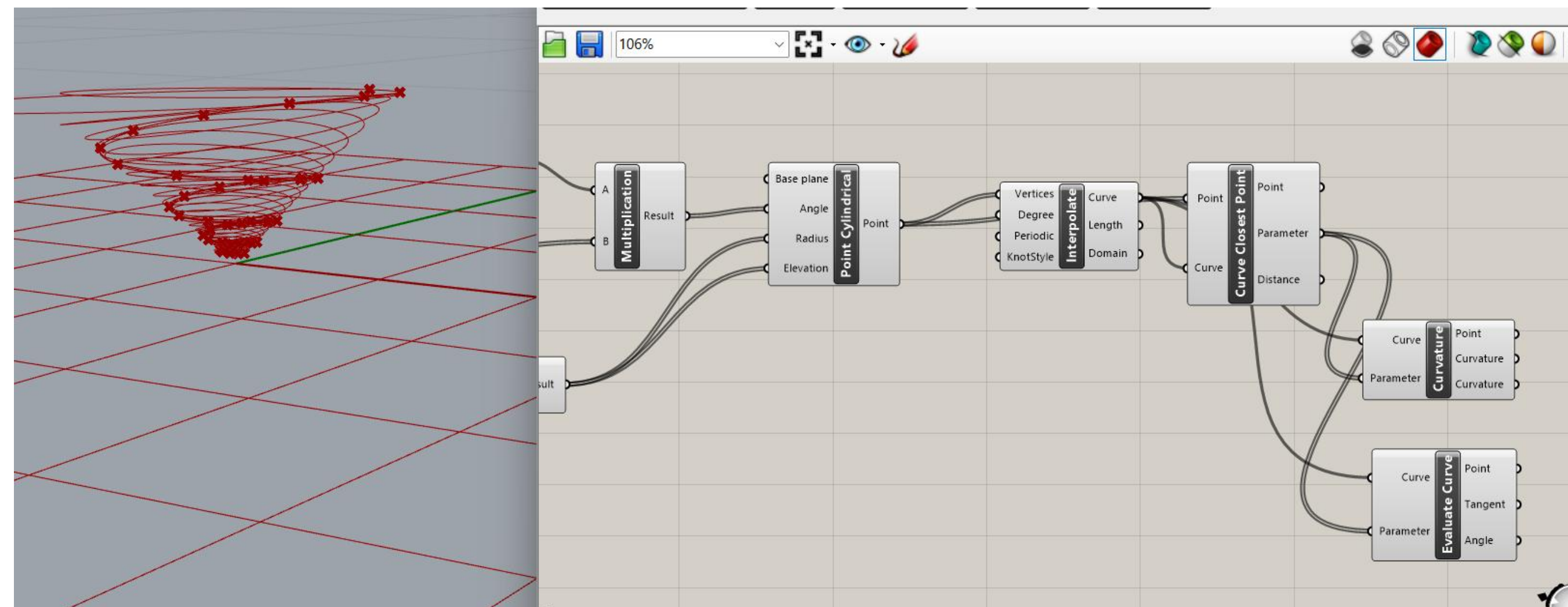
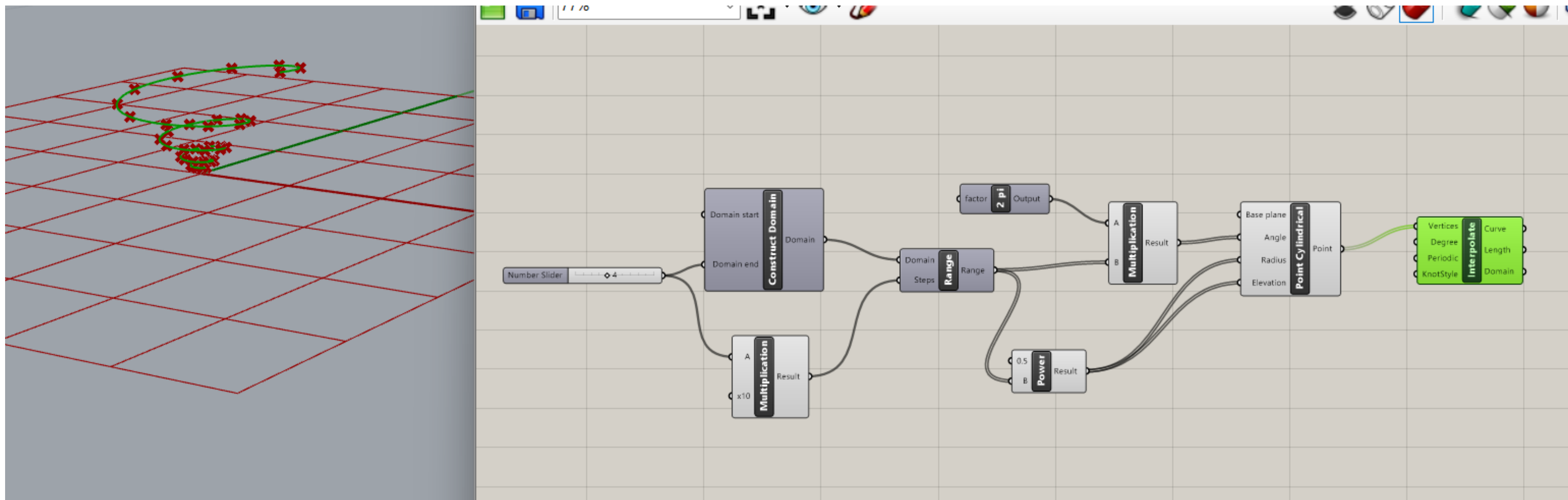
Aula 12- Caramujo no Grasshopper



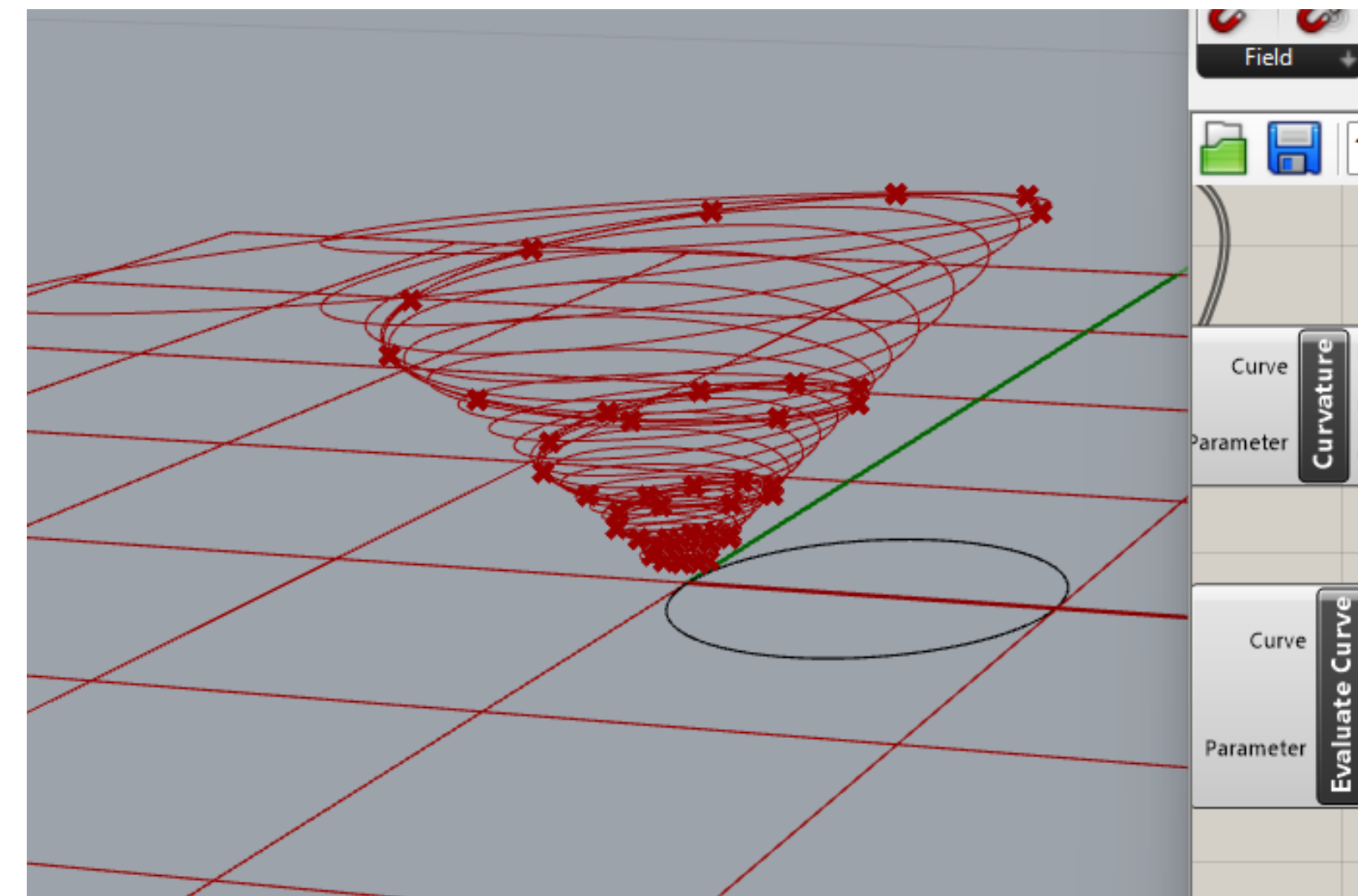
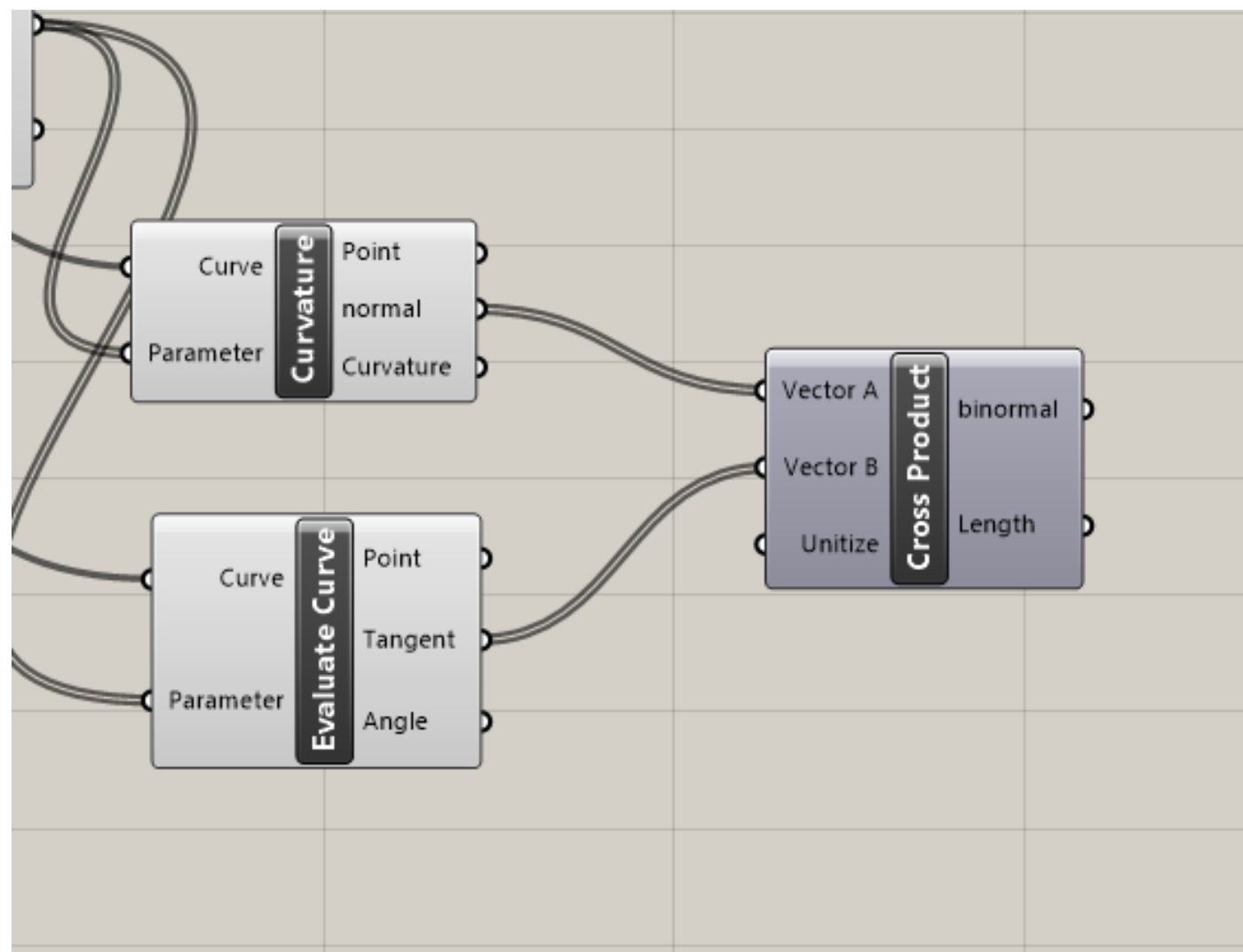
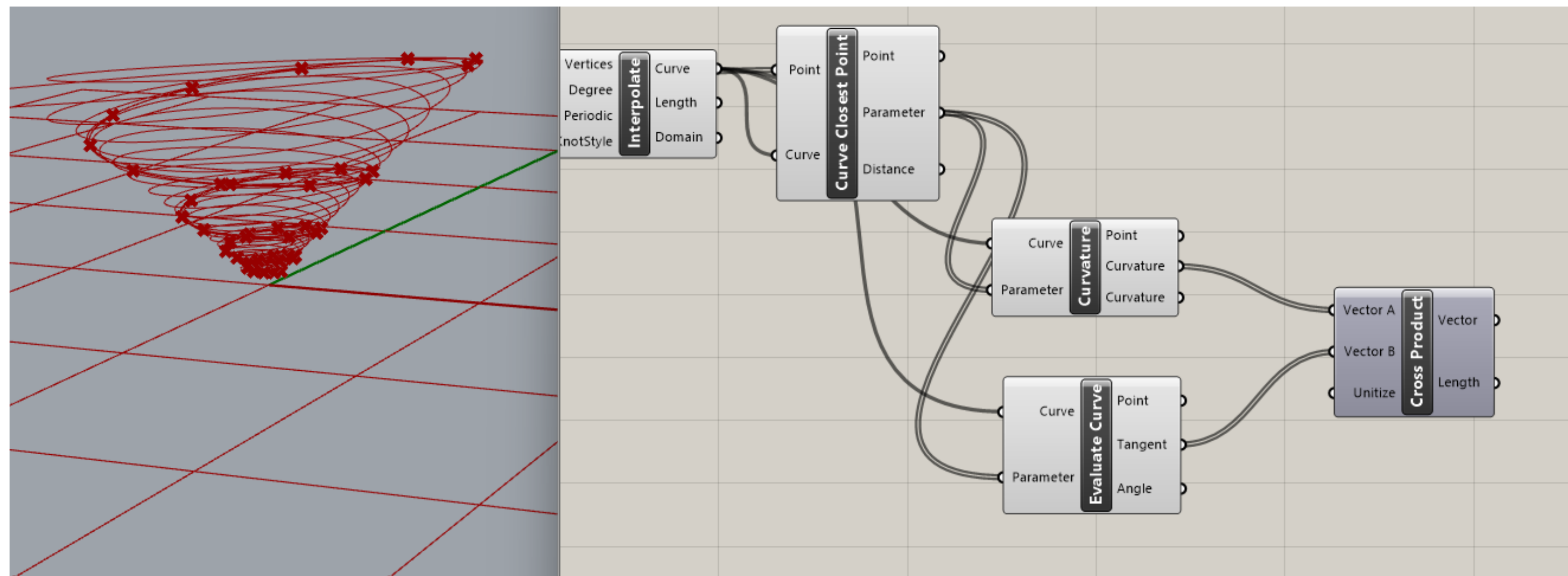
Aula 12- Caramujo no Grasshopper



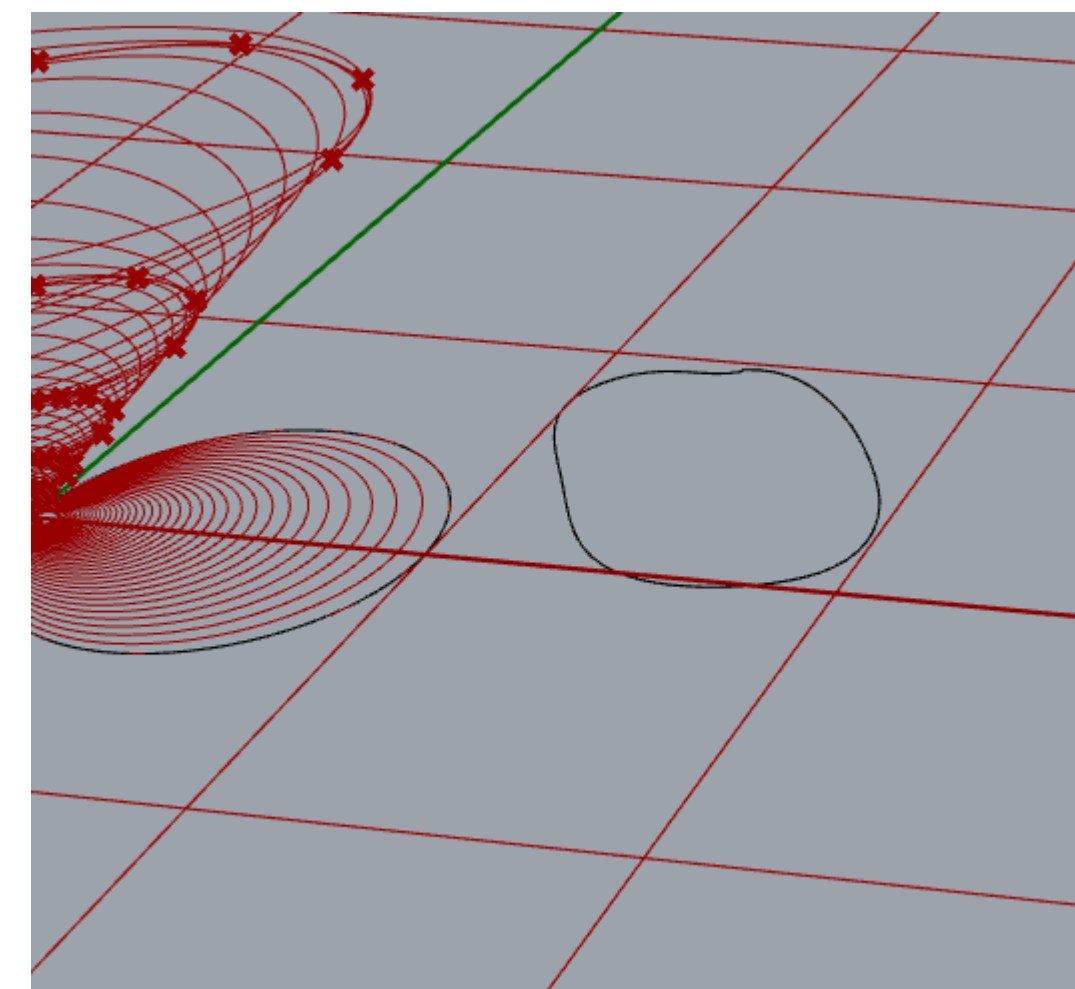
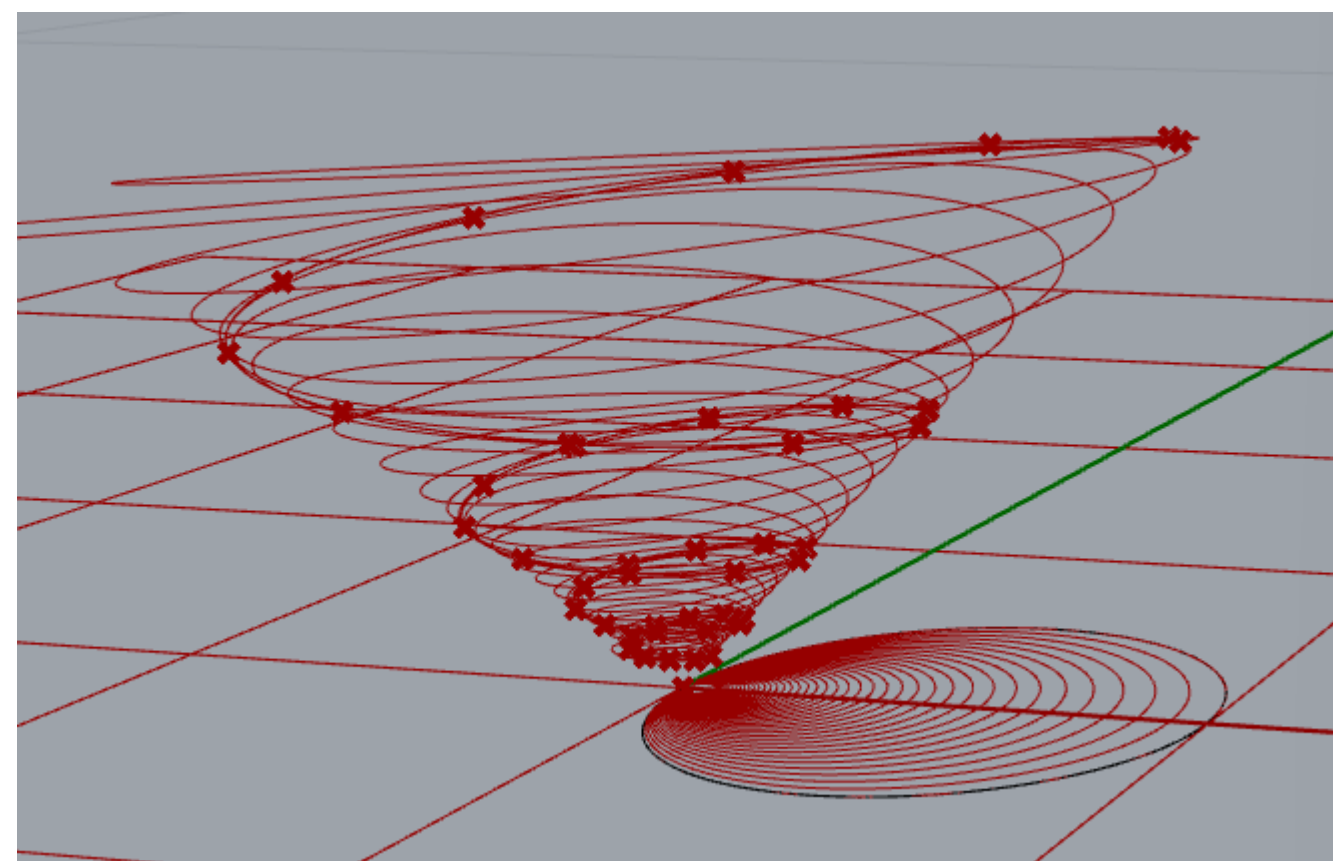
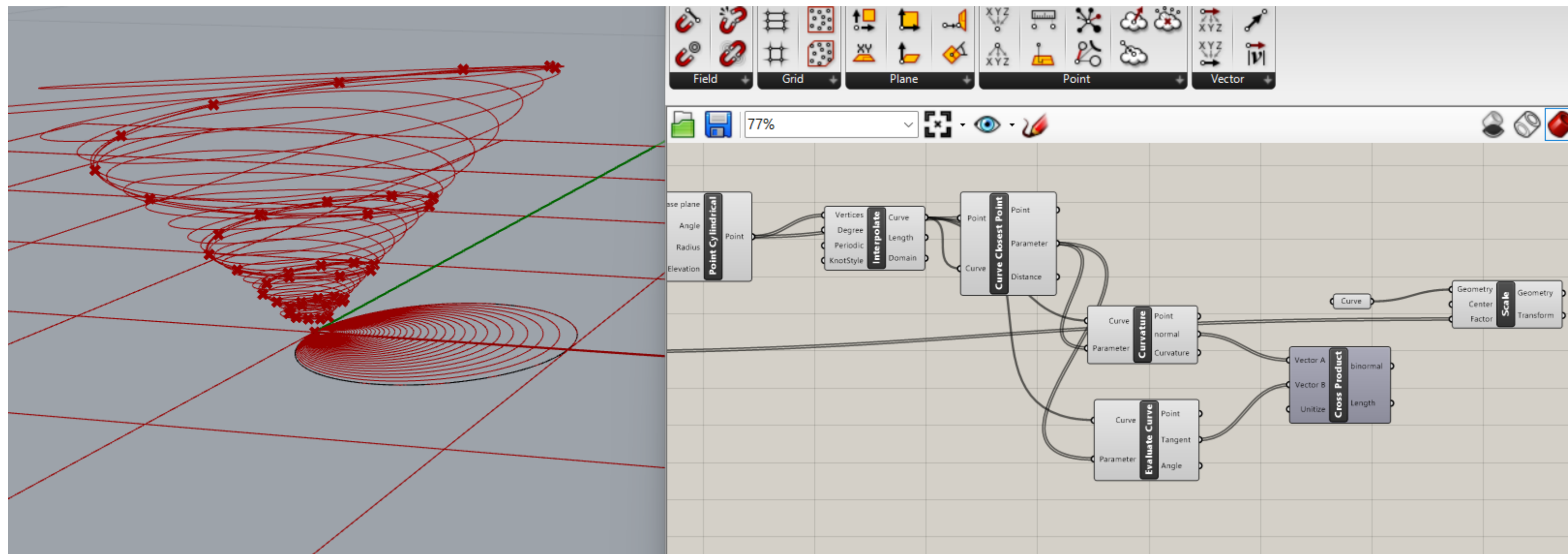
Aula 12- Caramujo no Grasshopper



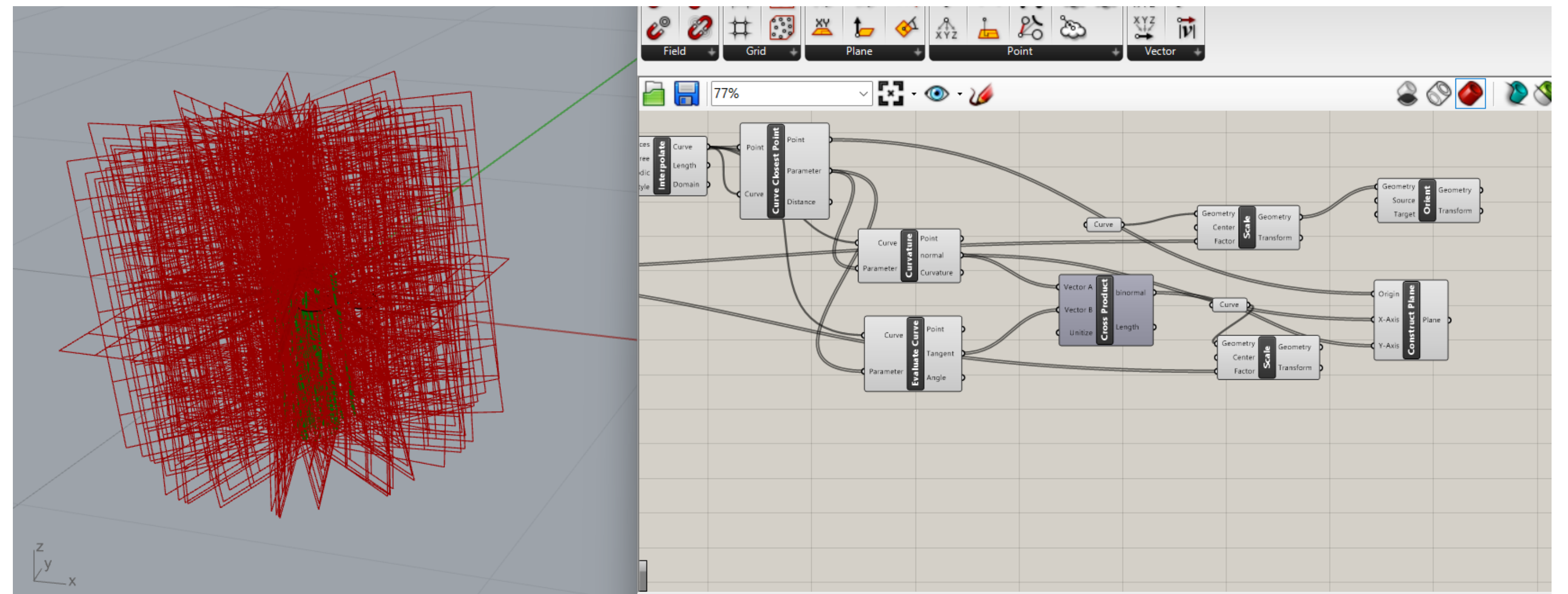
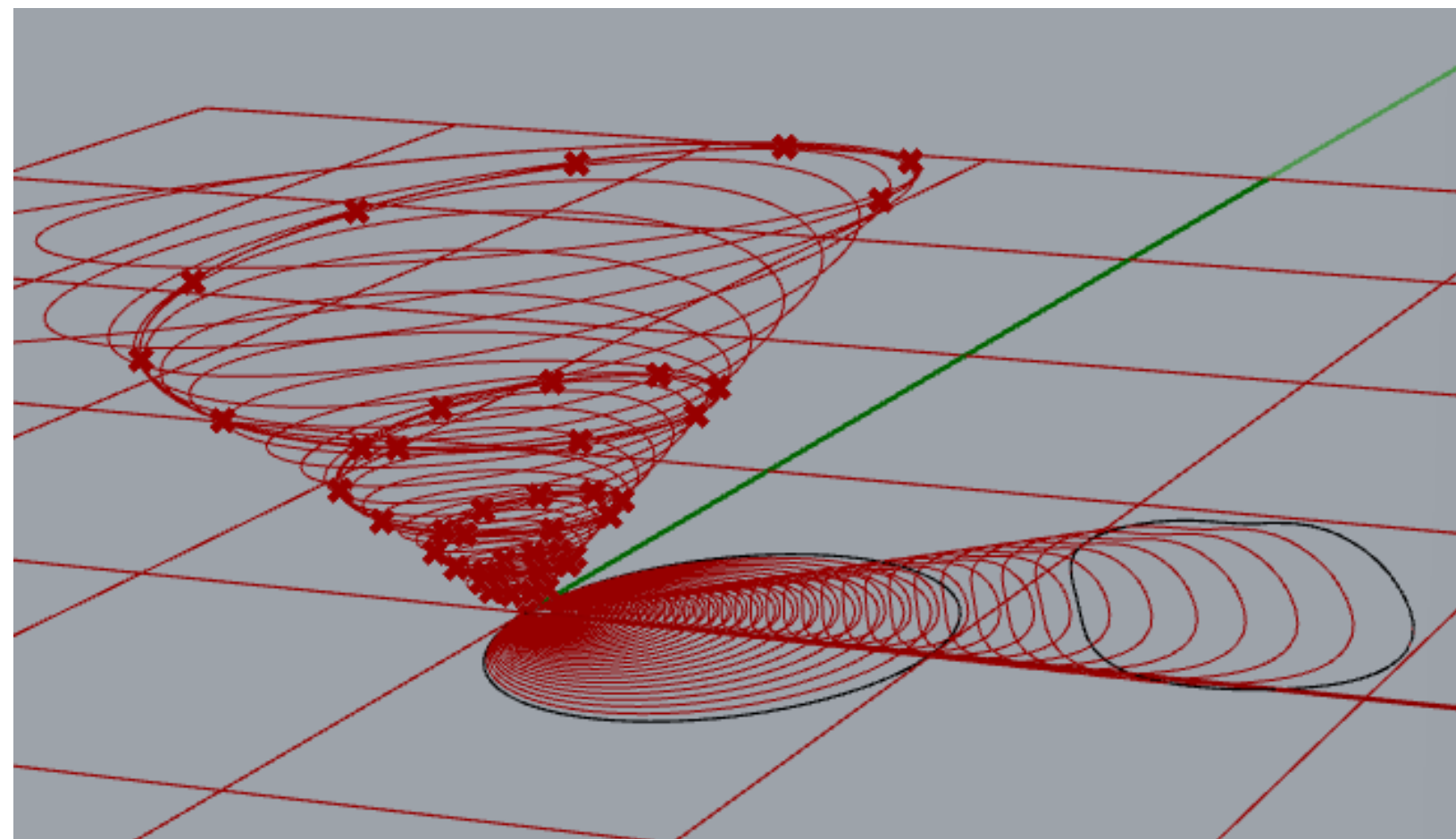
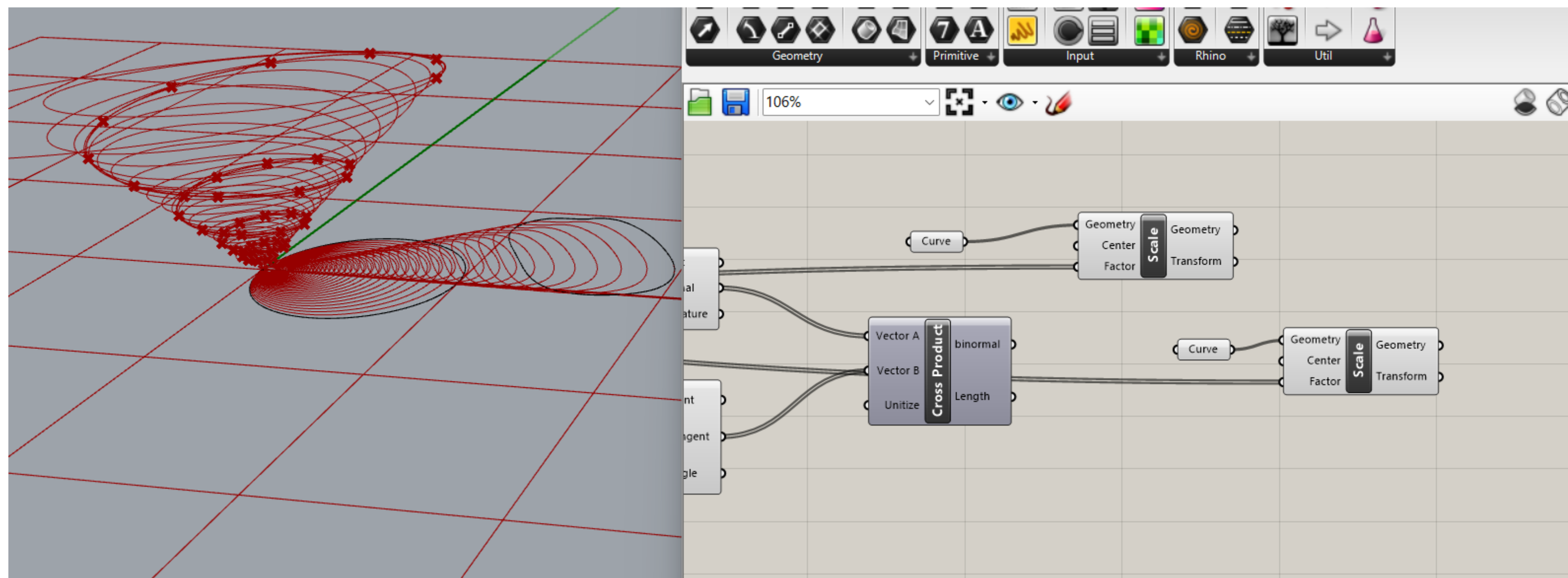
Aula 12- Caramujo no Grasshopper



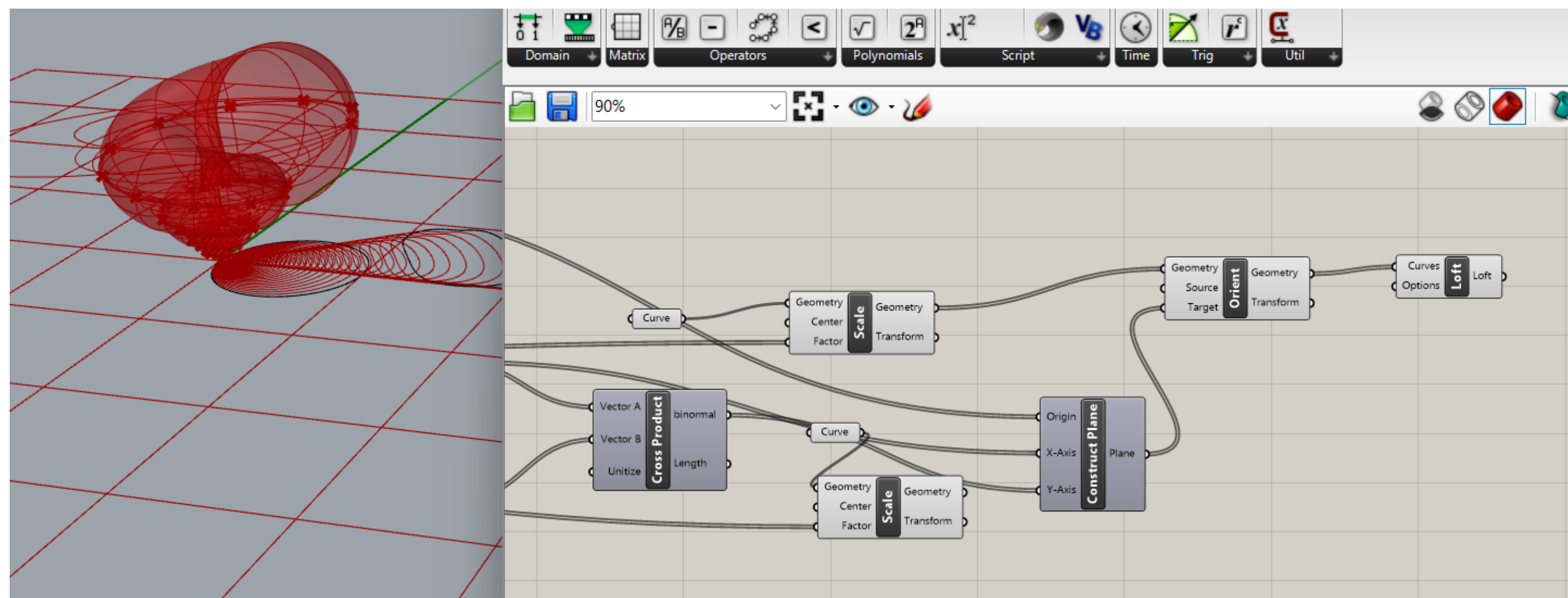
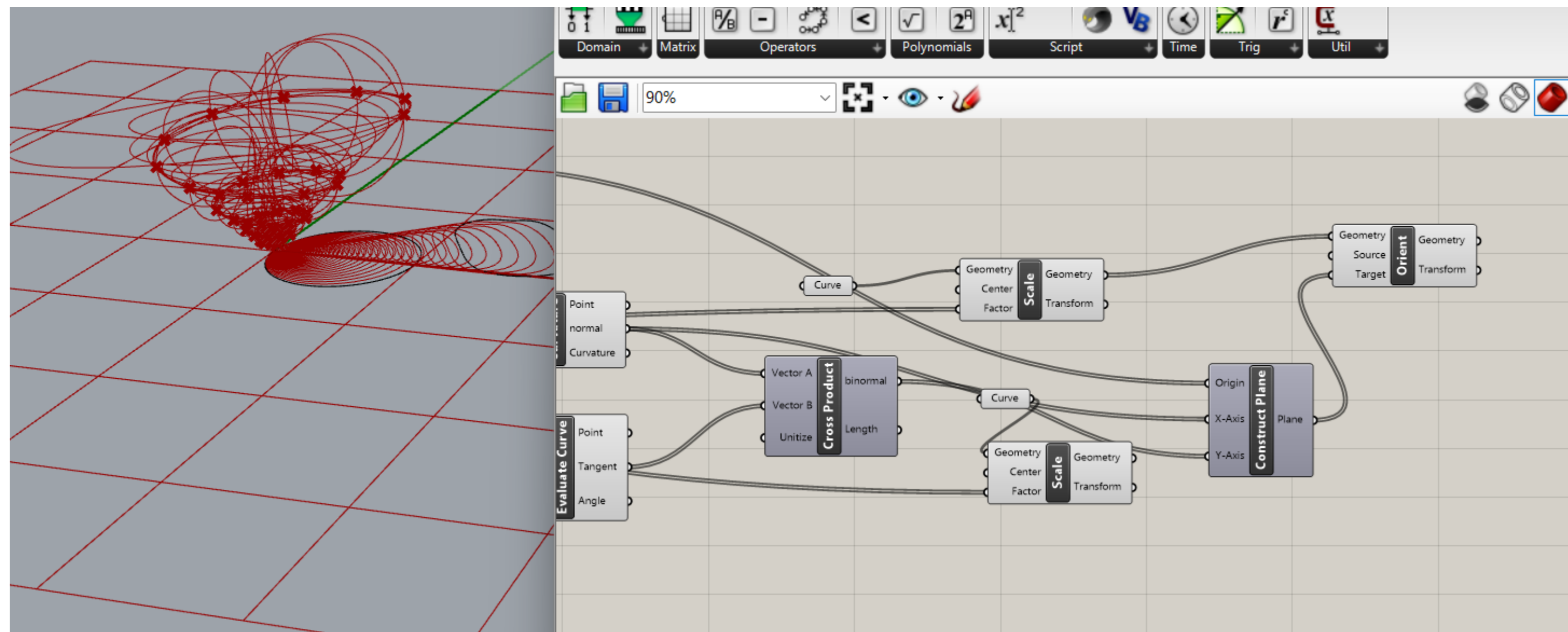
Aula 12- Caramujo no Grasshopper



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