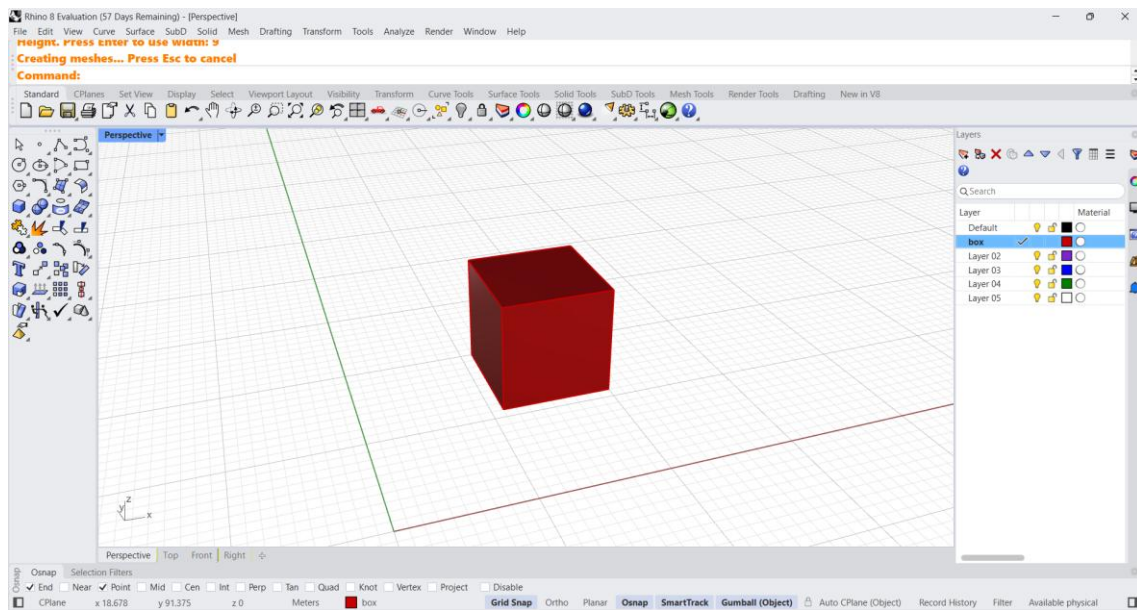


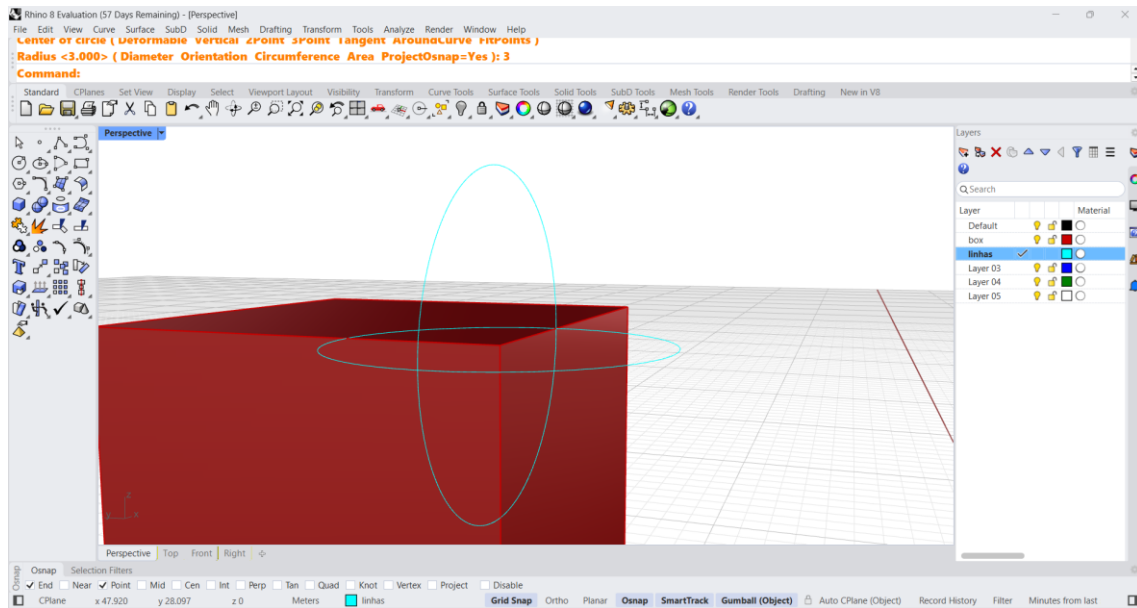
MODELAÇÃO GEOMÉTRICA E GENERATIVA

20241308-RAFAEL SILVA

AULA 2

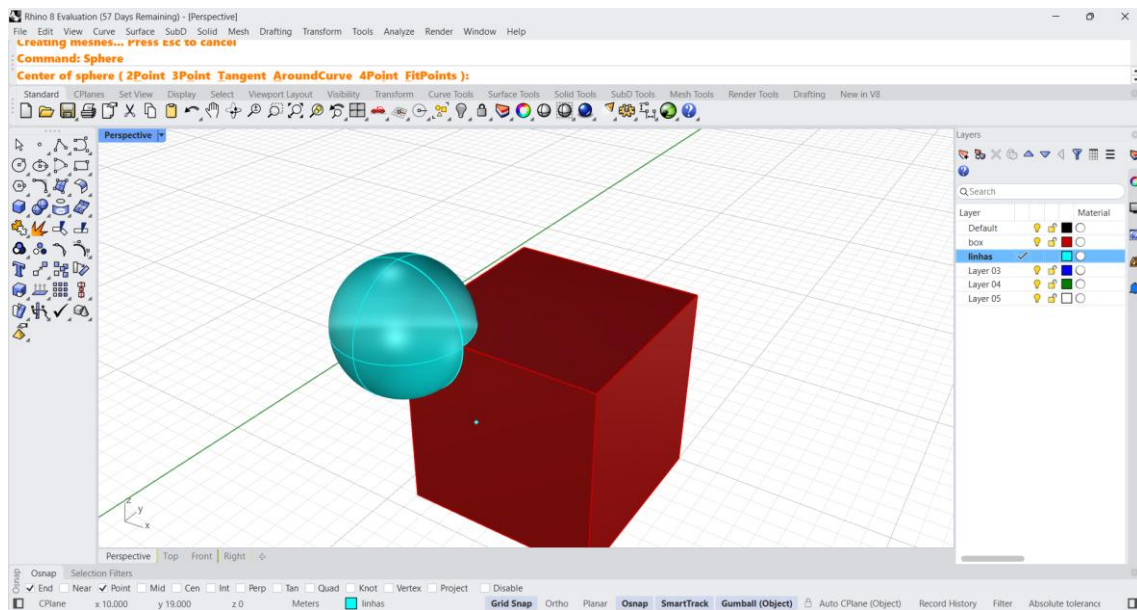


Box/9/9/9

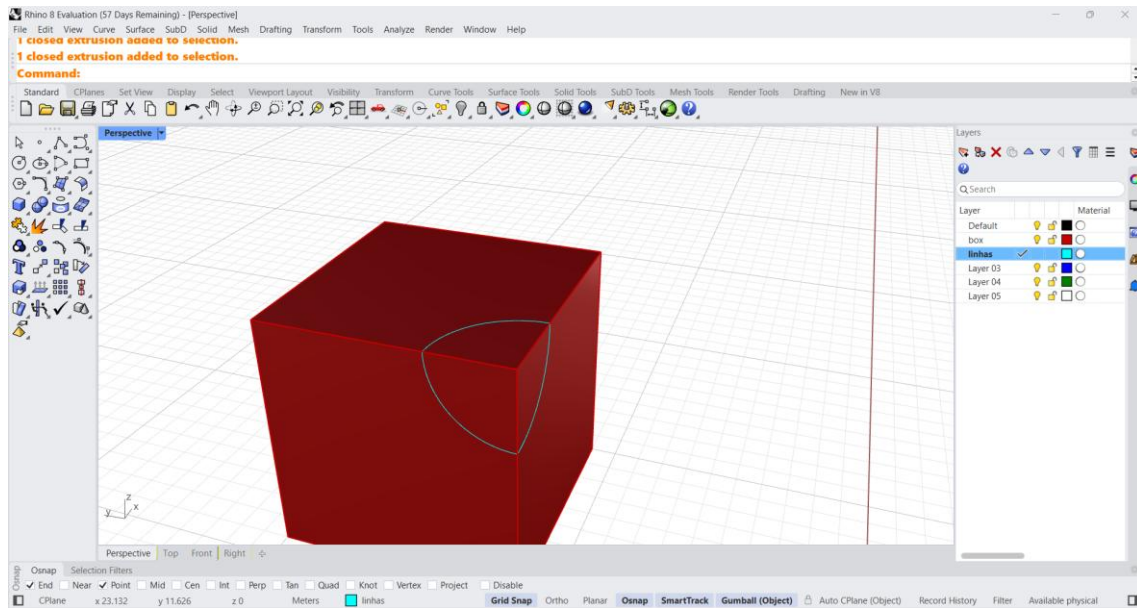


Comando circle/vertical/3 na aresta do cubo e circle/3/3/3

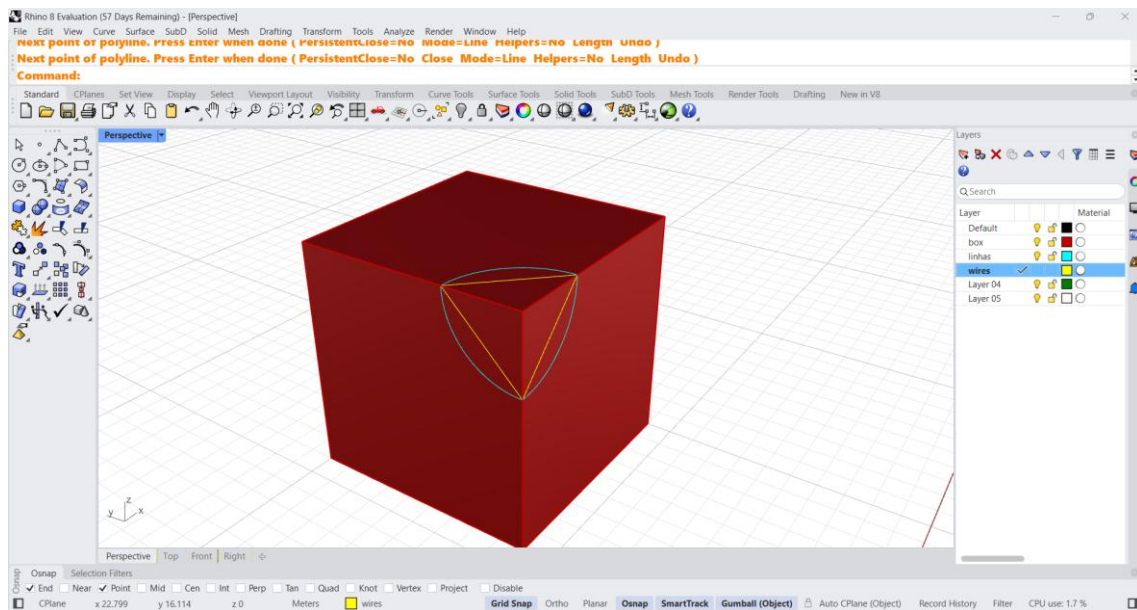
Estes círculos são para trincar o cubo



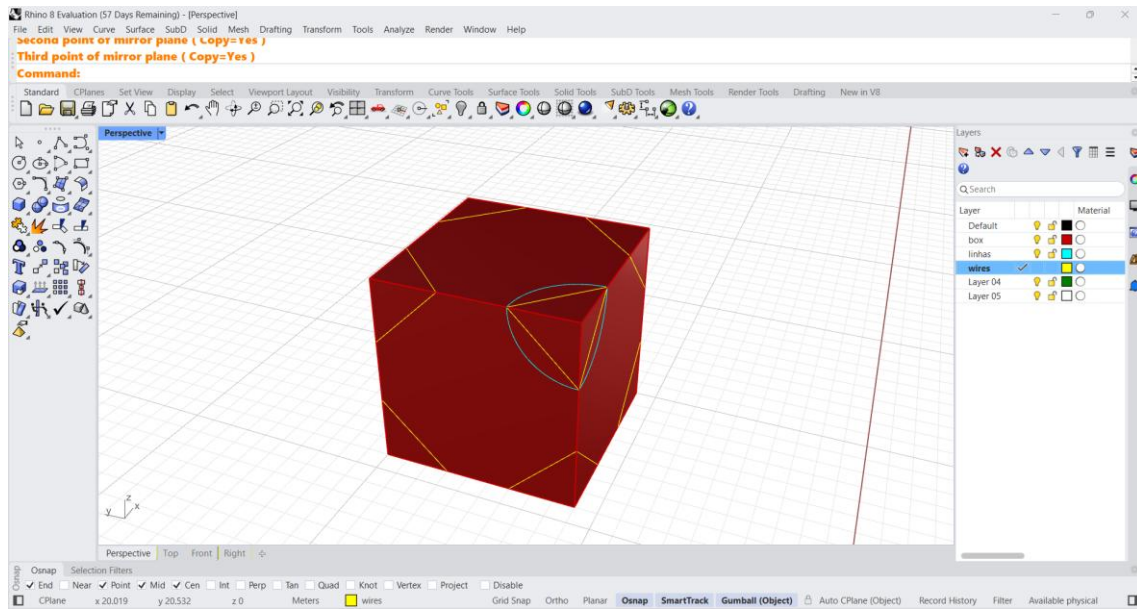
Eu usei a esfera comando sp para ser mais rápido



Intersect e seleciono os dois objetos

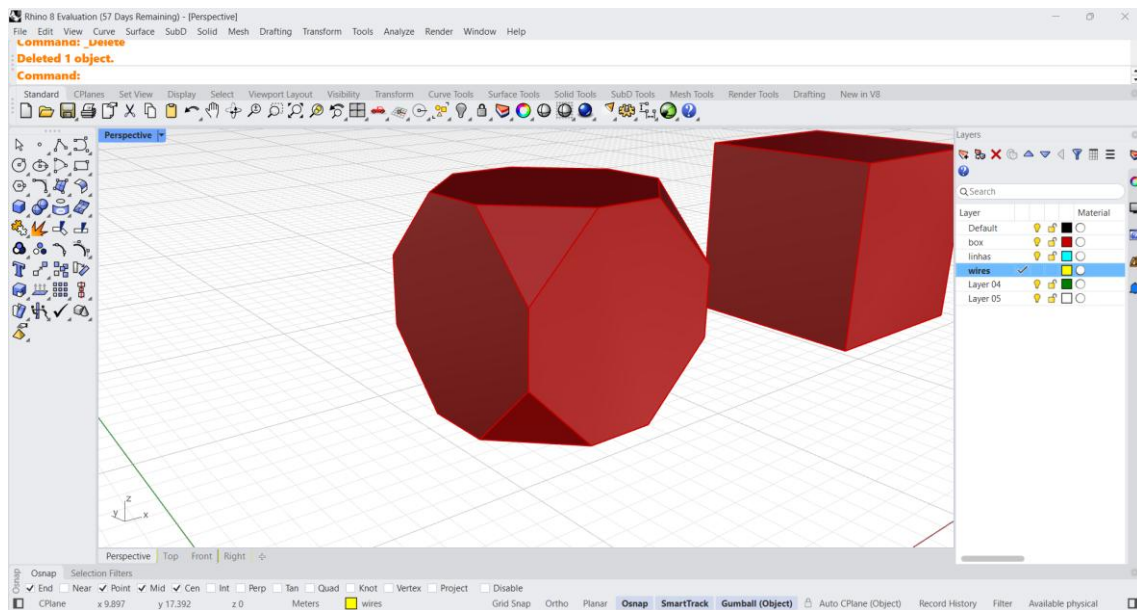


Desenho o primeiro wire com polyline

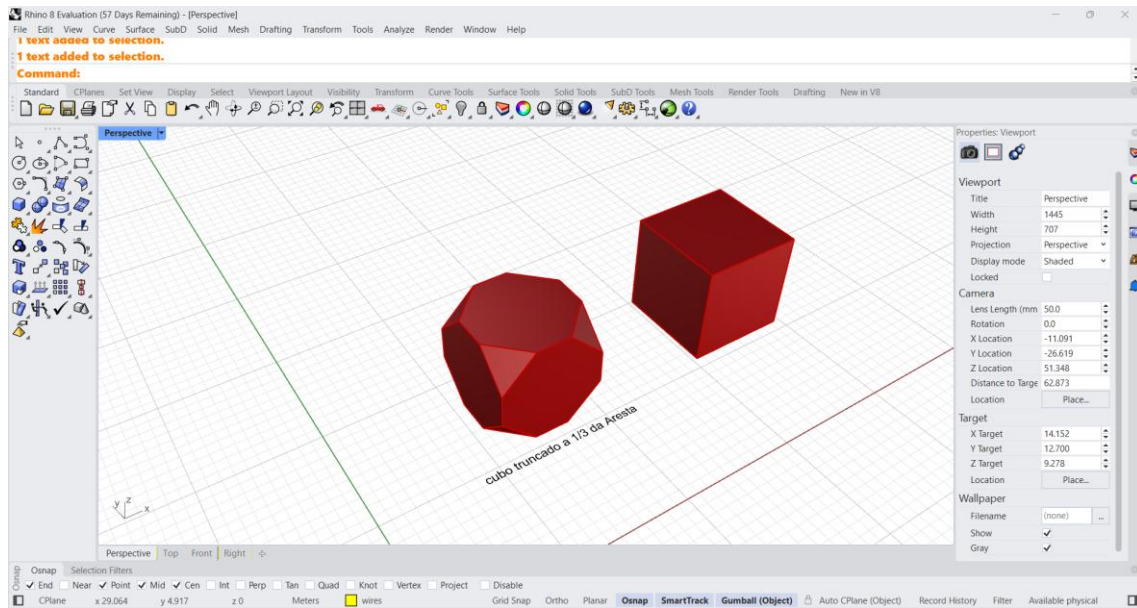


Arraypolar(centro da base)/4/360

Mirror/3p

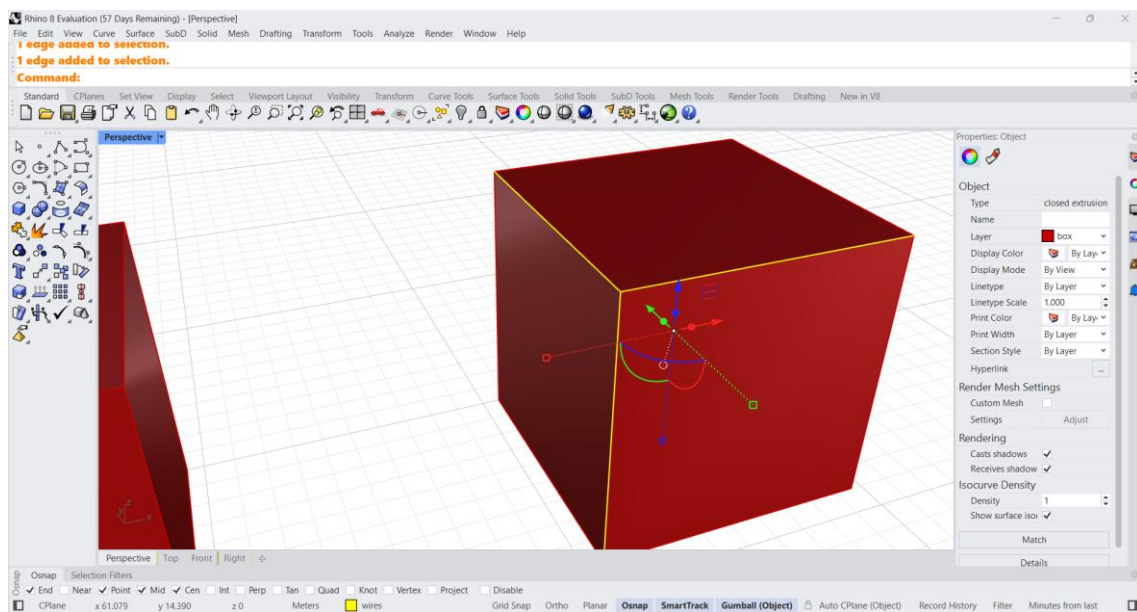


Wirecut

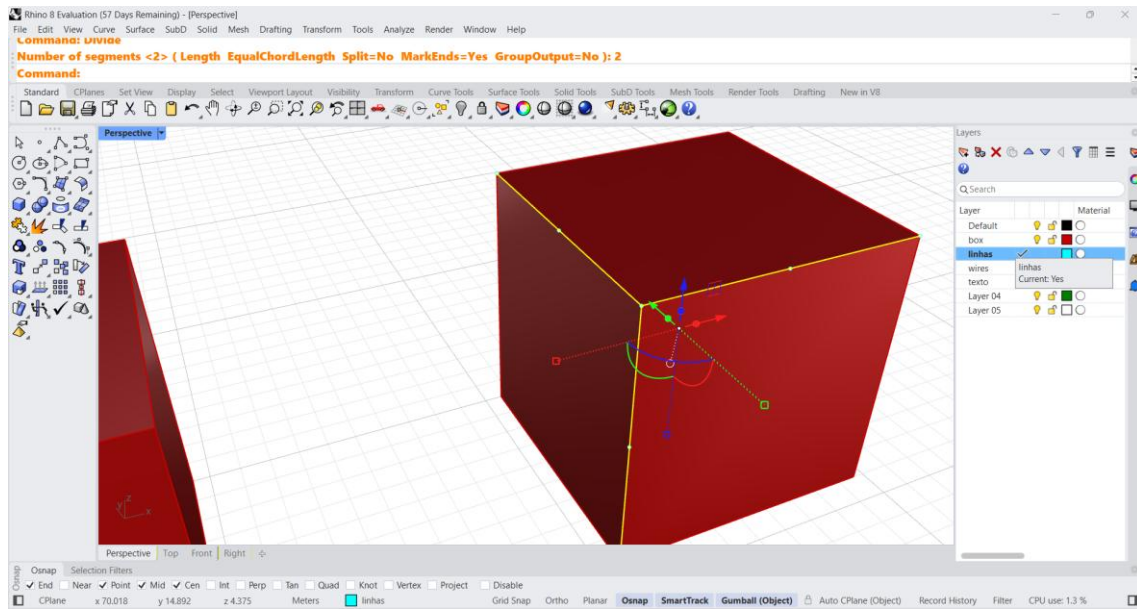


text

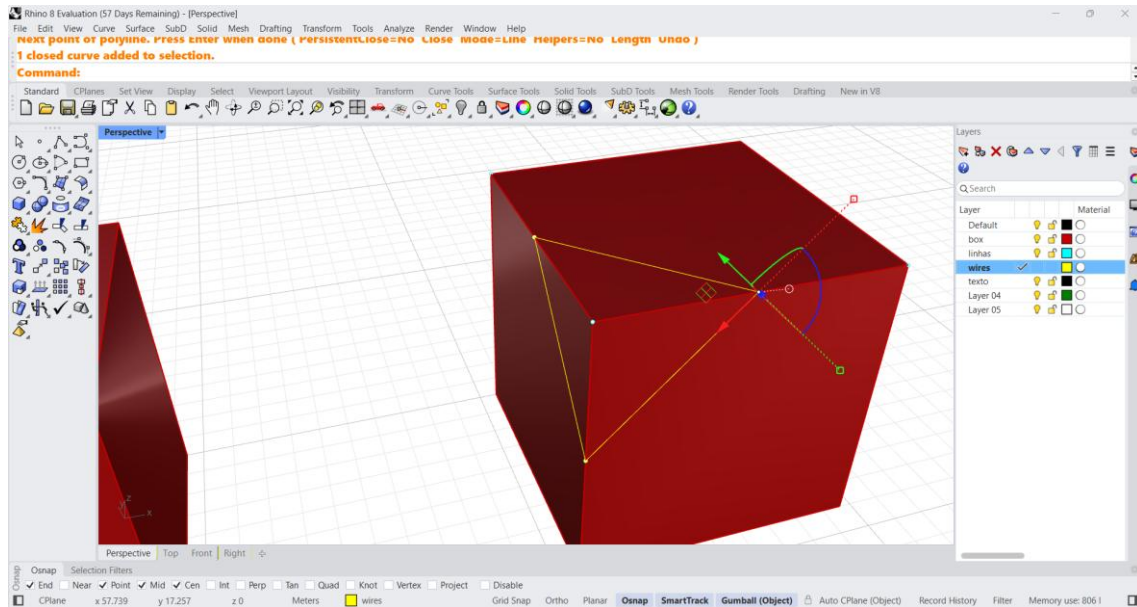
EXERCICIO DE CASA

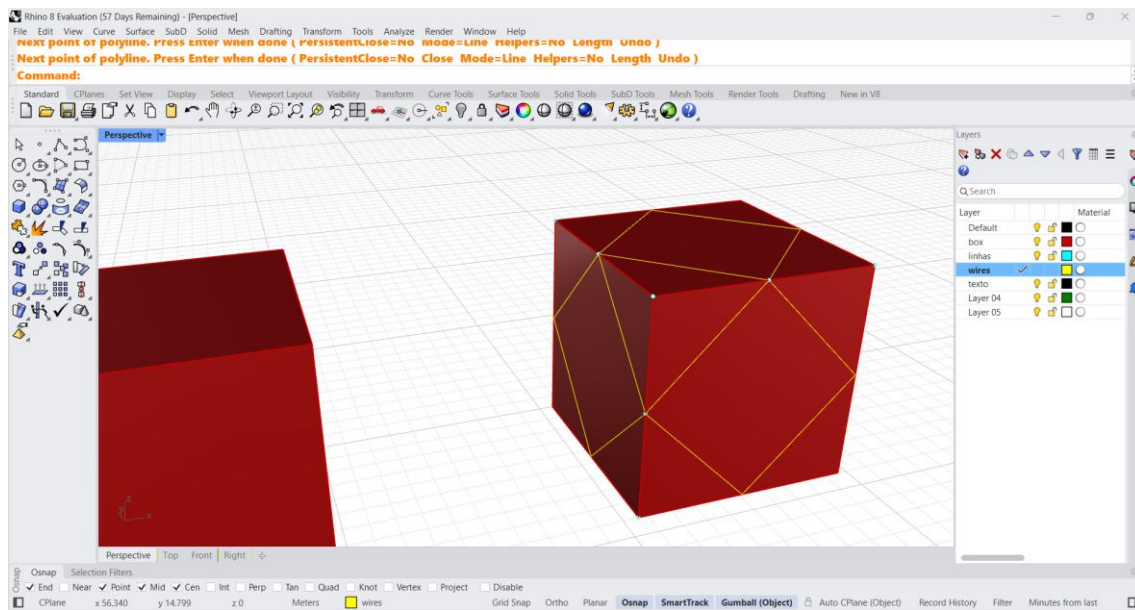


Ctrl+Shift pra selecionar apenas as arestas

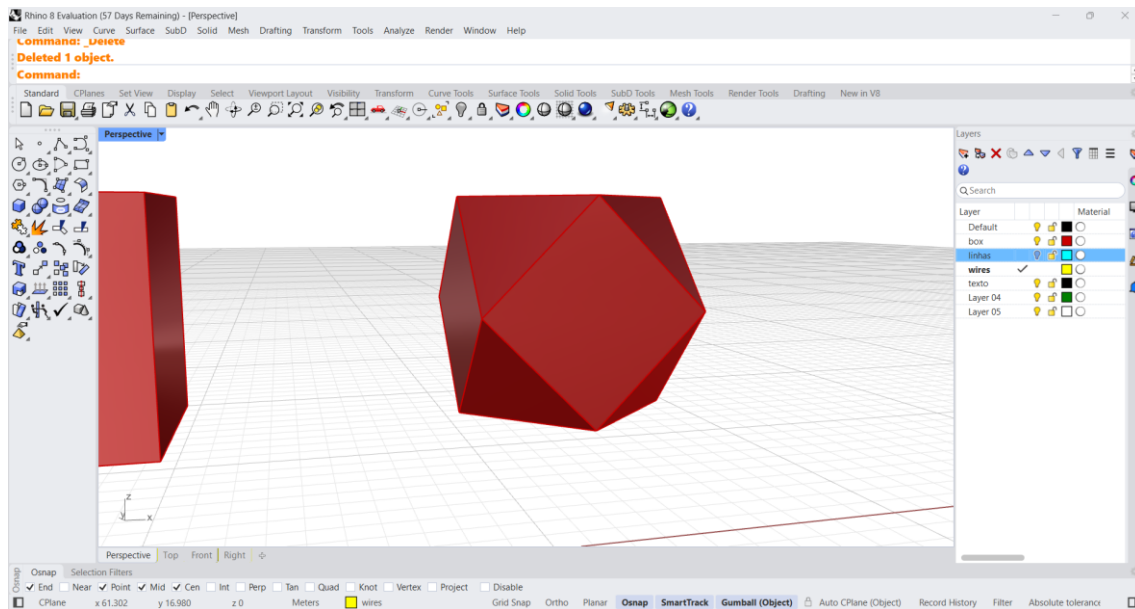


Divide2





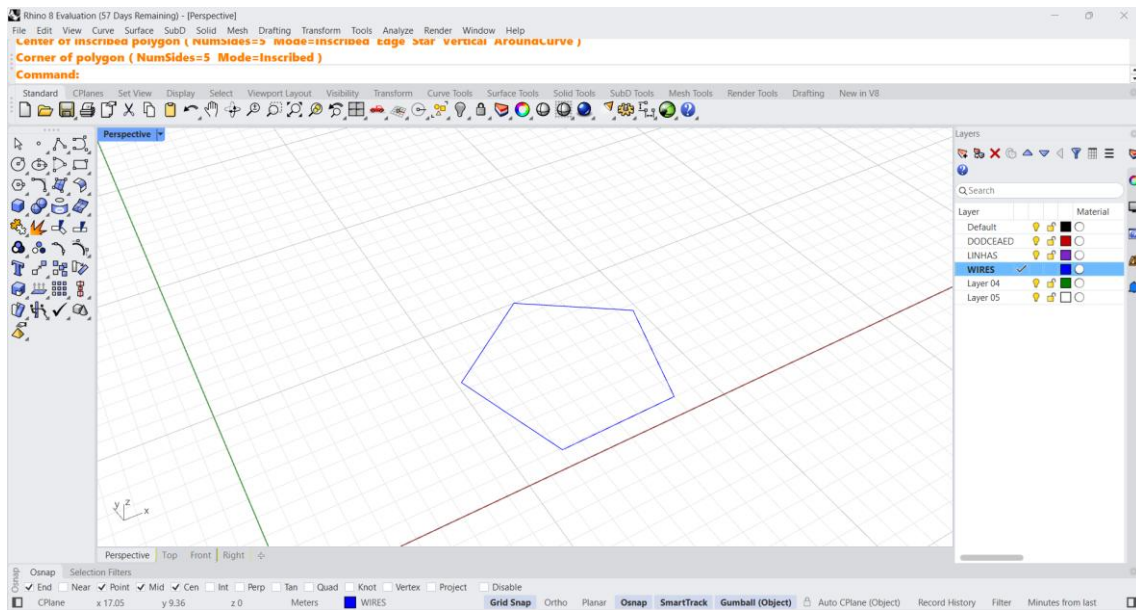
Arraypolar e mirror



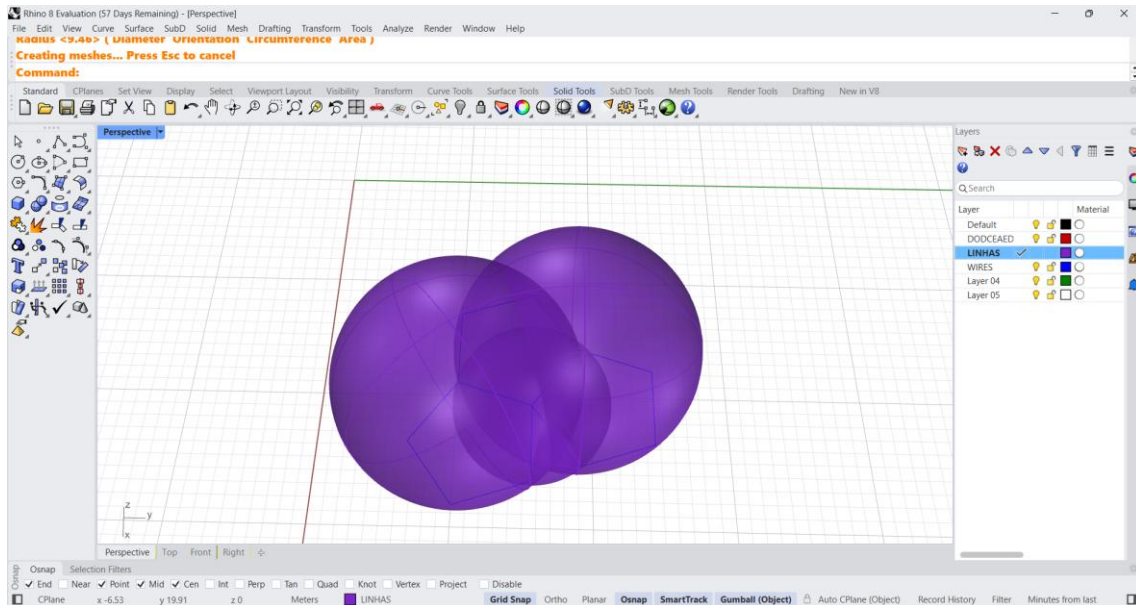
Wirecut

AULA 3

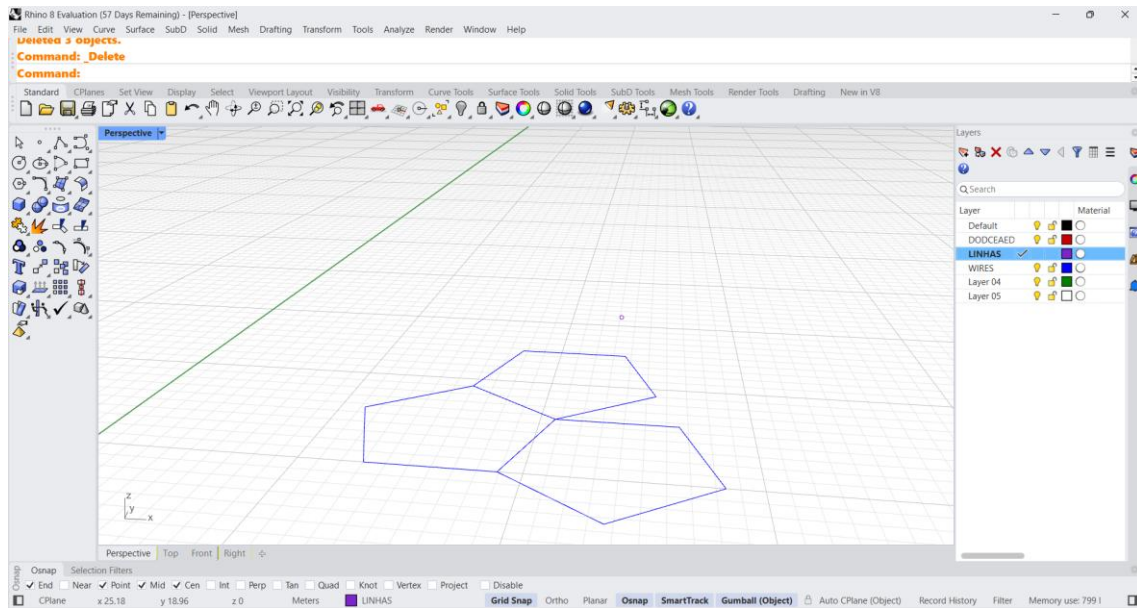
DODECAEDRO



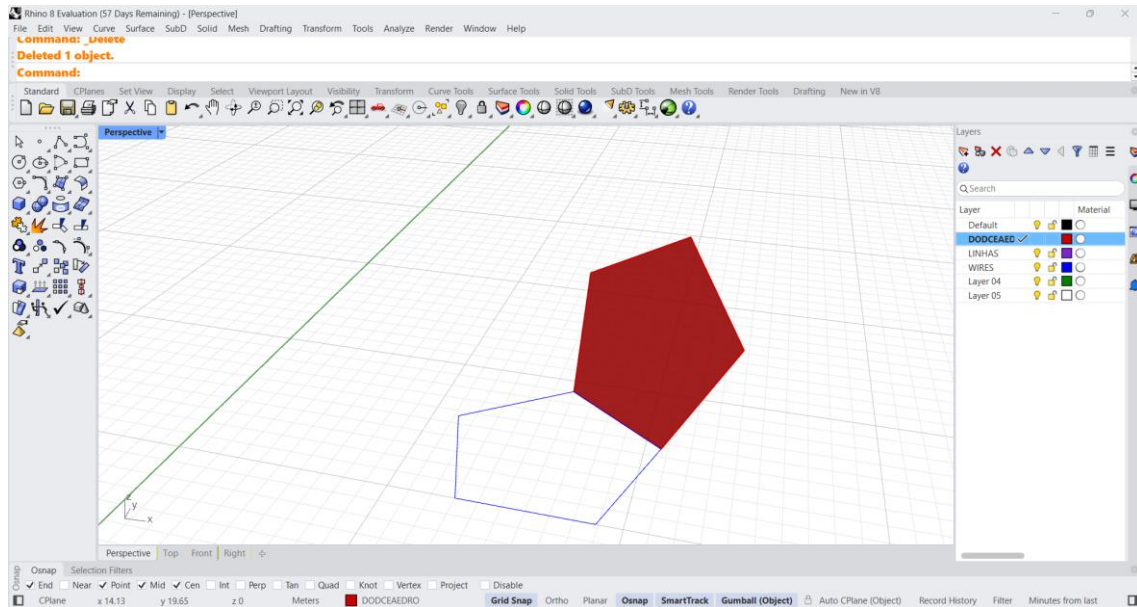
Construção de um pentágono



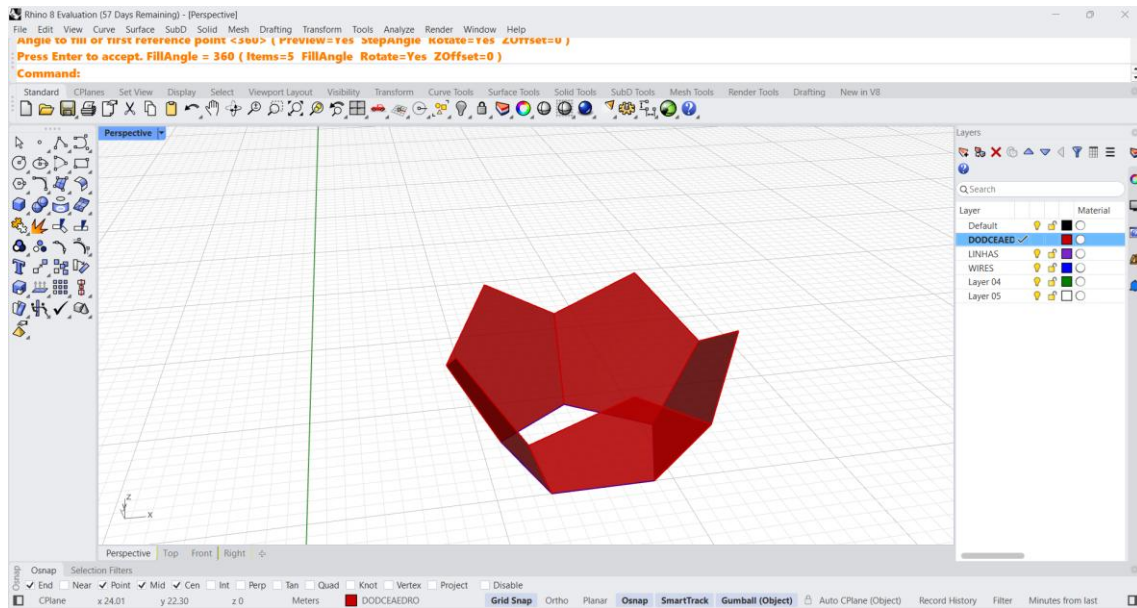
Faço 3 esferas para intersecta-las e descobrir um vértice



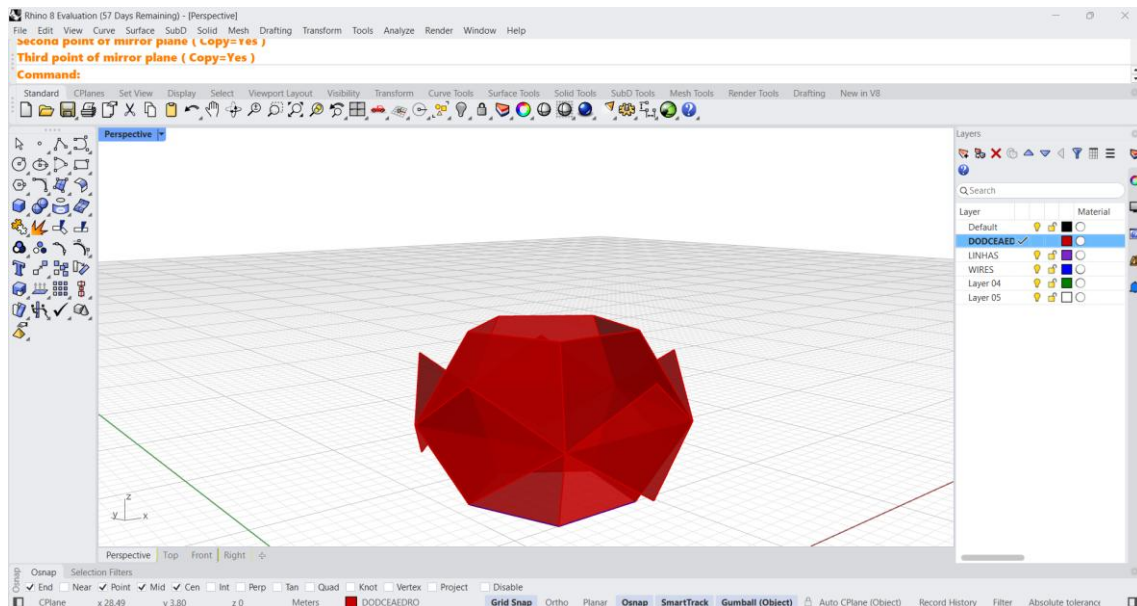
Descubro o vértice



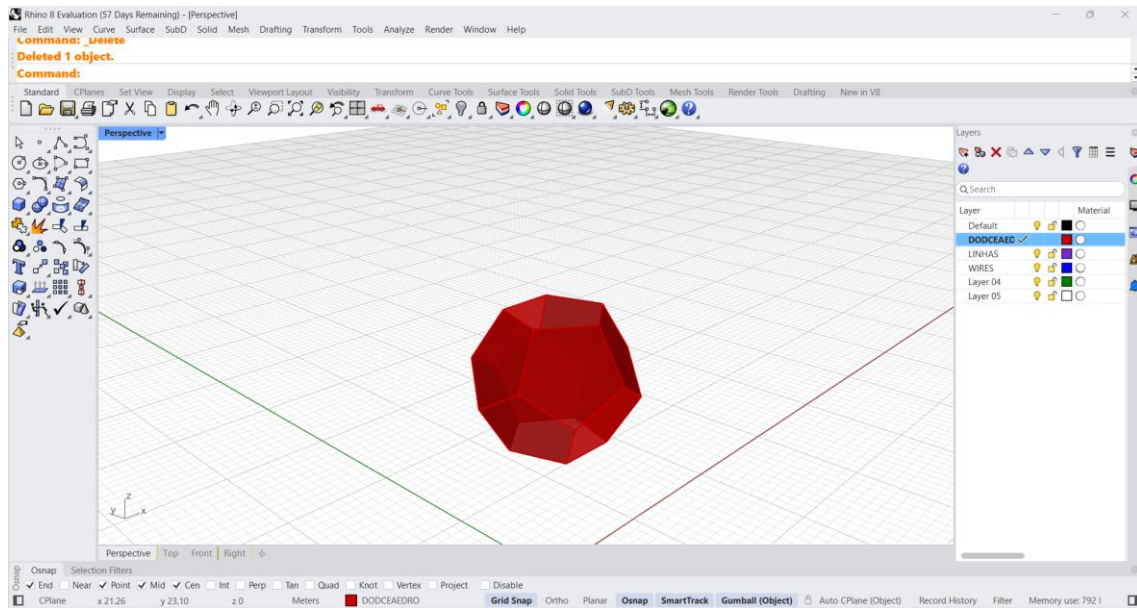
Planarsrf e rotate3d



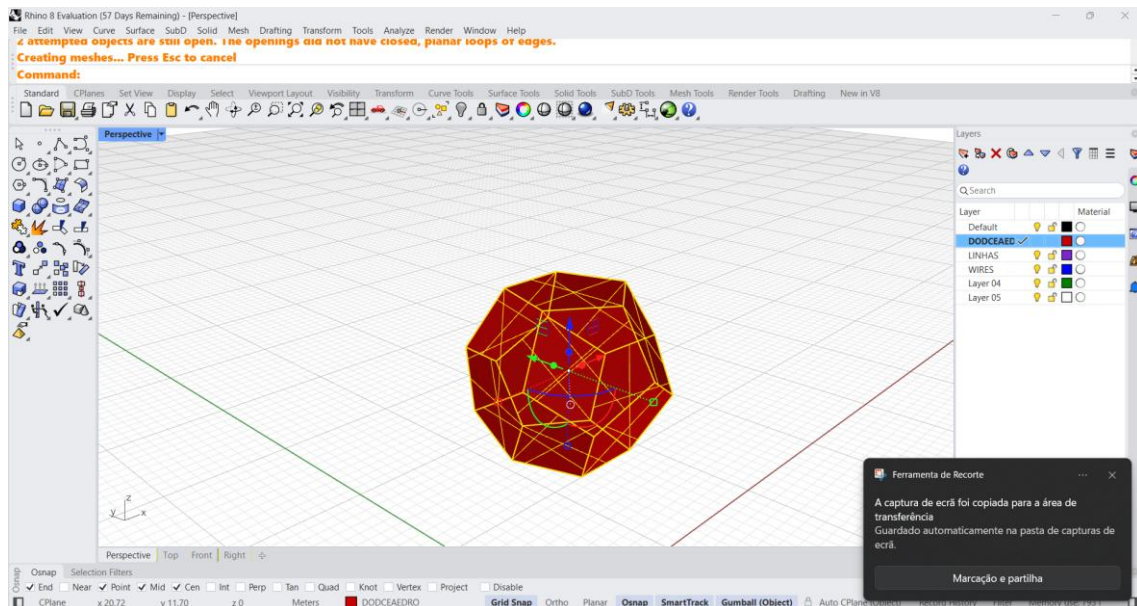
Array/5/360



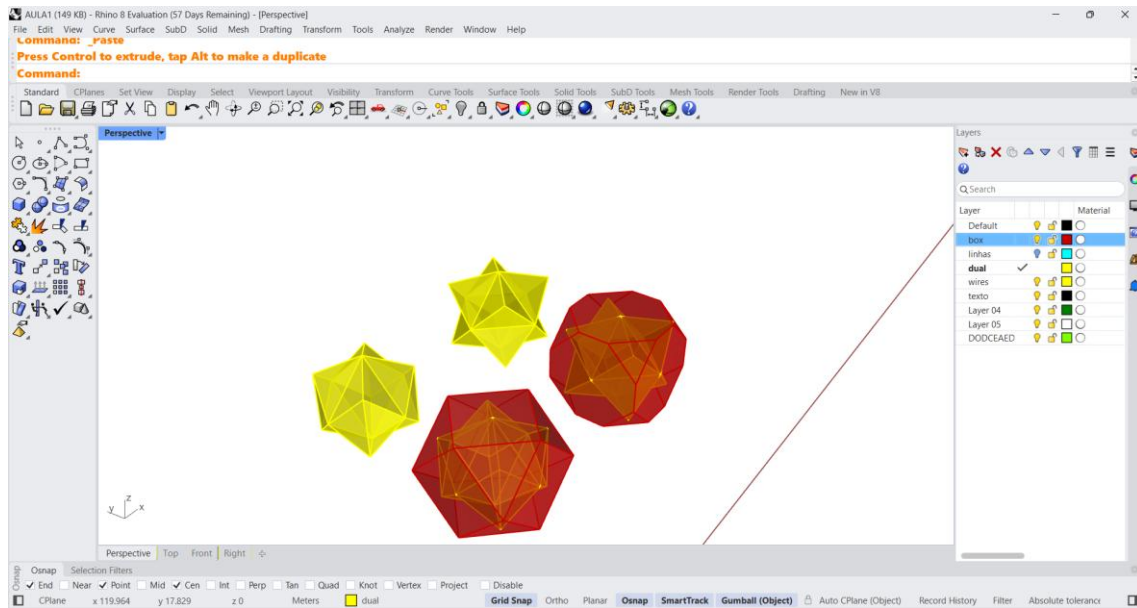
Mirror3point



Rotate

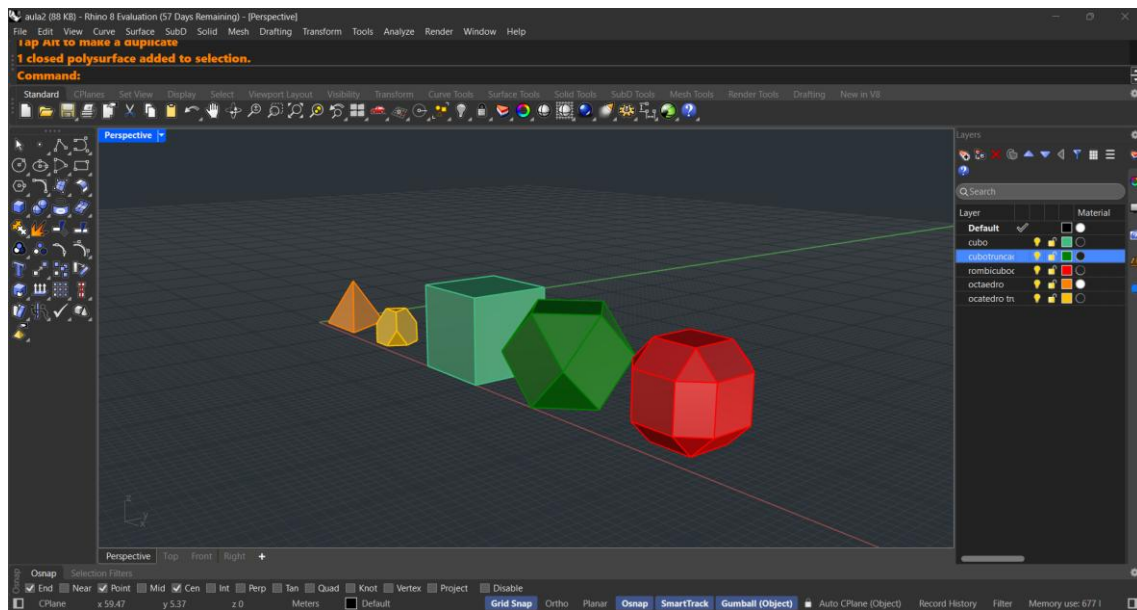


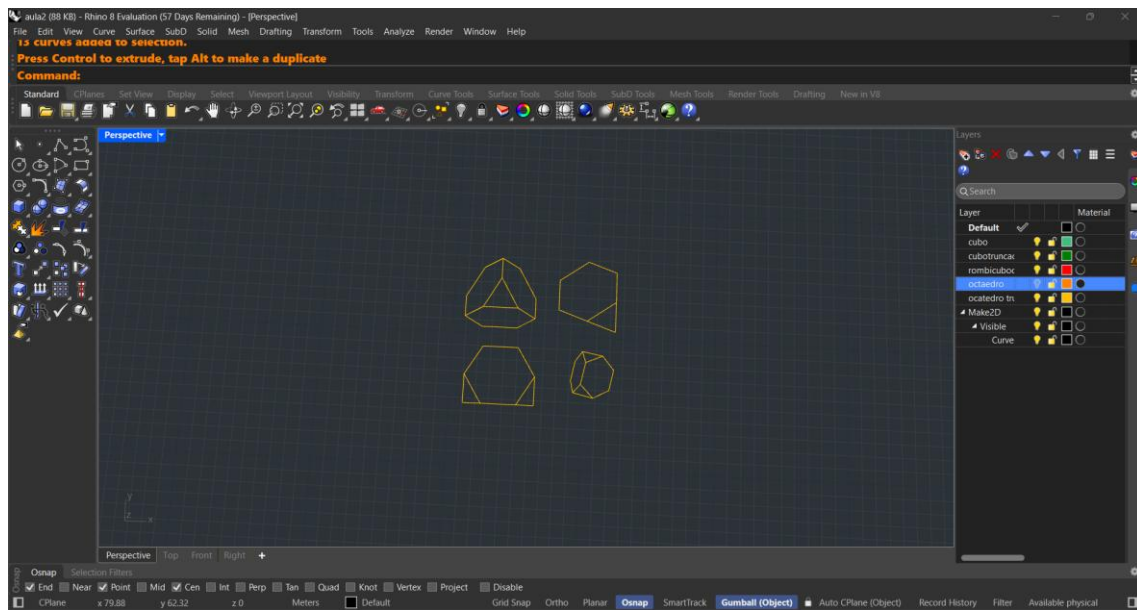
Cap e join



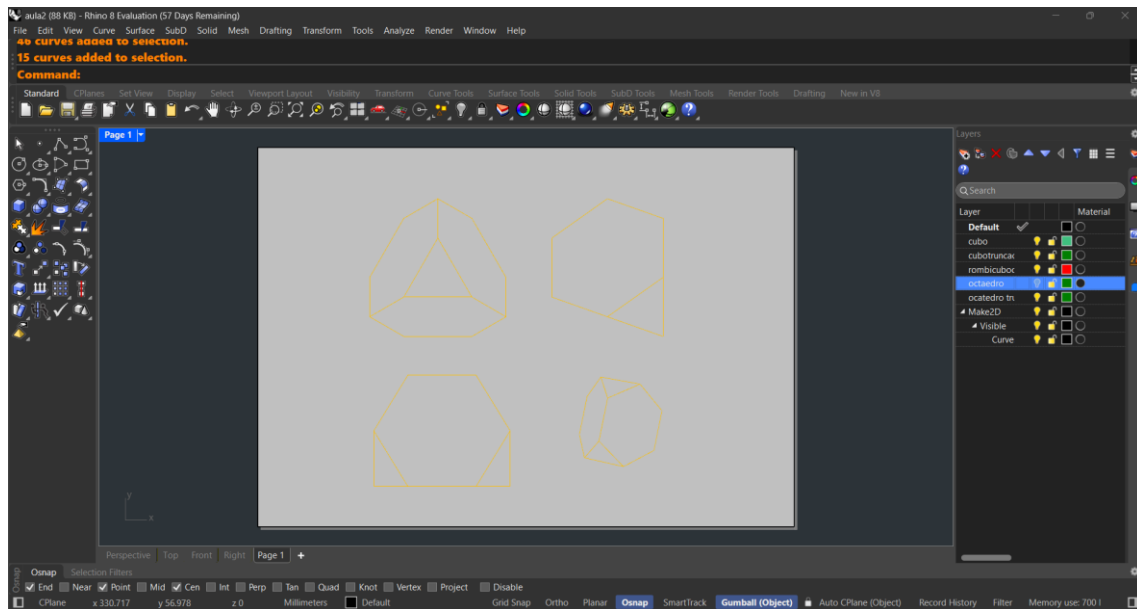
Dual

Criados a partir dos center points das faces dos dois sólidos





Make2d



Layout, detail=Mview

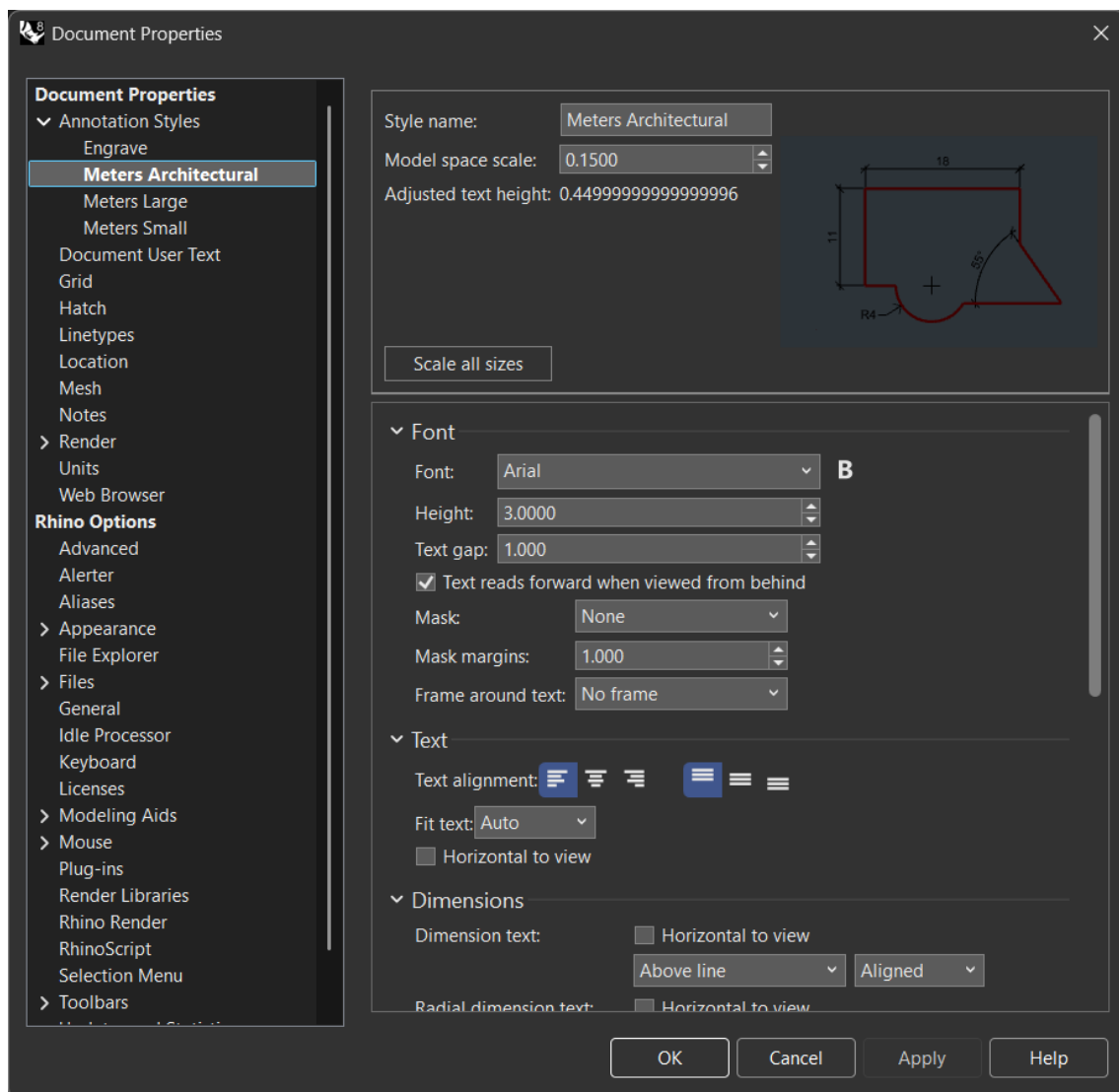
AULA 4

Barrel Vaults-Abobodas de Berço

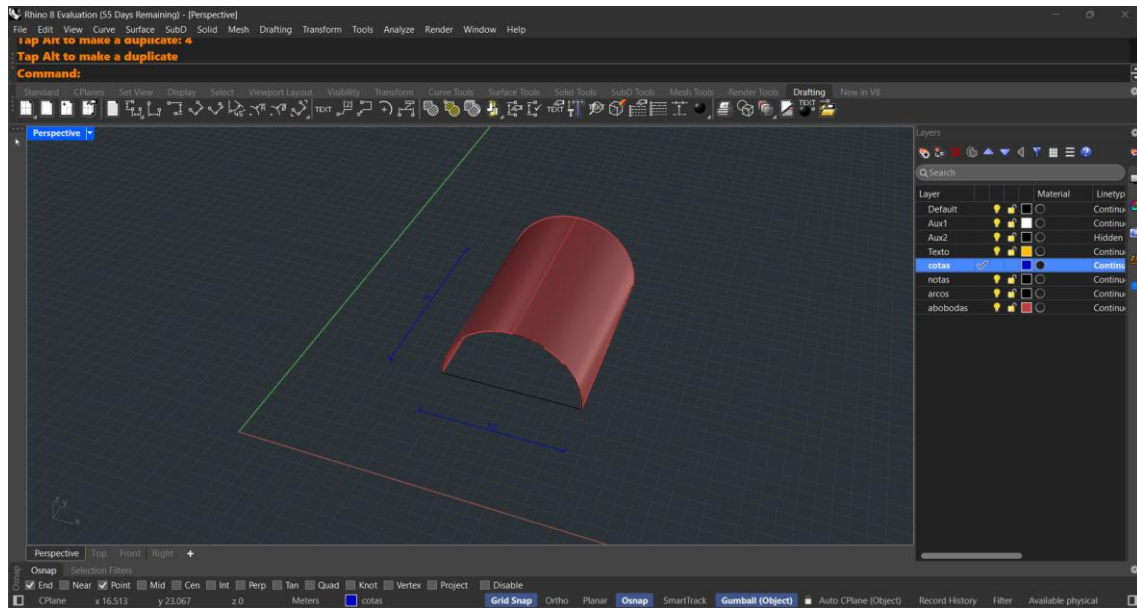
Aboboda Ogival

Aboboda de cisterna

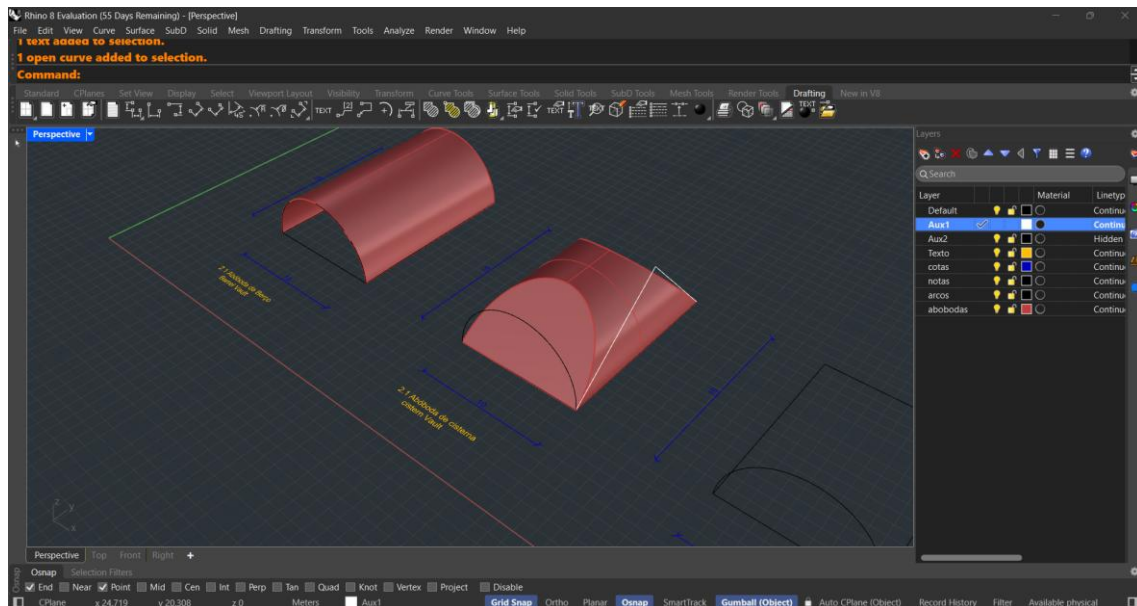
Aboboda Abatida



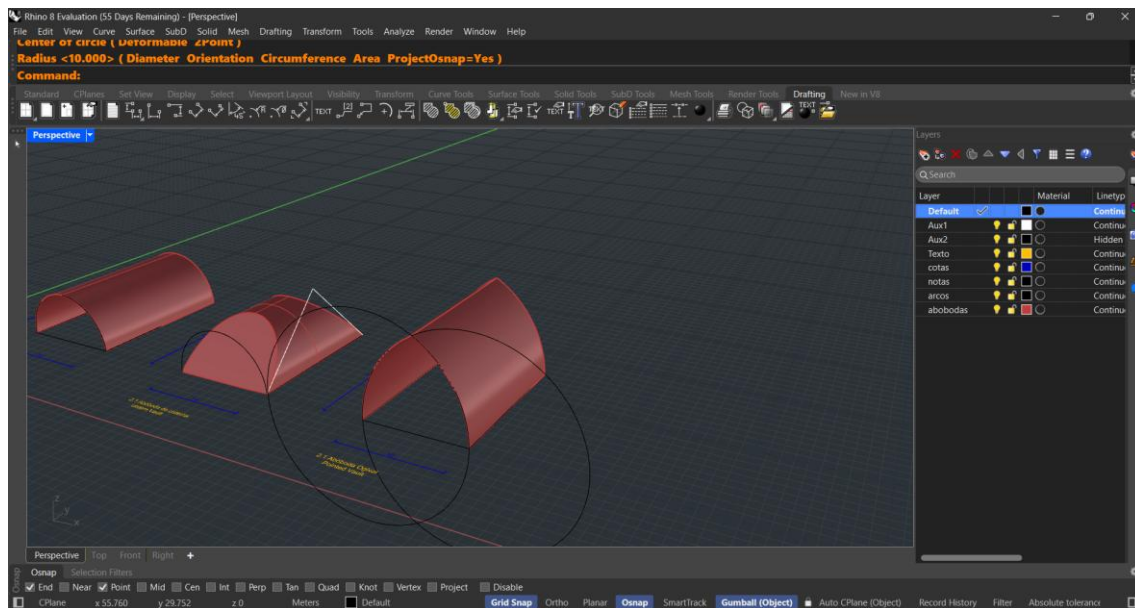
Como personalizar as dimensões do drafting



Extrudecrv

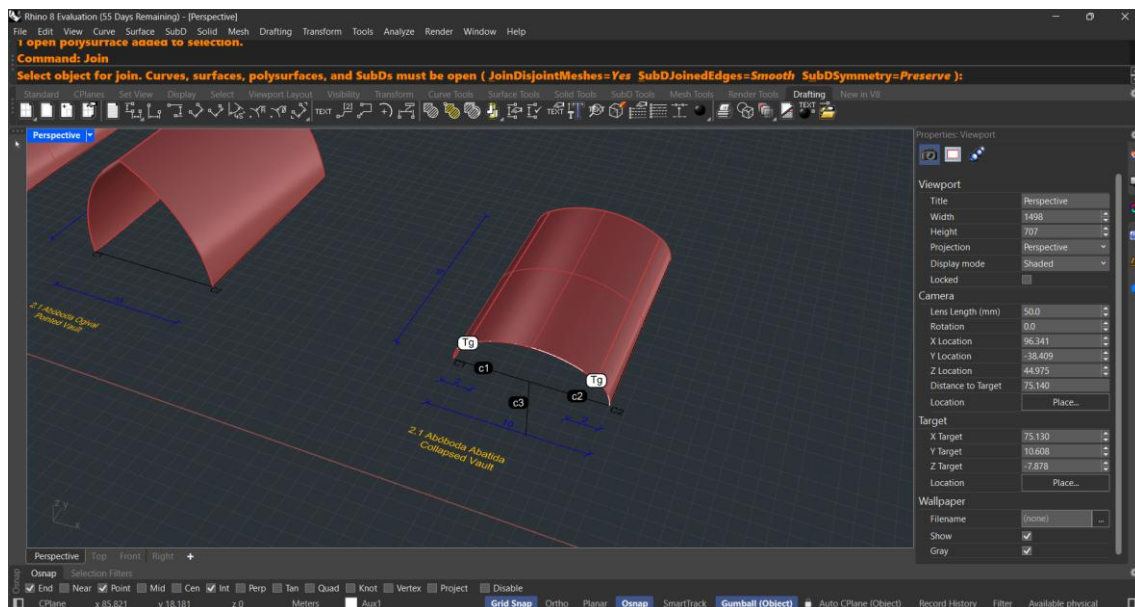


Fazendo um plano de interseção no meio da abóboda, depois com o comando trim conseguimos fazer uma abóboda de cisterna

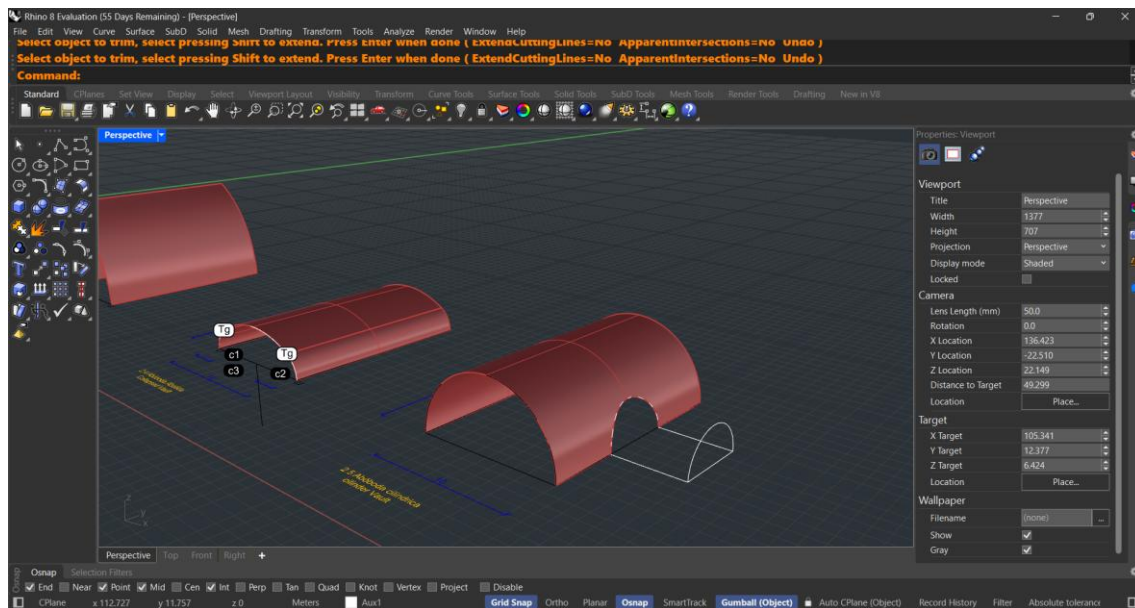


Aboboda Ogival

Faço duas circunferências verticais nos vértices da base e dou trim entre elas para dar o arco de volta quebrada



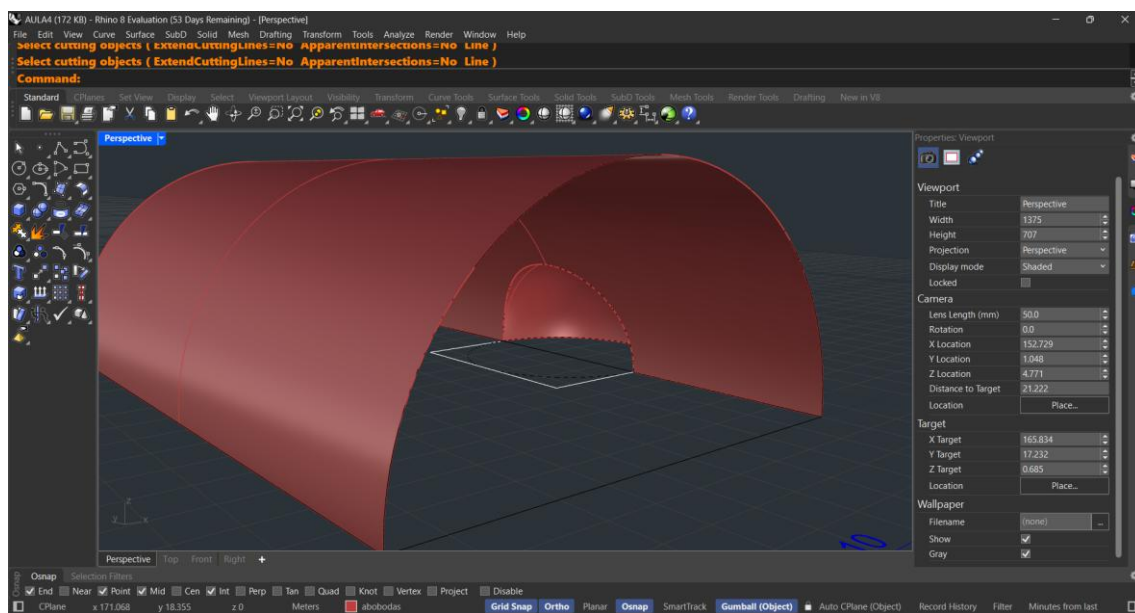
Aboboda Abatida



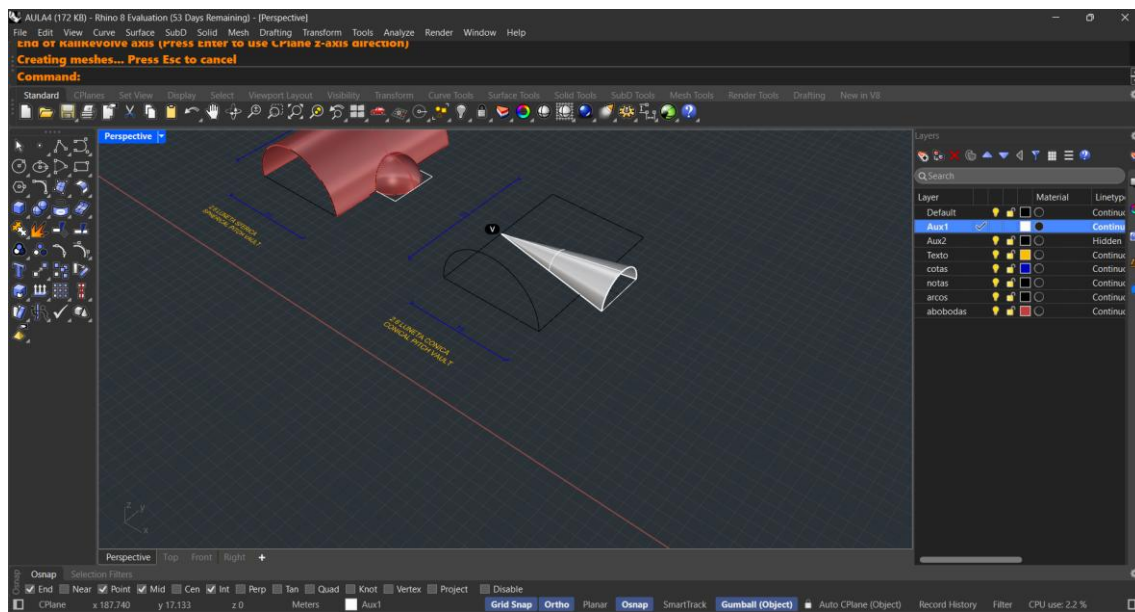
Abóboda com luneta

AULA 6

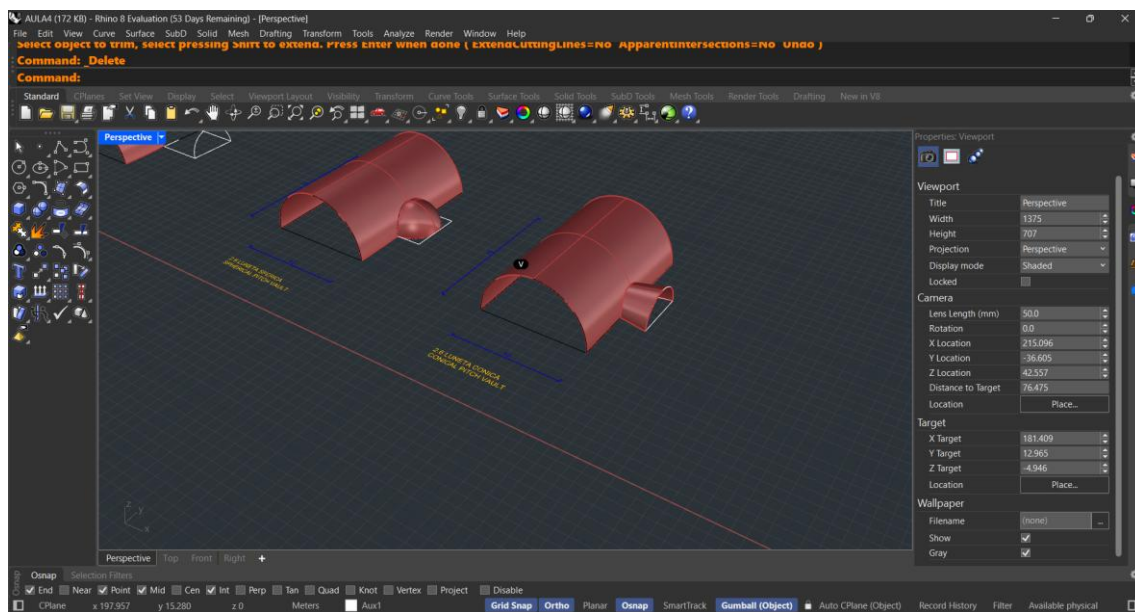
LUNETA ESFERICA, LUNETA CILINDRICA, ABOBODA TORAI, ABOBODA
HELICOIDAL, ABOBODA CONICA



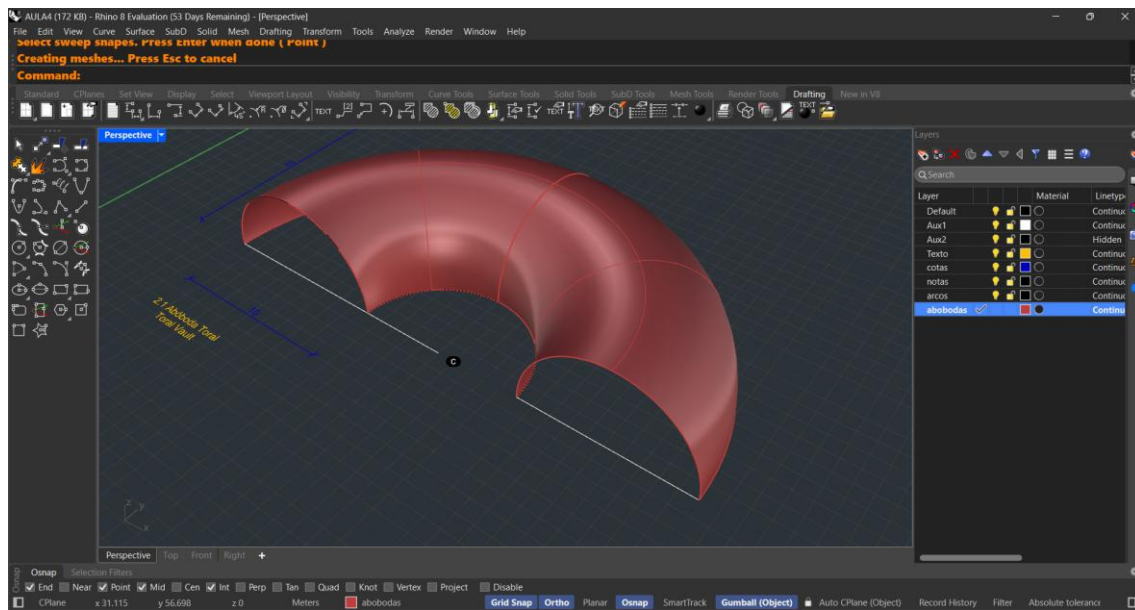
Luneta esferica



rail revolve para fazer a luneta cônica

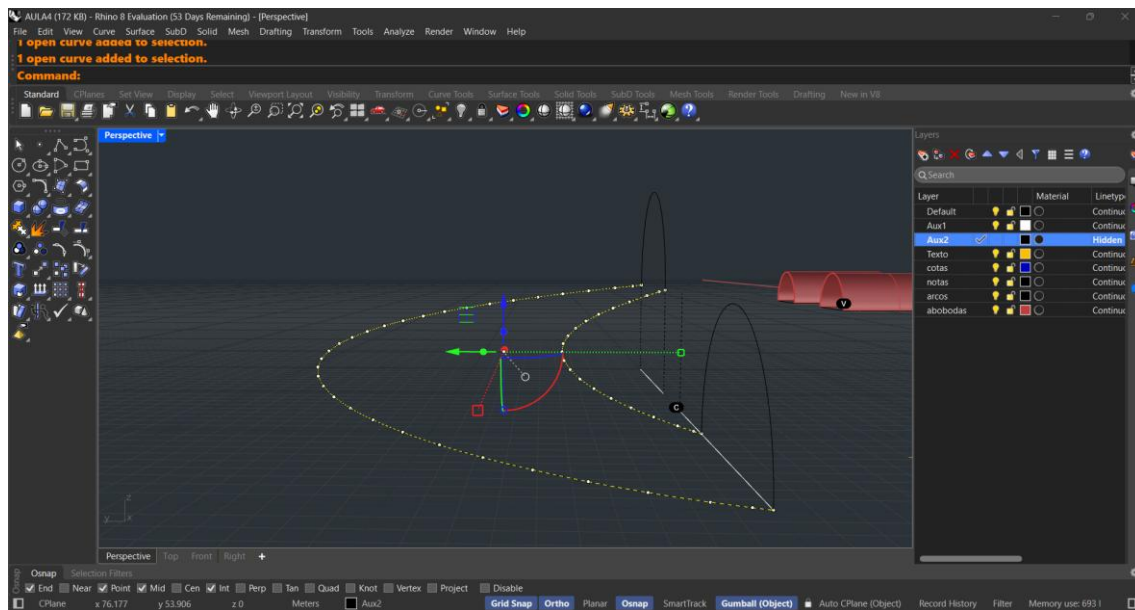


LUNETAS CONICAS

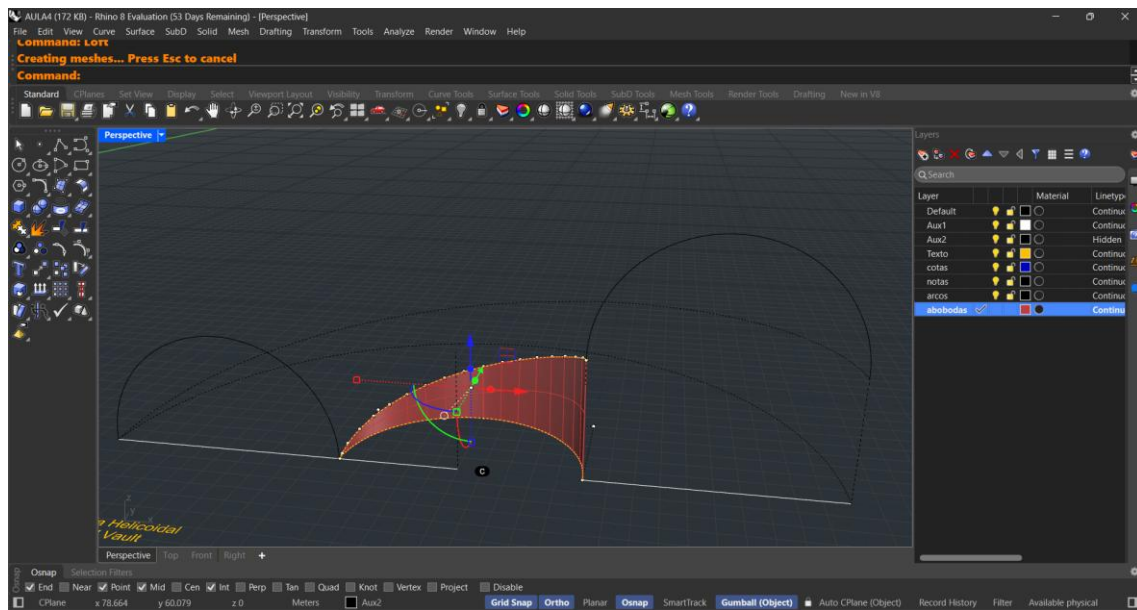


Comando sweep2

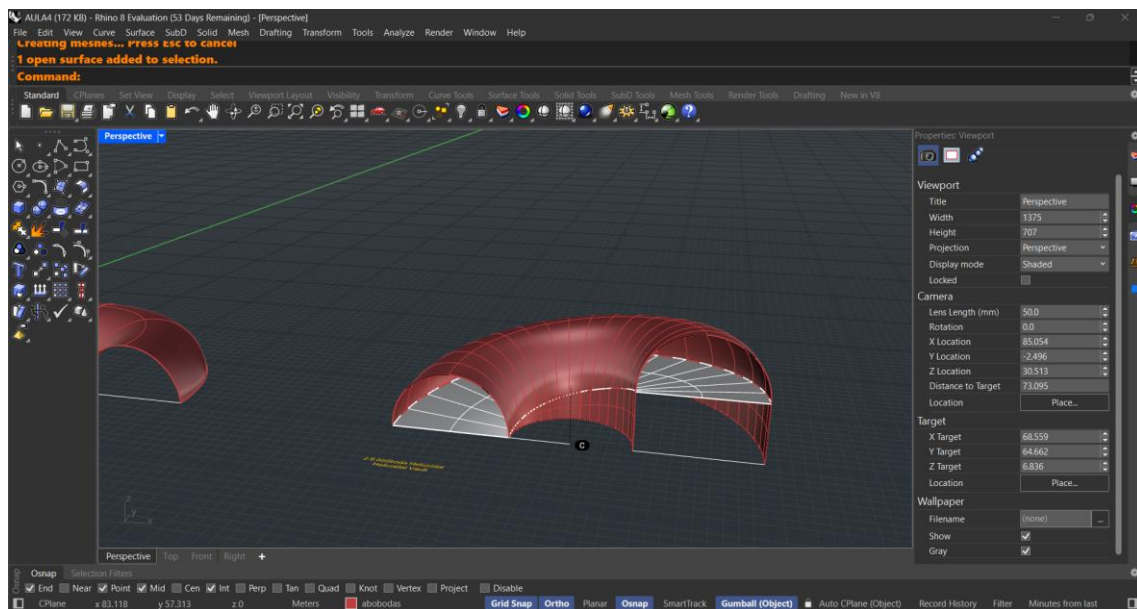
Aboboda tórica ou toral



Comando Helix

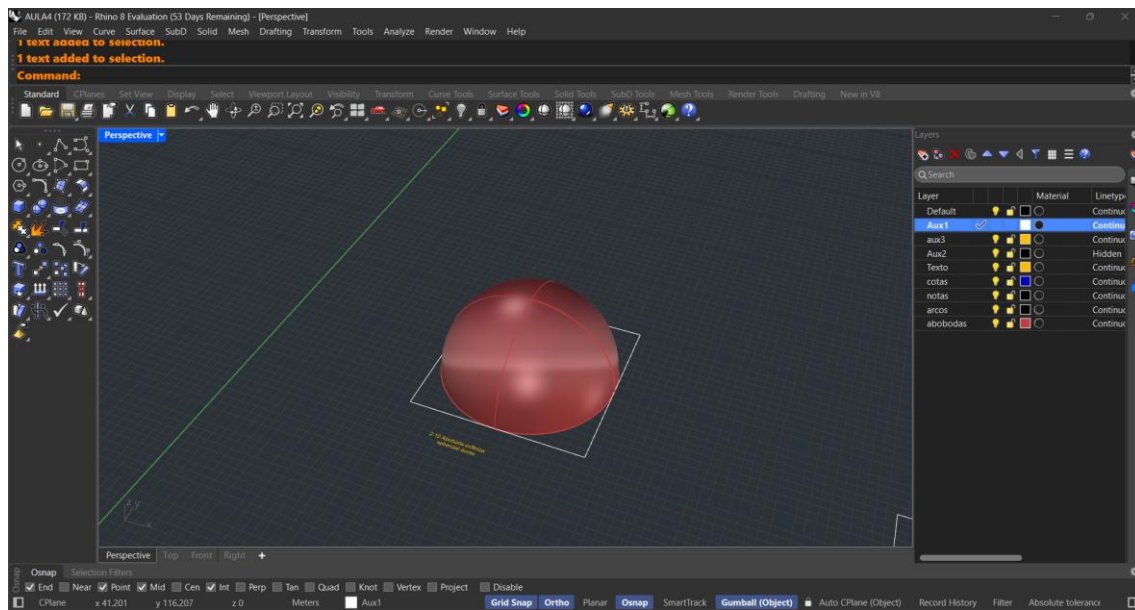


loft

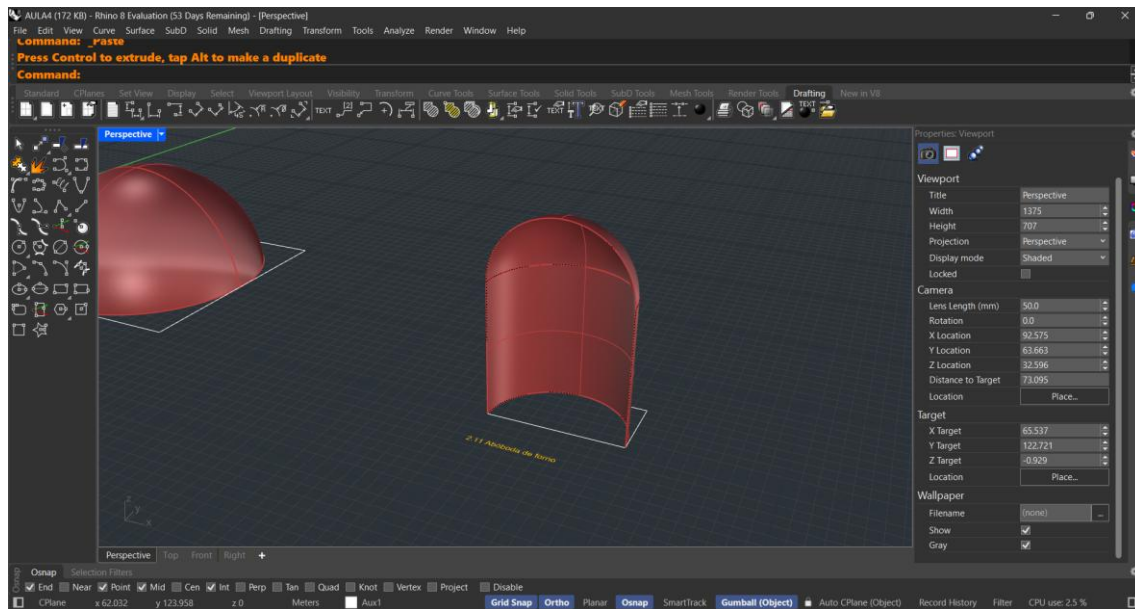


Sweep 2

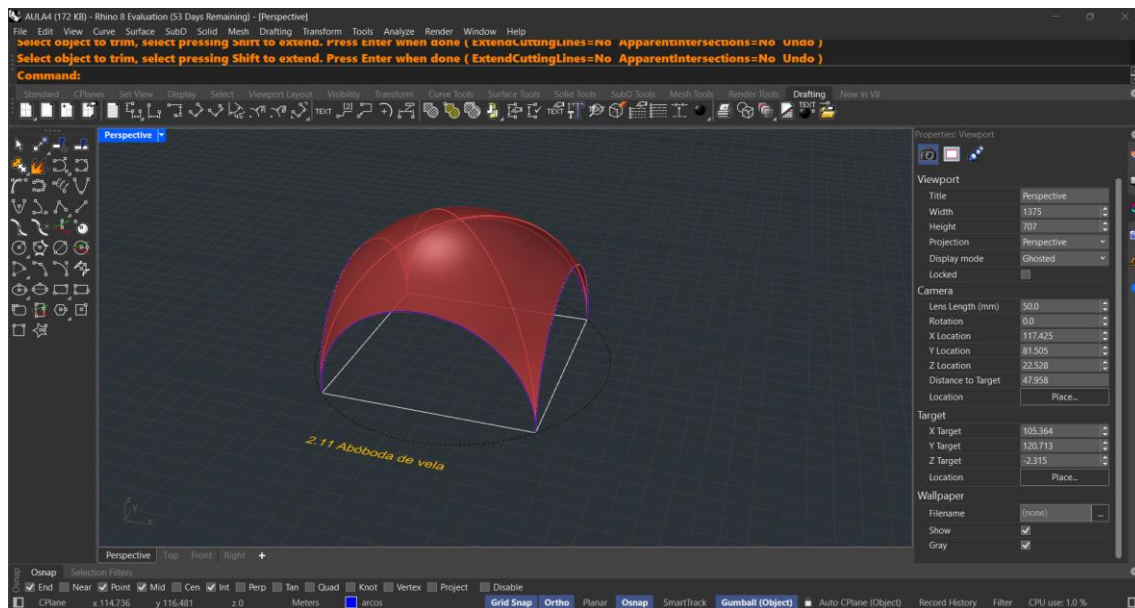
Abóbada de Heliocodal



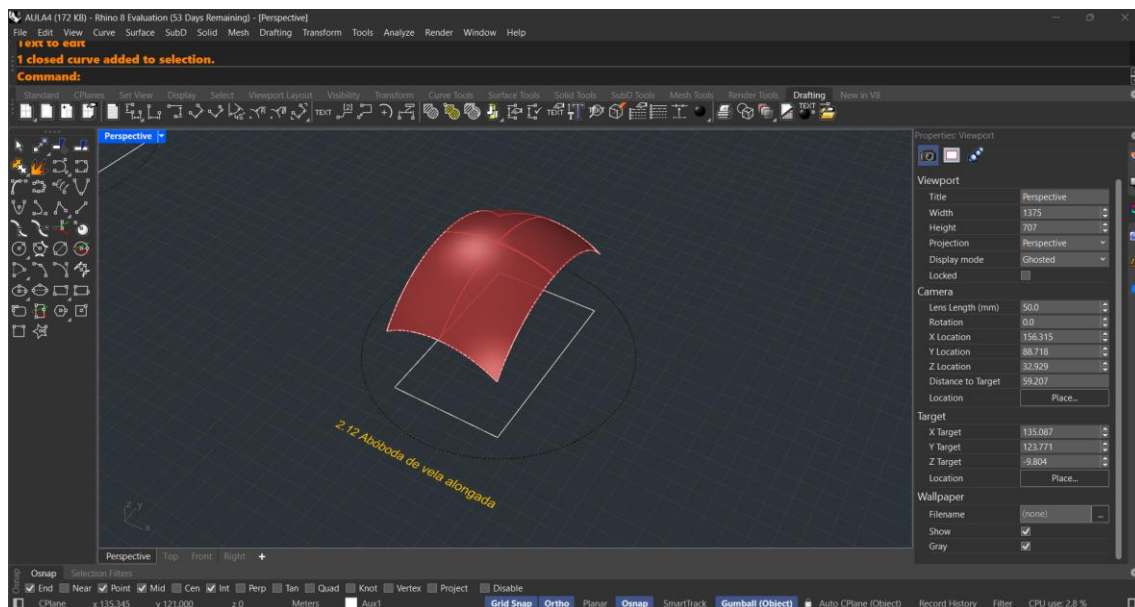
Aboboda esférica



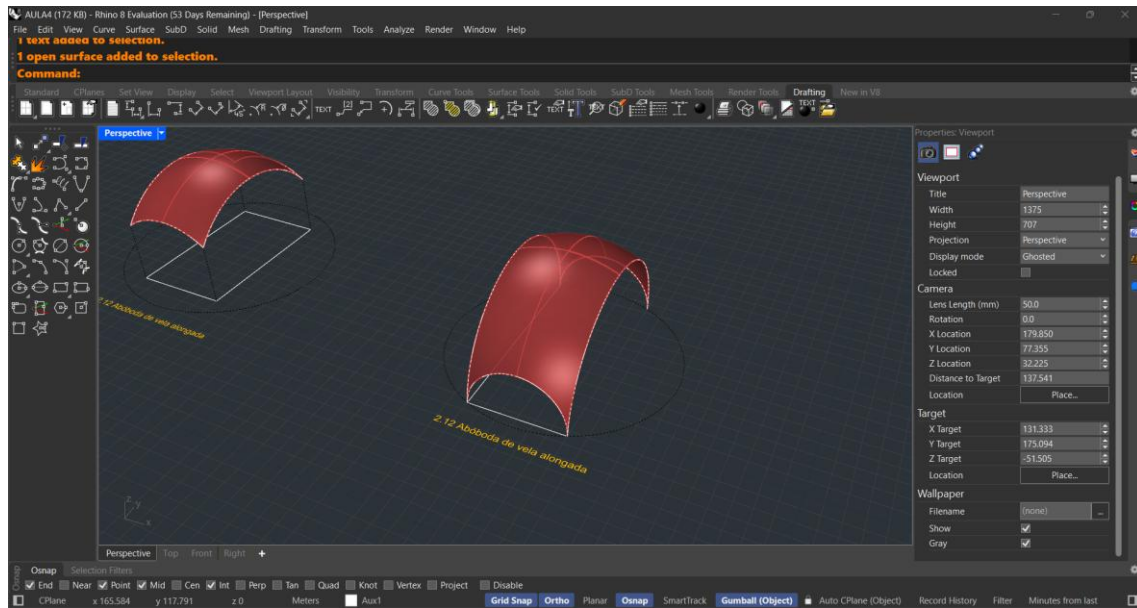
Aboboda de forno



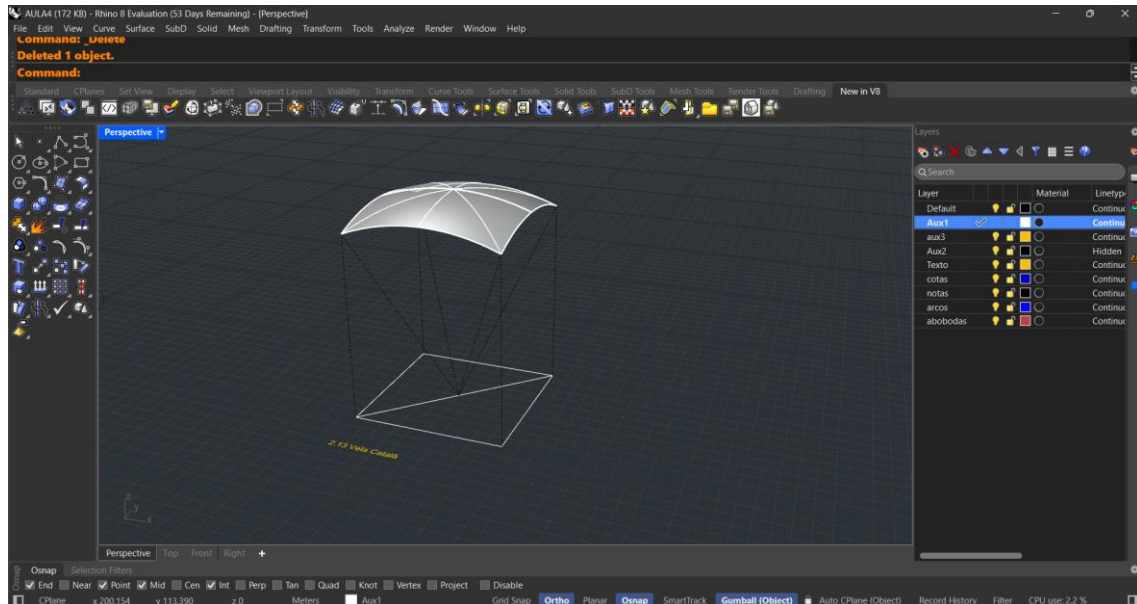
Abóboda de vela



Abóboda de Vela Alongada

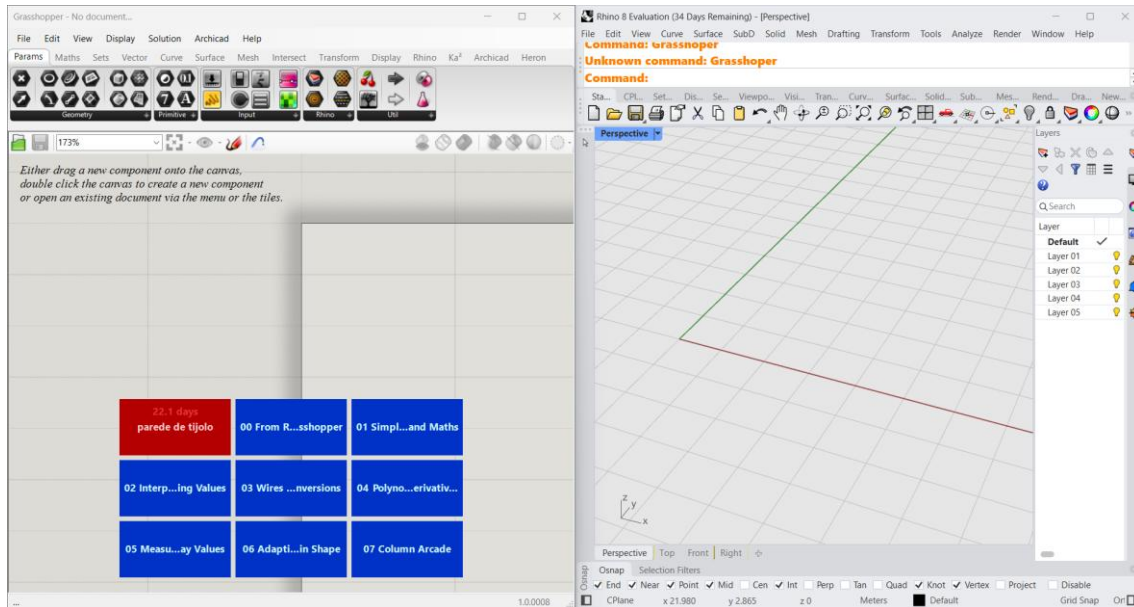


Abóboda de vela alongada

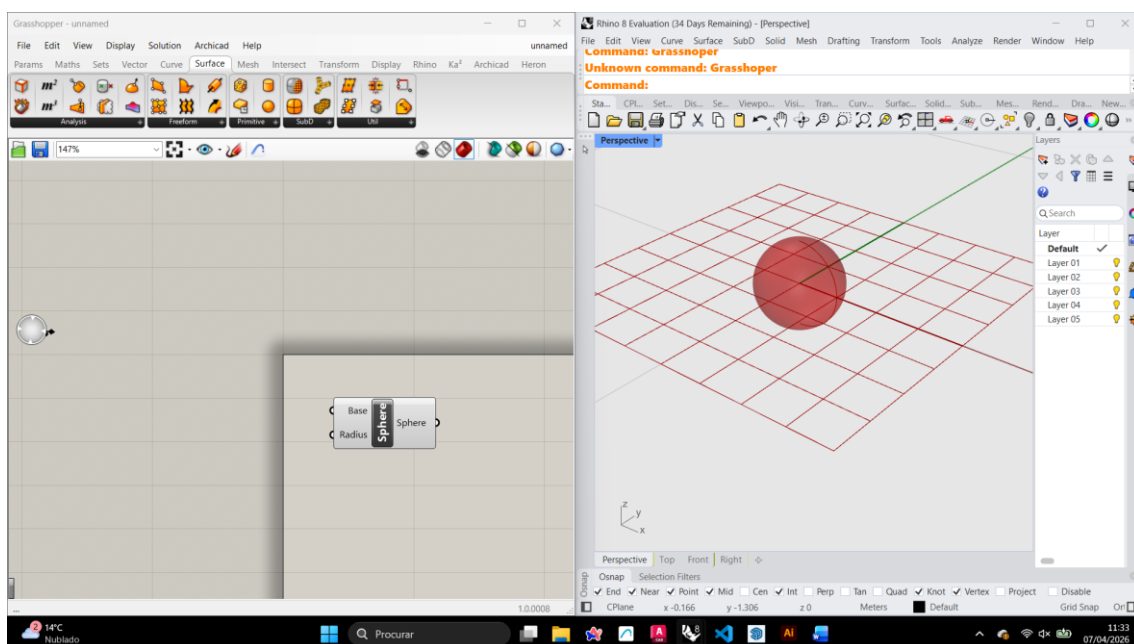


Vela catalã

Aula 7



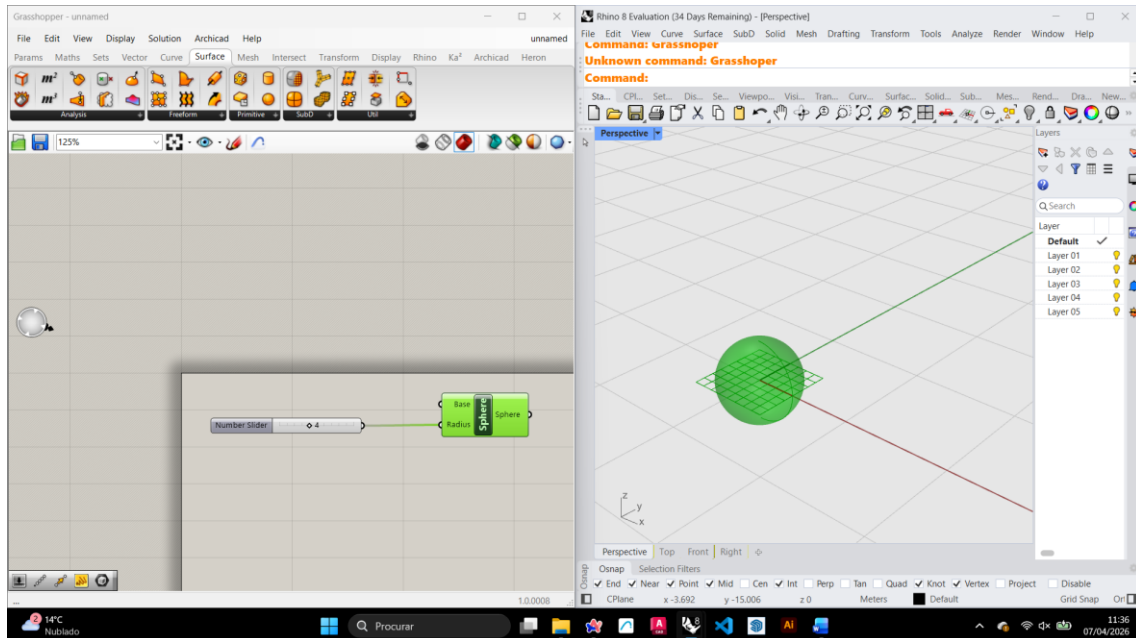
Grasshopper



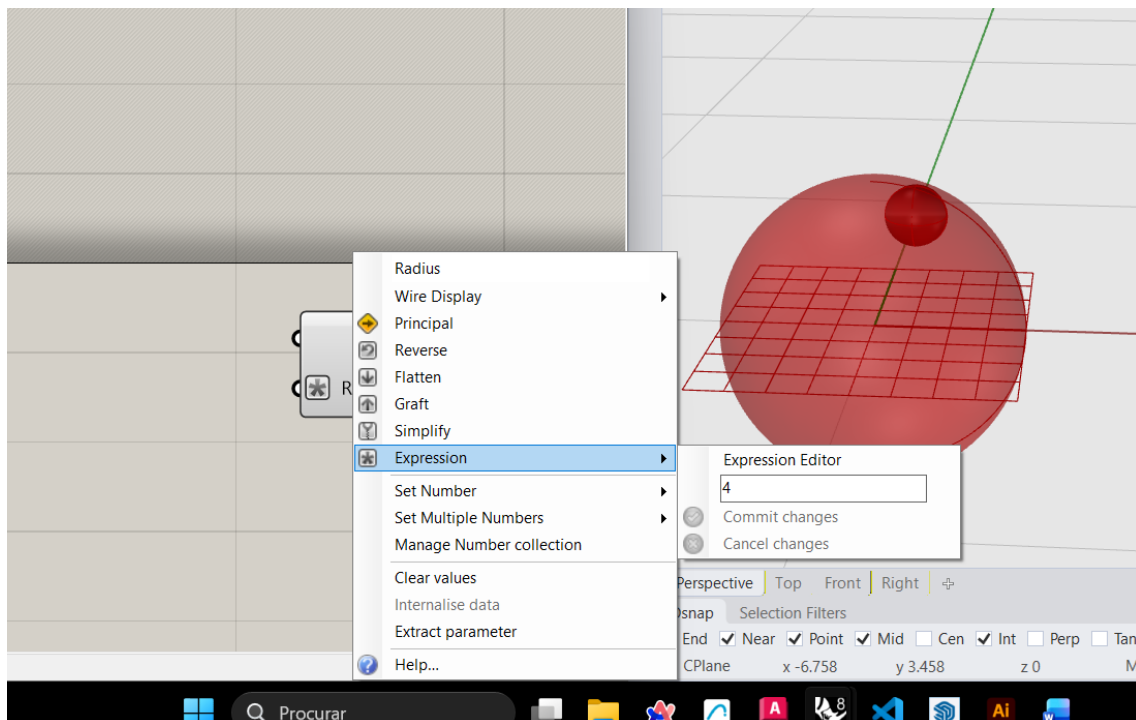
solidos primitivos esfera, se carregar no grasshopper no comando, o sólido fica verde.

Os comandos no grasshopper tem um input e um output que funciona da esquerda para a direita respectivamente

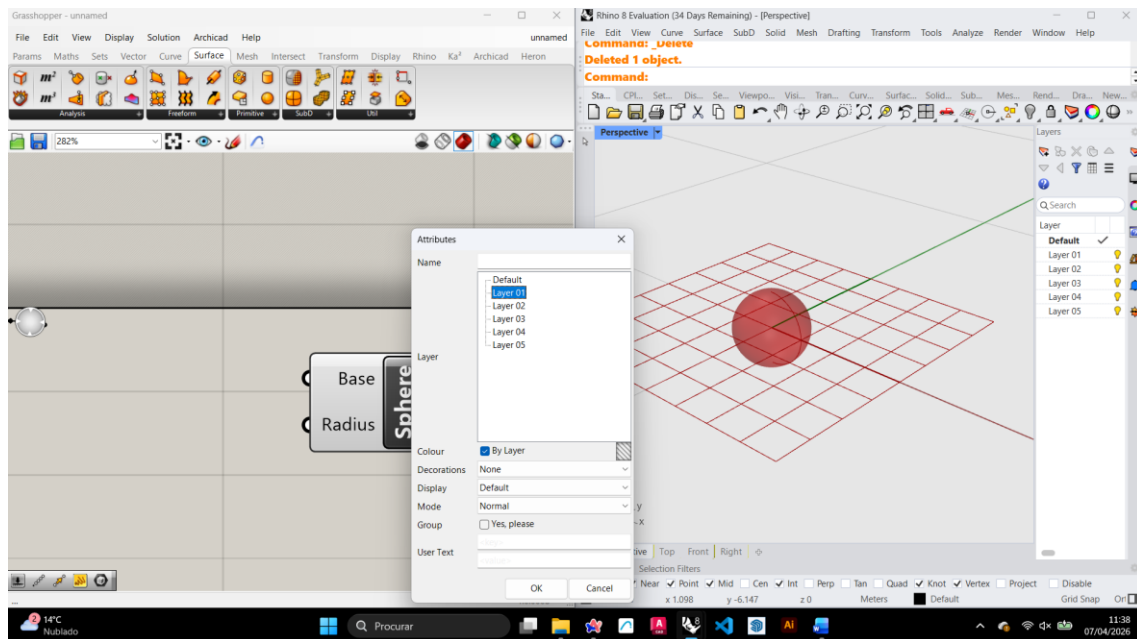
A base é a que ponto (cordenada) coloco a esfera e o raio é o raio da esfera



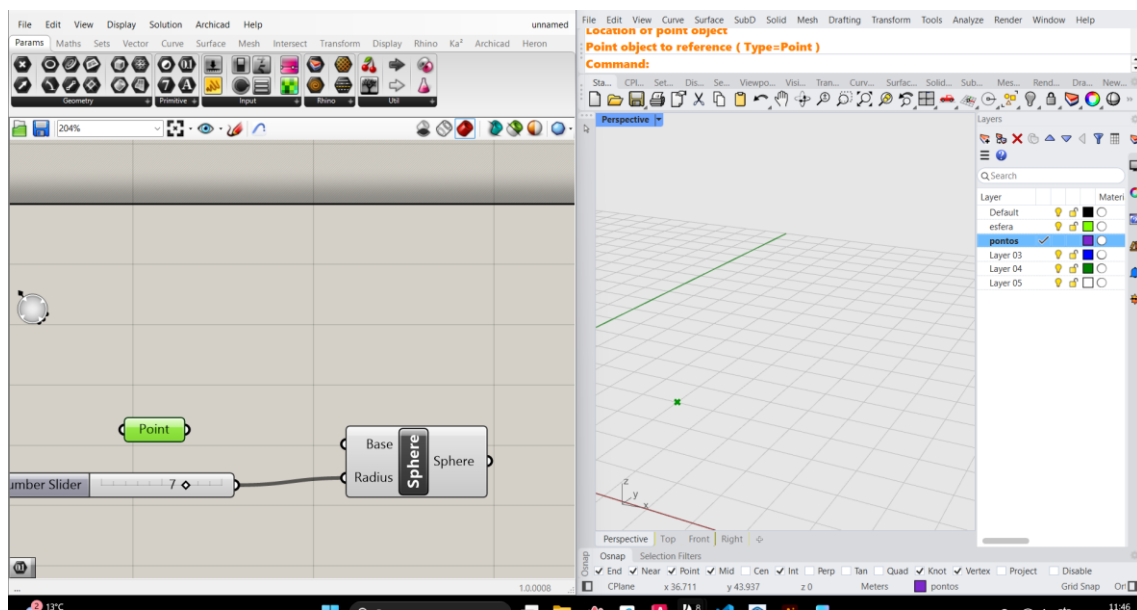
Por exemplo utilizando o number slider consigo alterar os dados



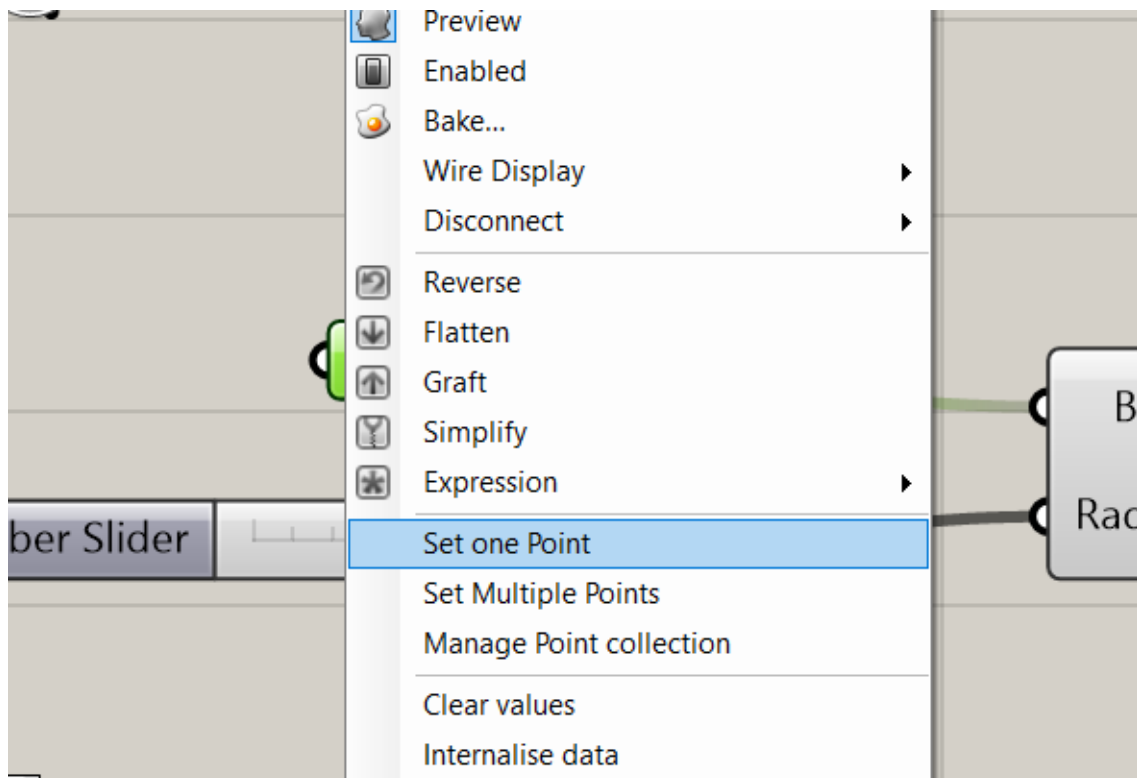
Ou então utilizando expression editor



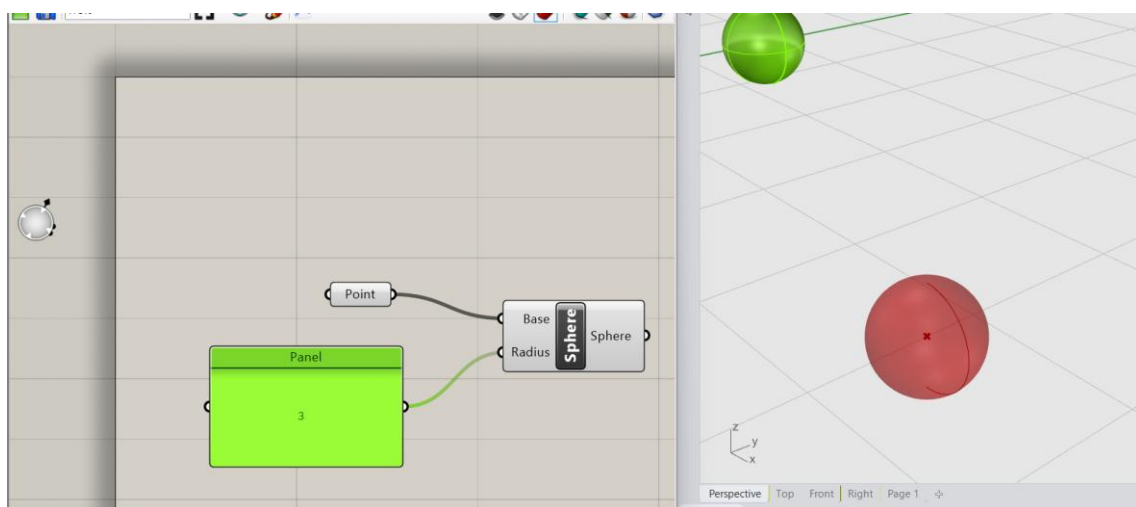
Quando carrego com o botão direito em cima da esfera no grasshopper consigo torna-la editável no rhino e dar-lhe uma layer



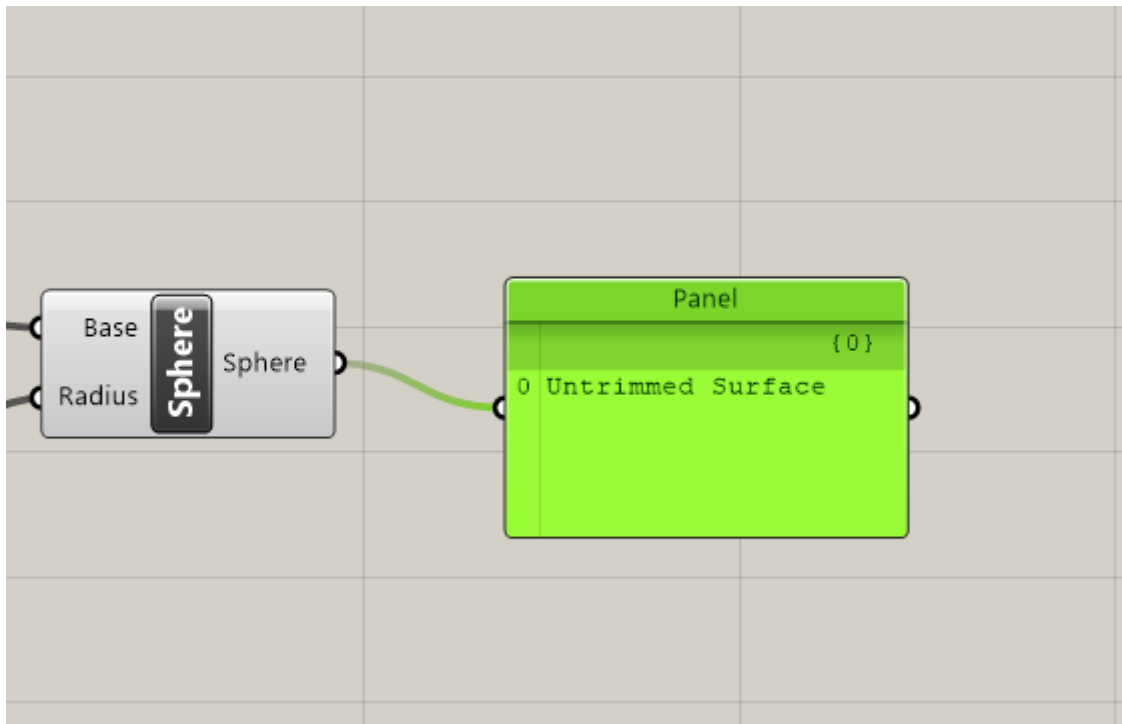
Ao construir um ponto e depois no grasshopper ao escrever point e depois no grasshopper utilizar set one point



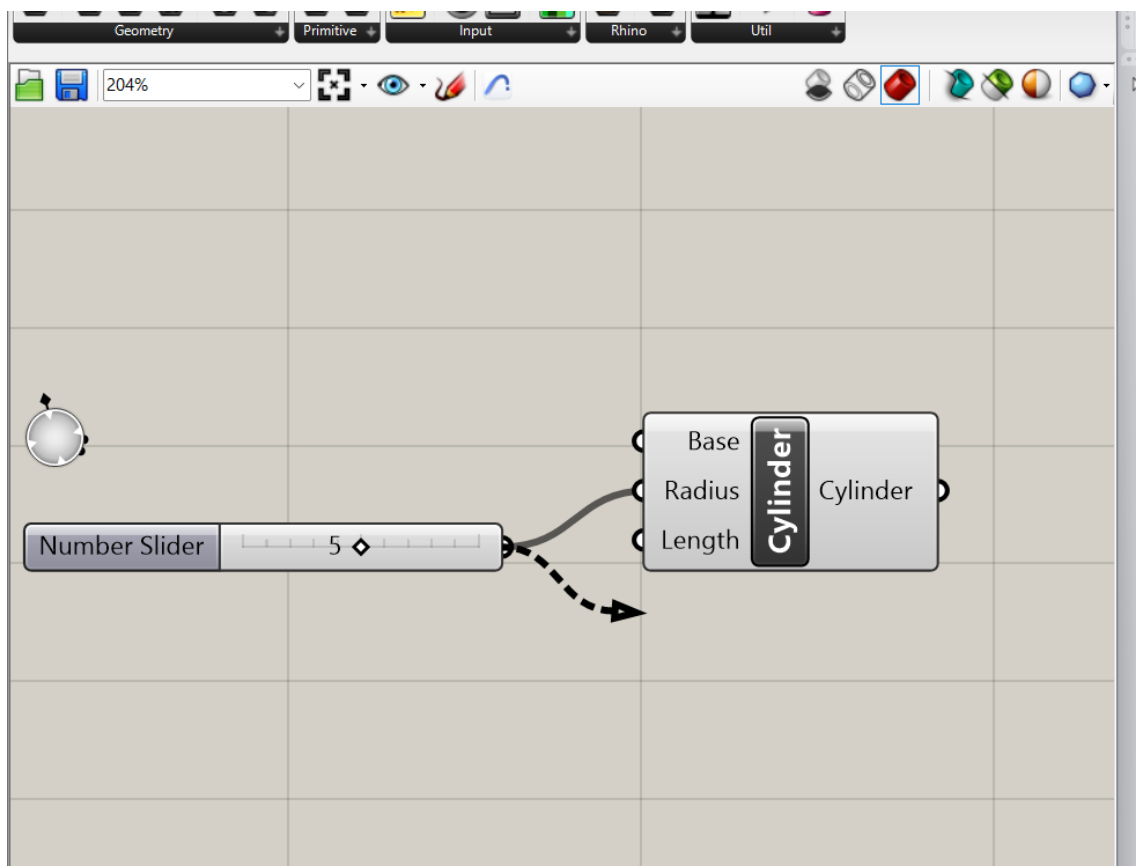
Tenho que seleccionar o ponto do rhino. E assim ele fica com o mesmo ponto entre o rhino e o grasshopper como se tivesse importado



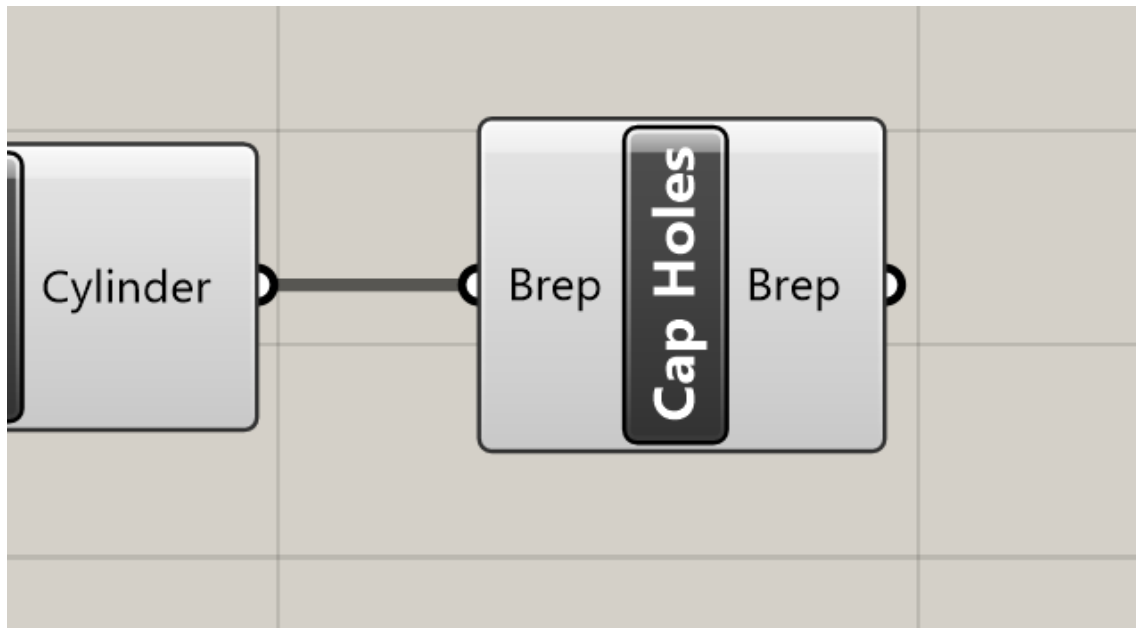
Também posso utilizar o painel para meter dados



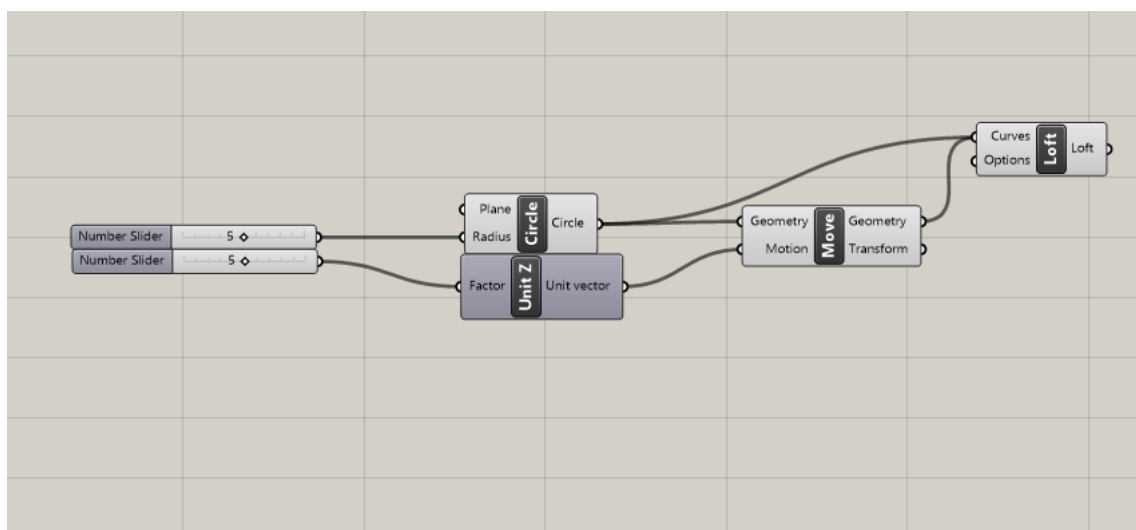
Ou para receber informações



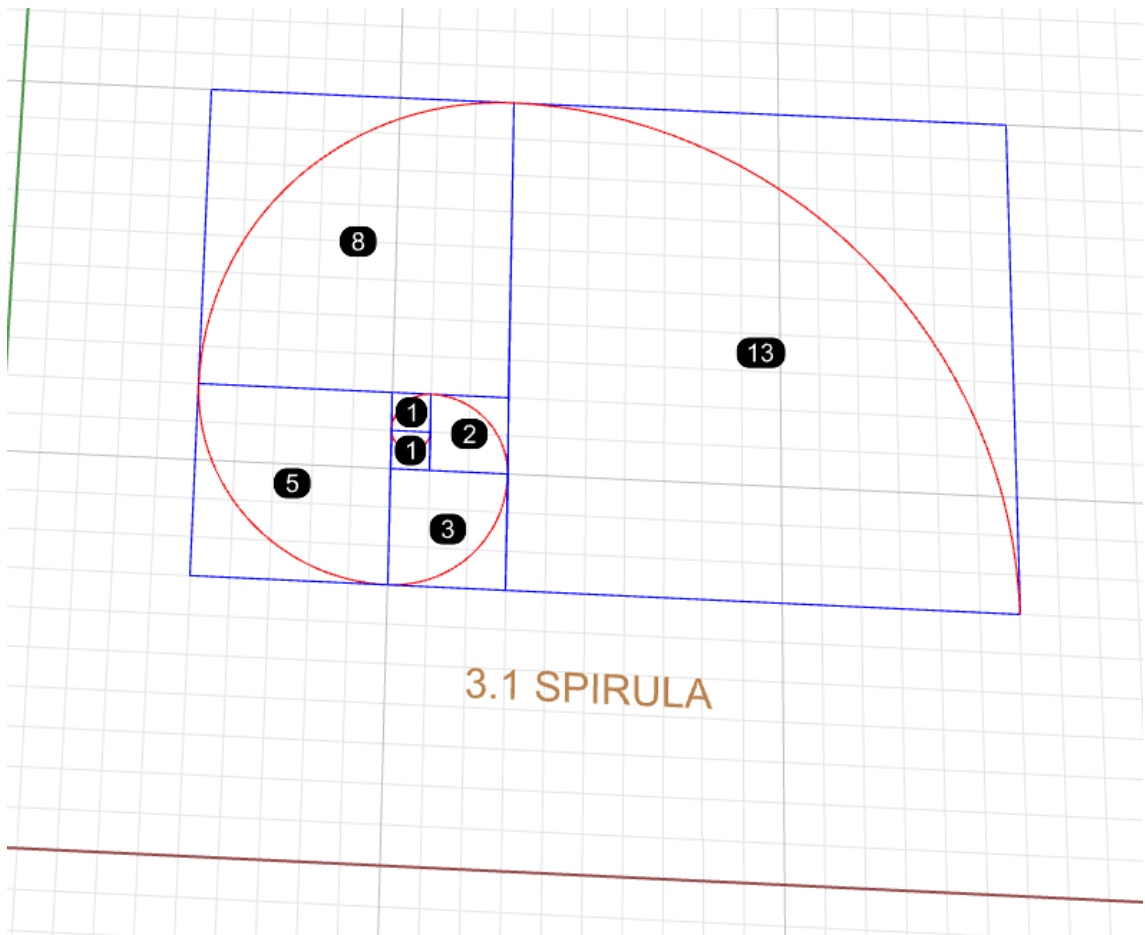
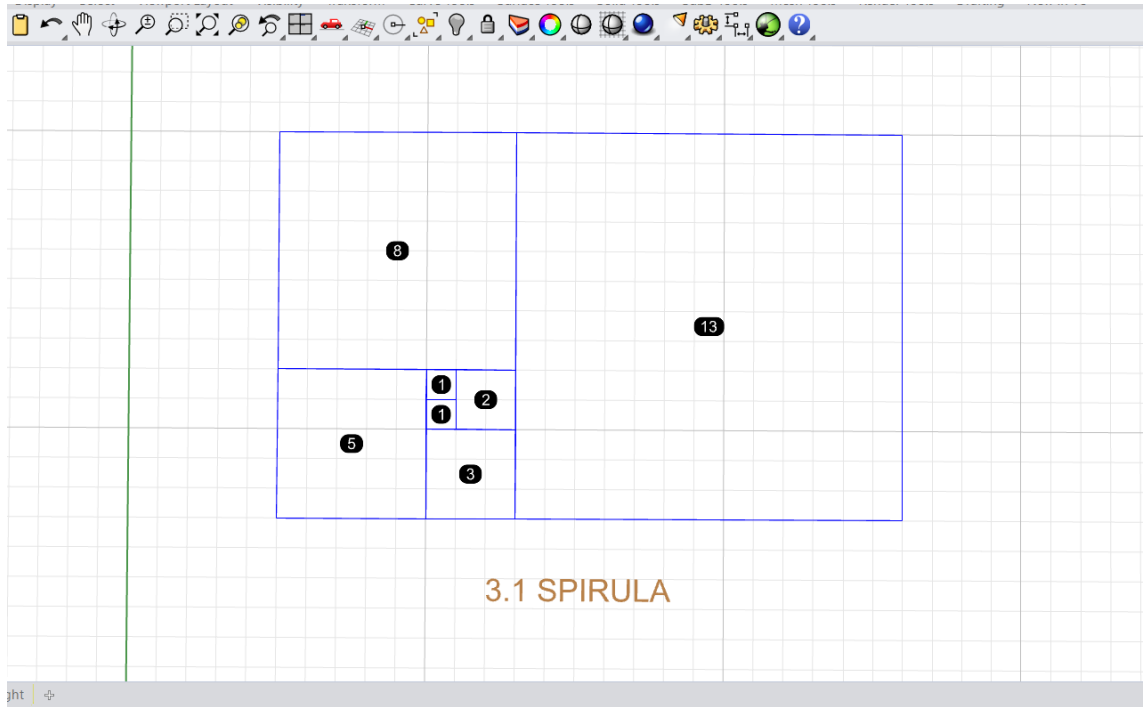
Utilizando o Shift para arrastar as setas consigo dar o mesmo dado de output para diferentes inputs

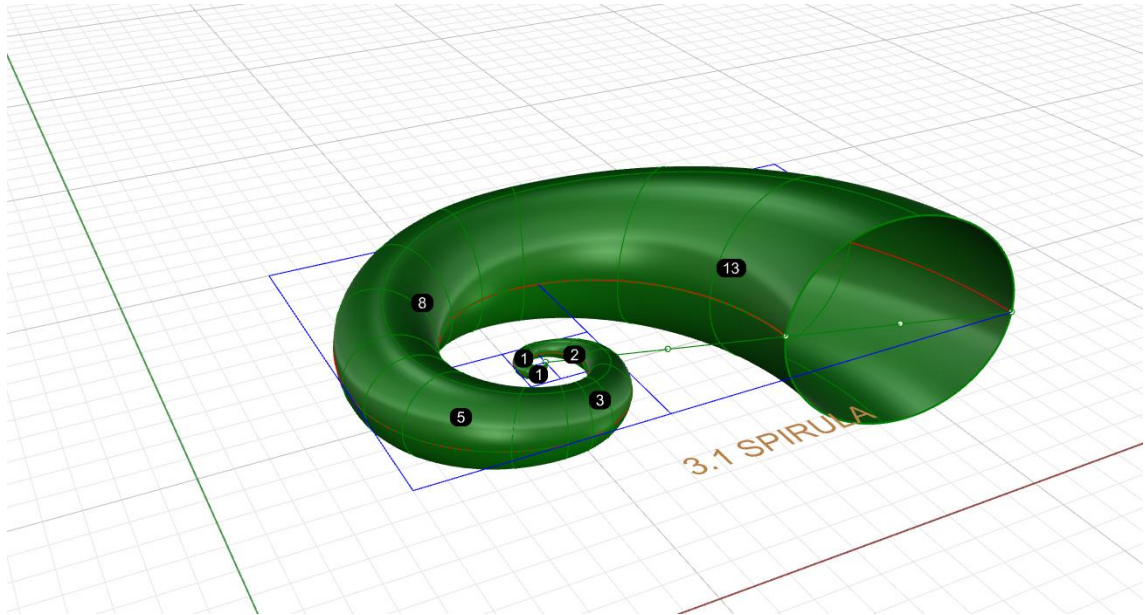


Se eu usar o comando cap ele fecha me o solido

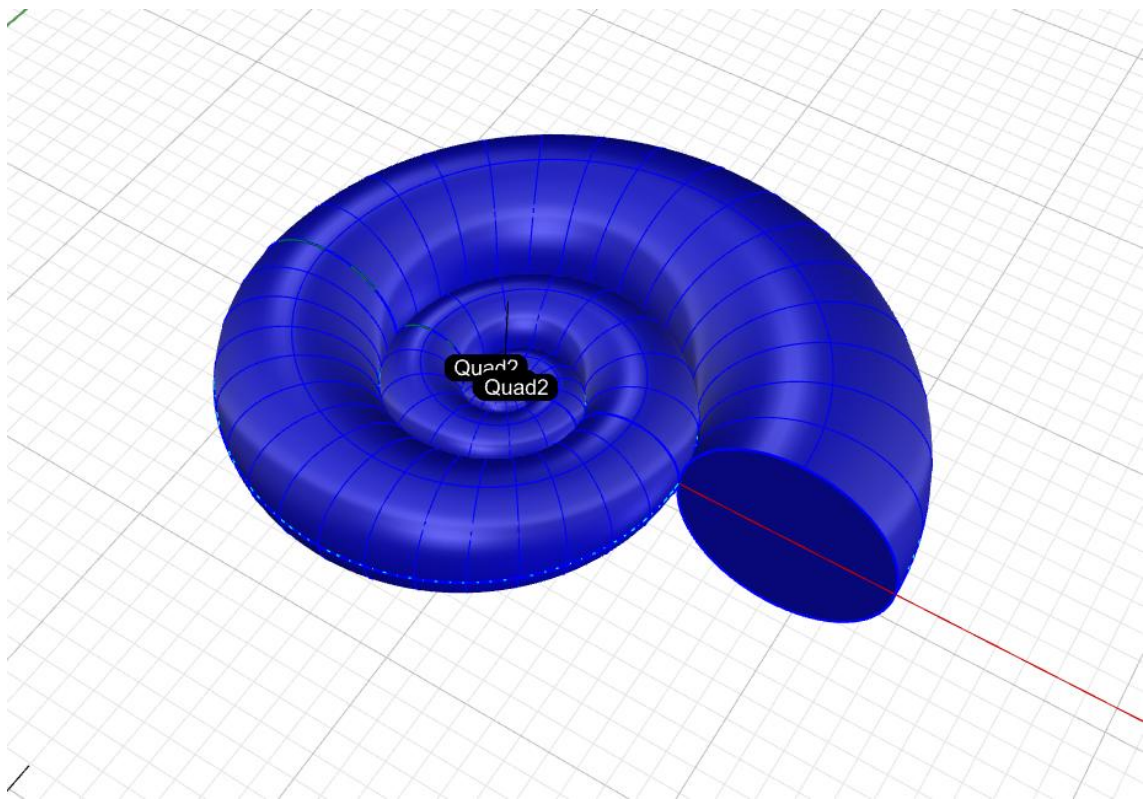
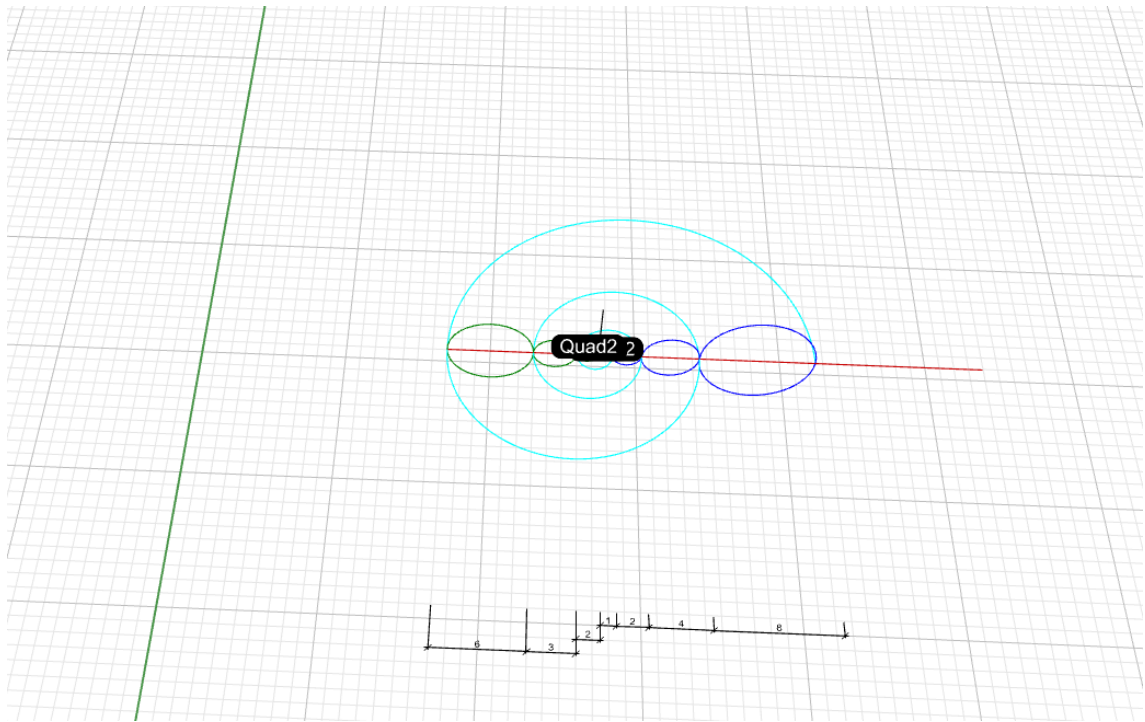


SPIRULA

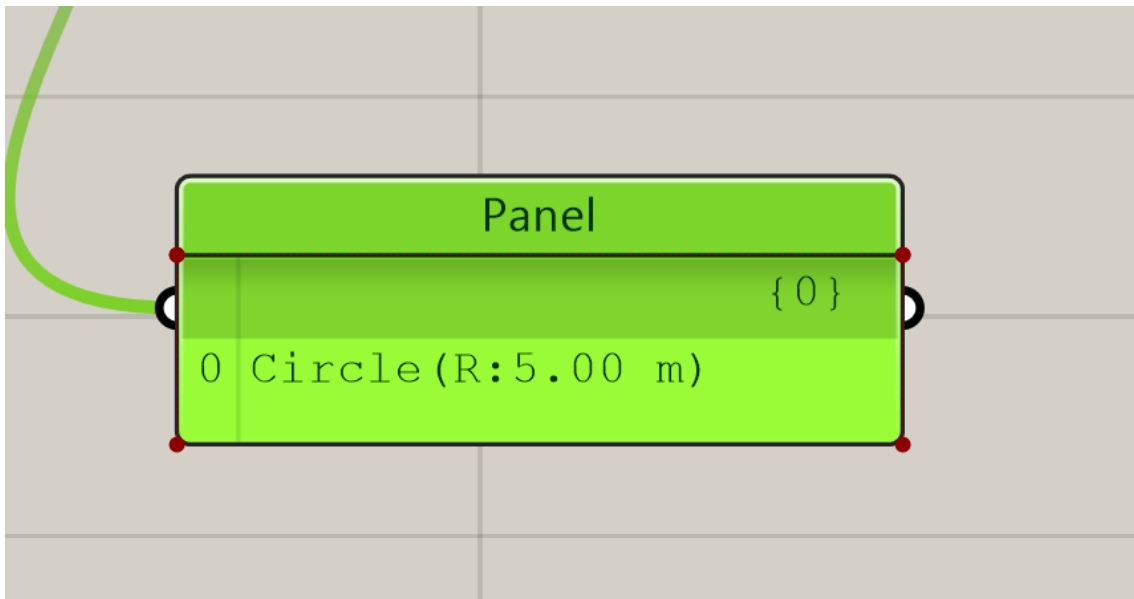




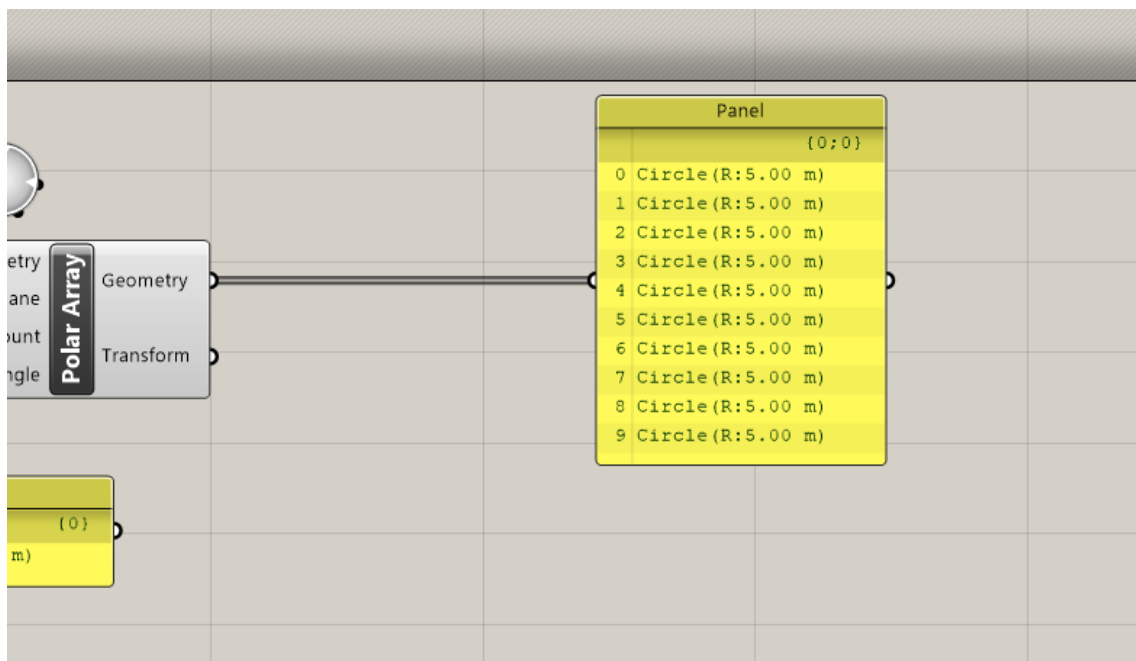
21/04/2026

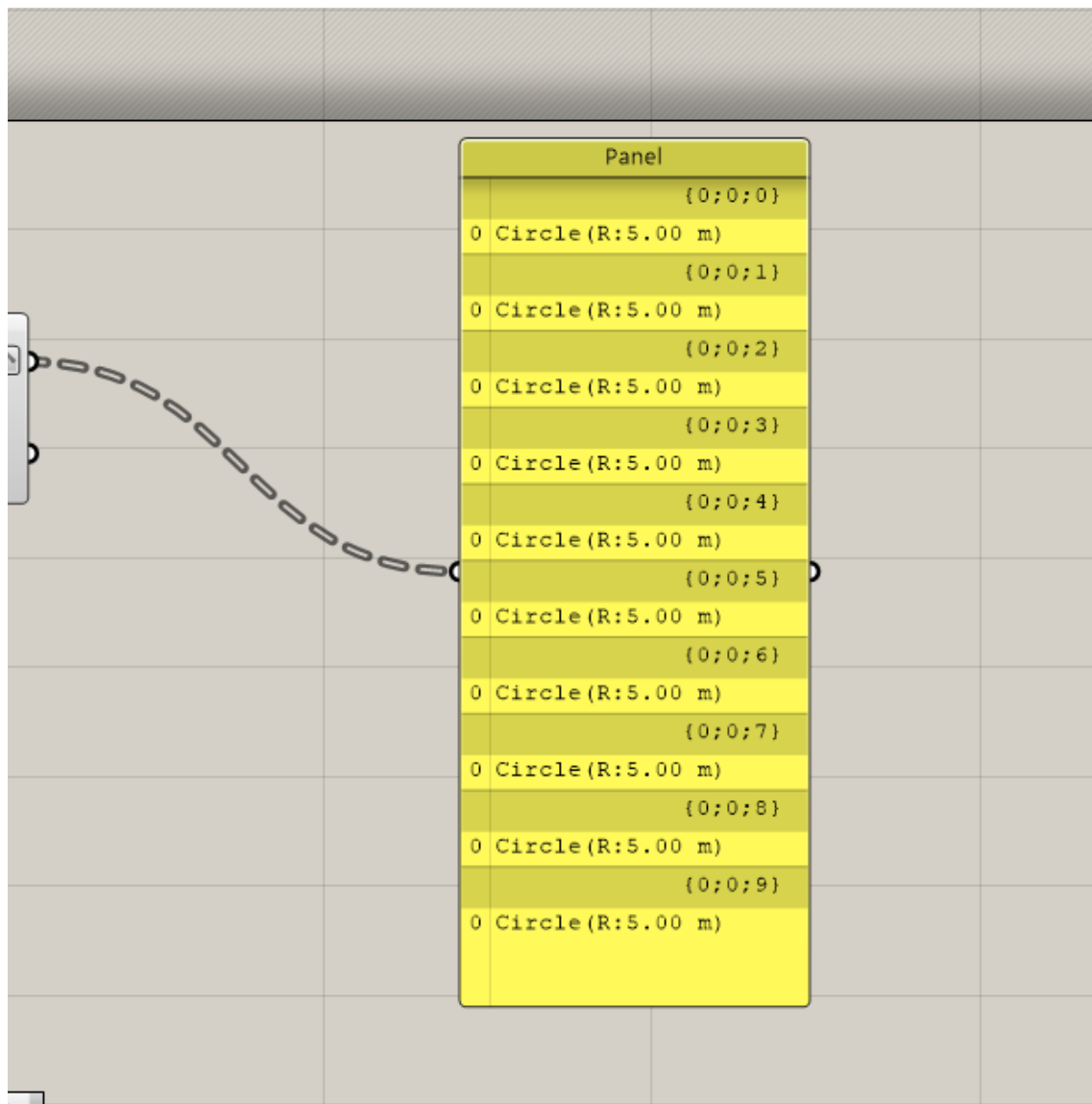


Sweep2

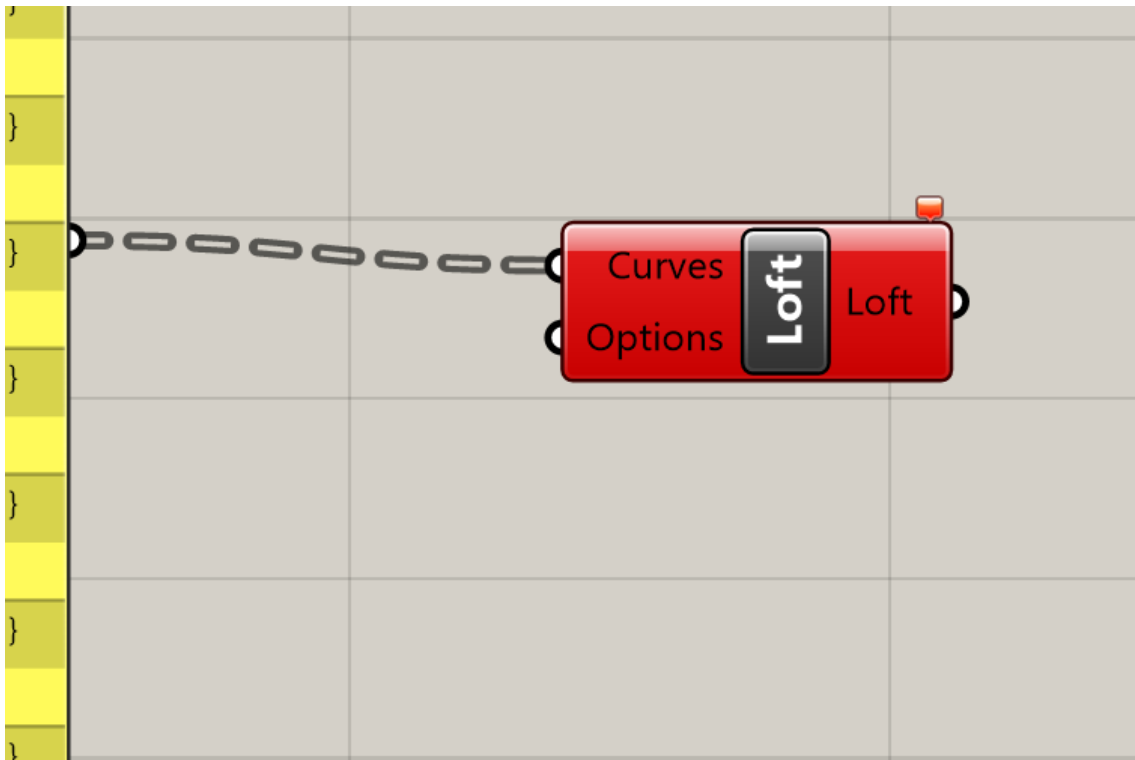


comando painel serve para dar informações e recebe informações sobre os elementos

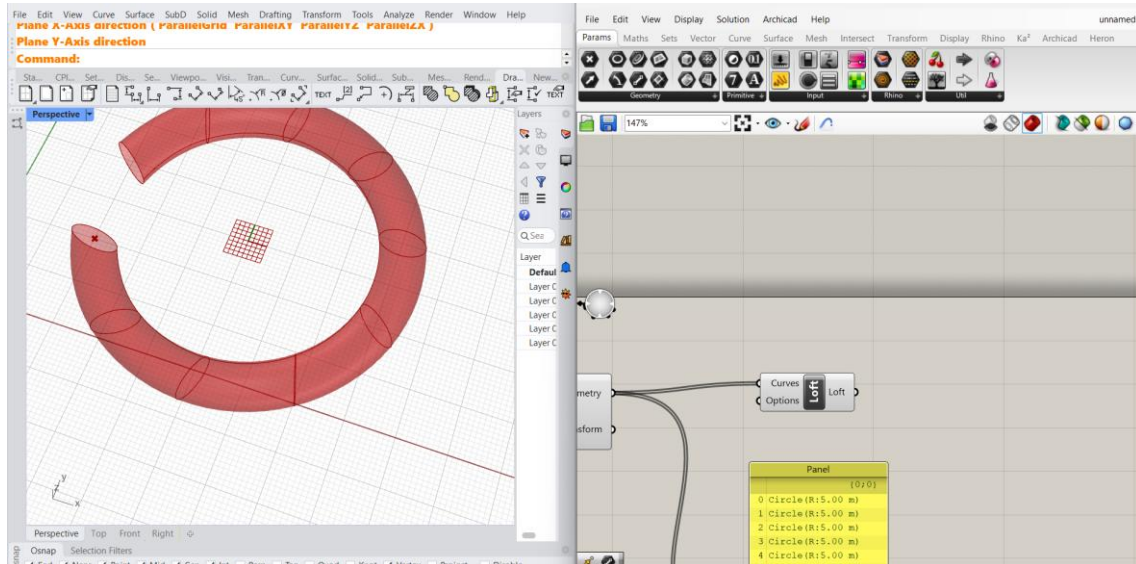




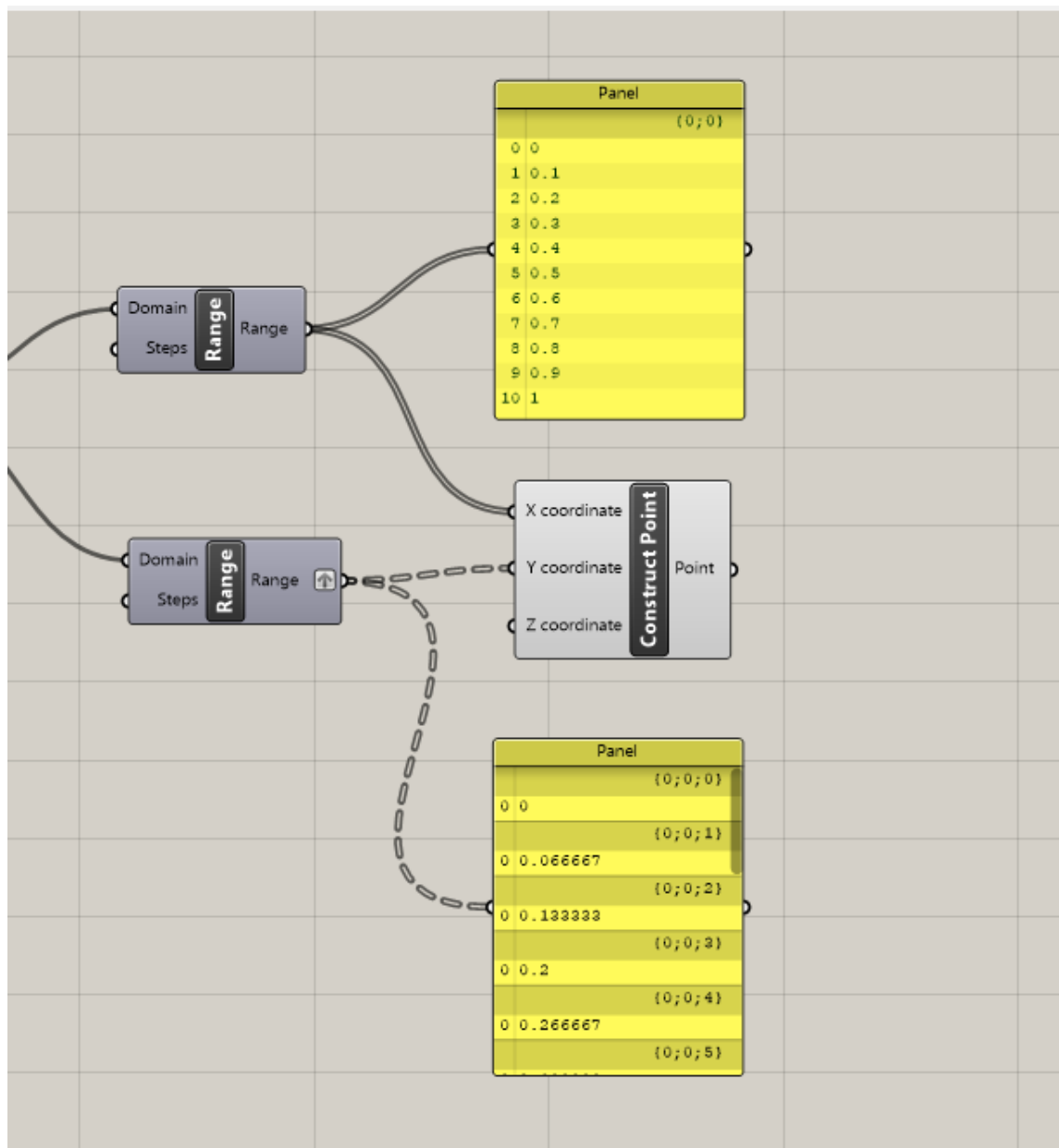
Com o comando graft conseguimos ter uma lista de todas as listas em vez de ter so uma lista

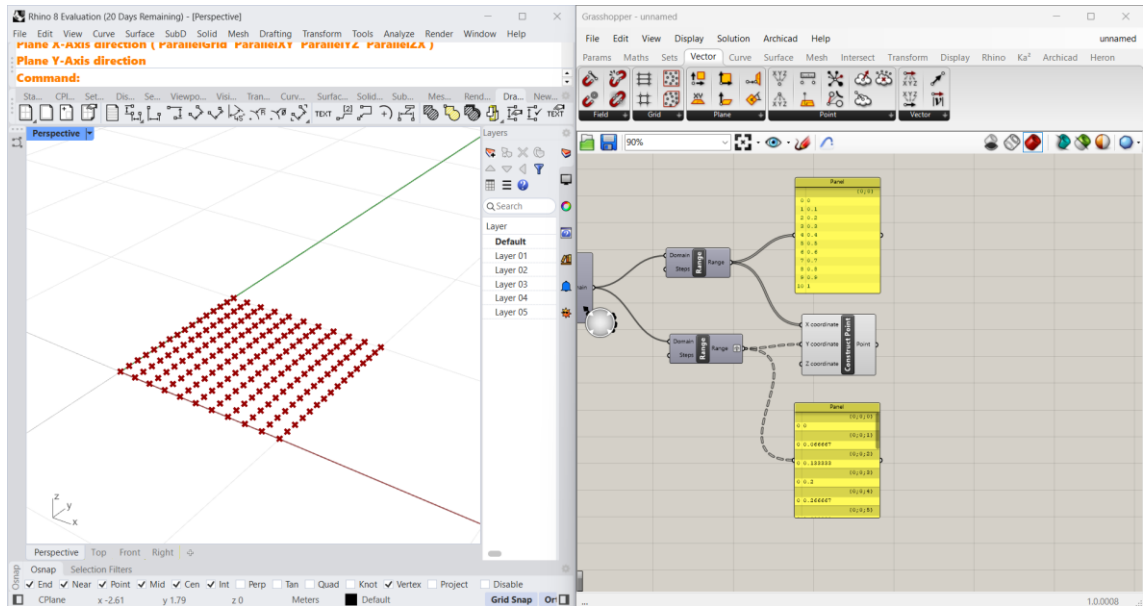
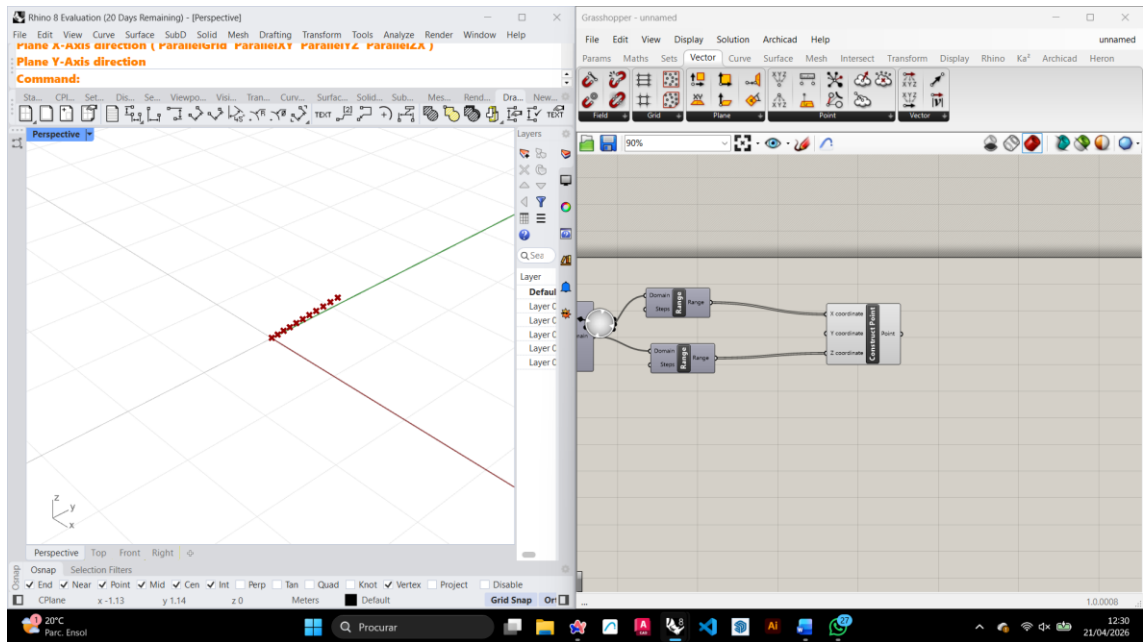


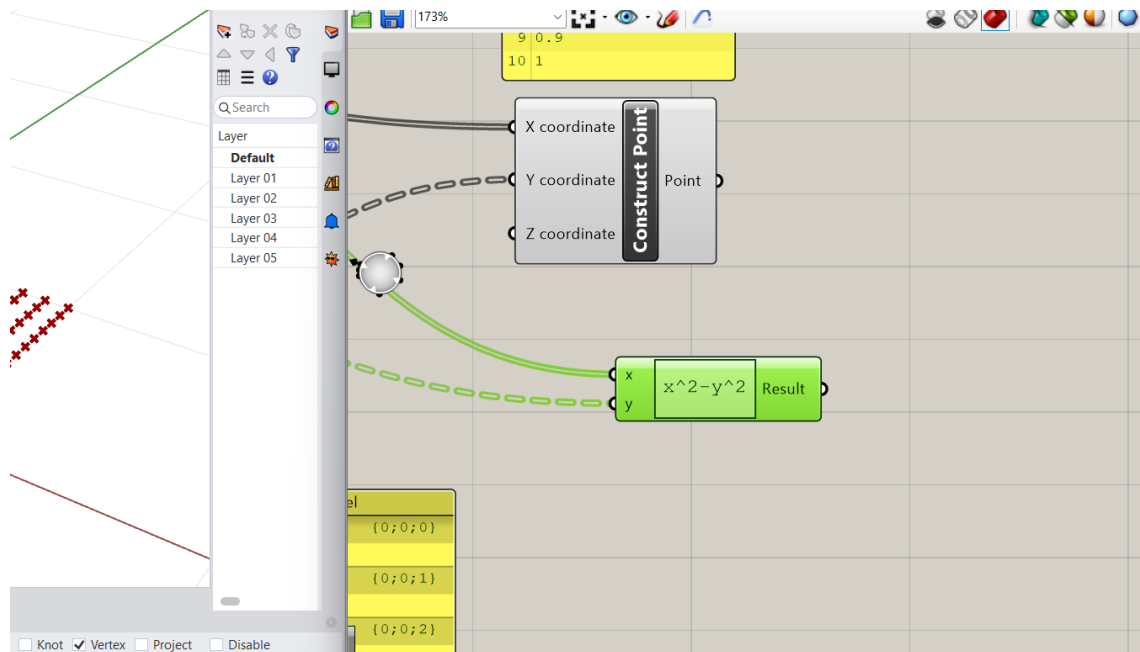
O problema é que o loft não funciona com listas



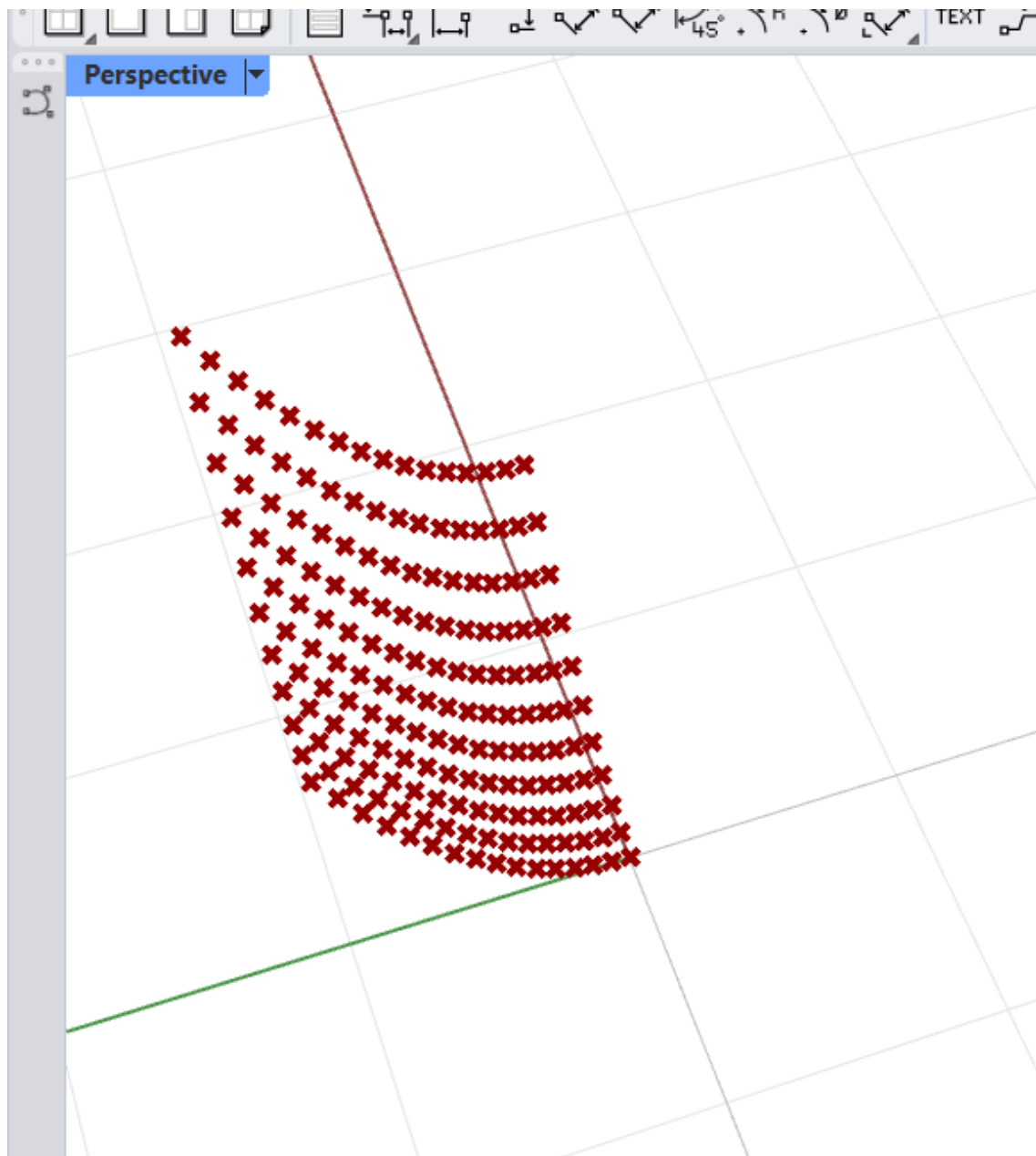
temos que tirar o graft e ligar o loft á geometria



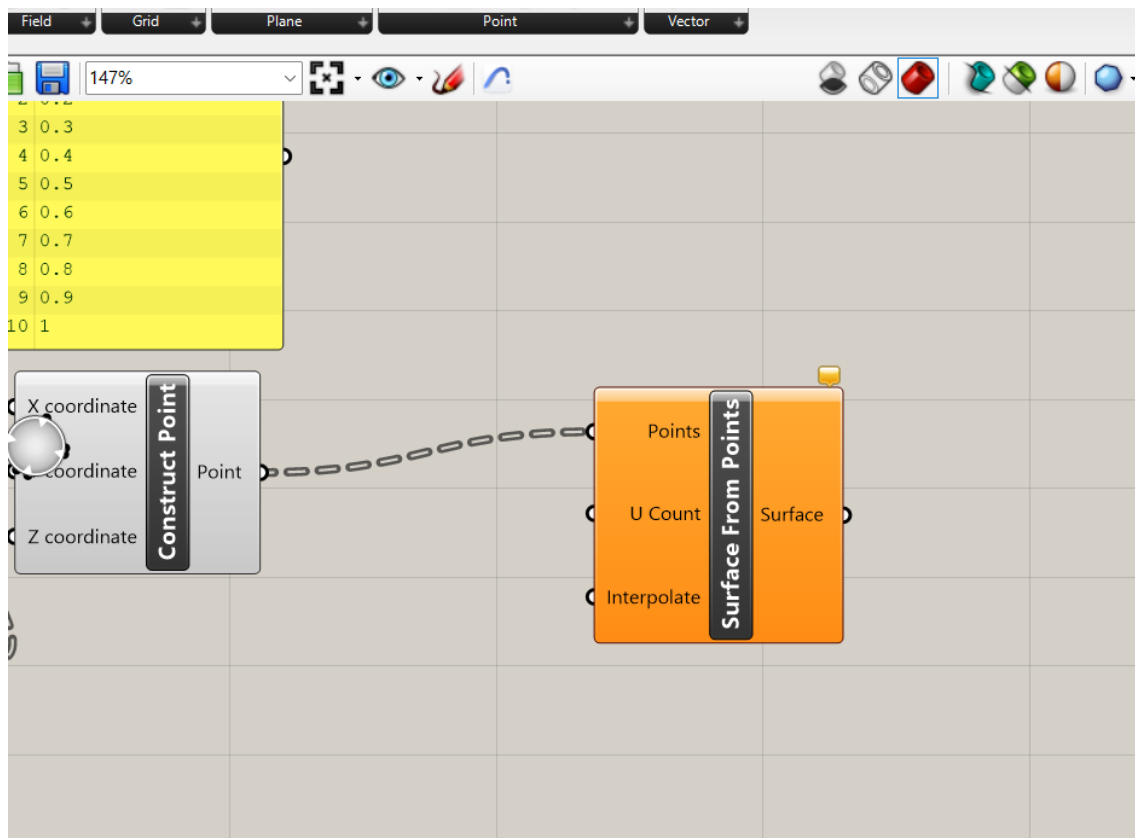




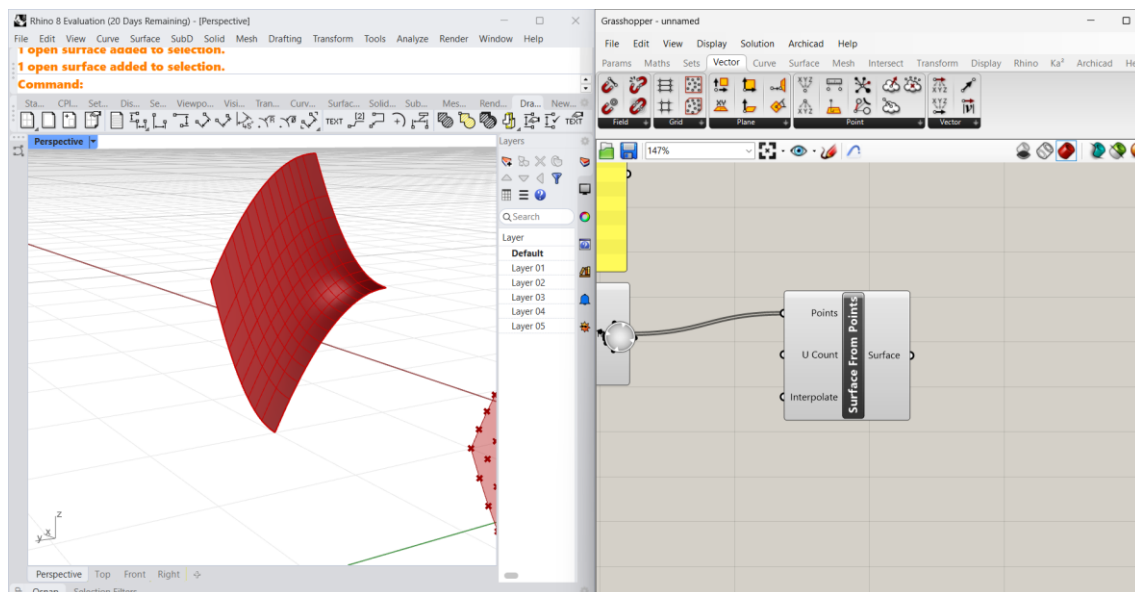
adicionar uma expressão



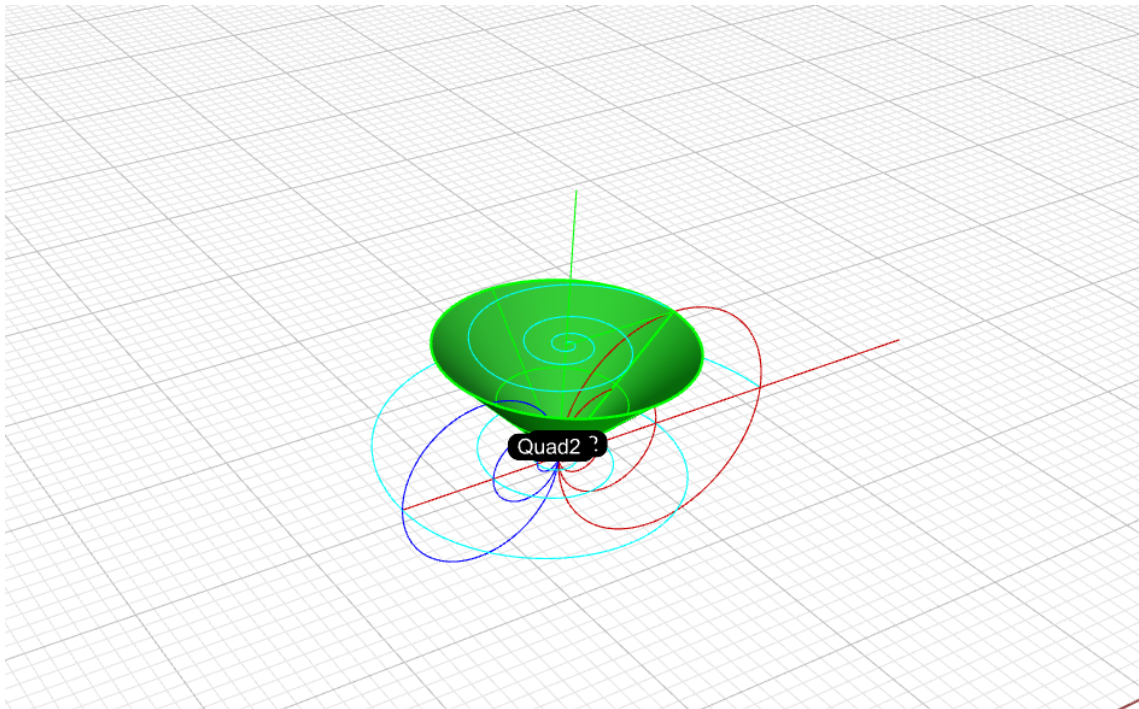
Dependendo da expressão a forma muda



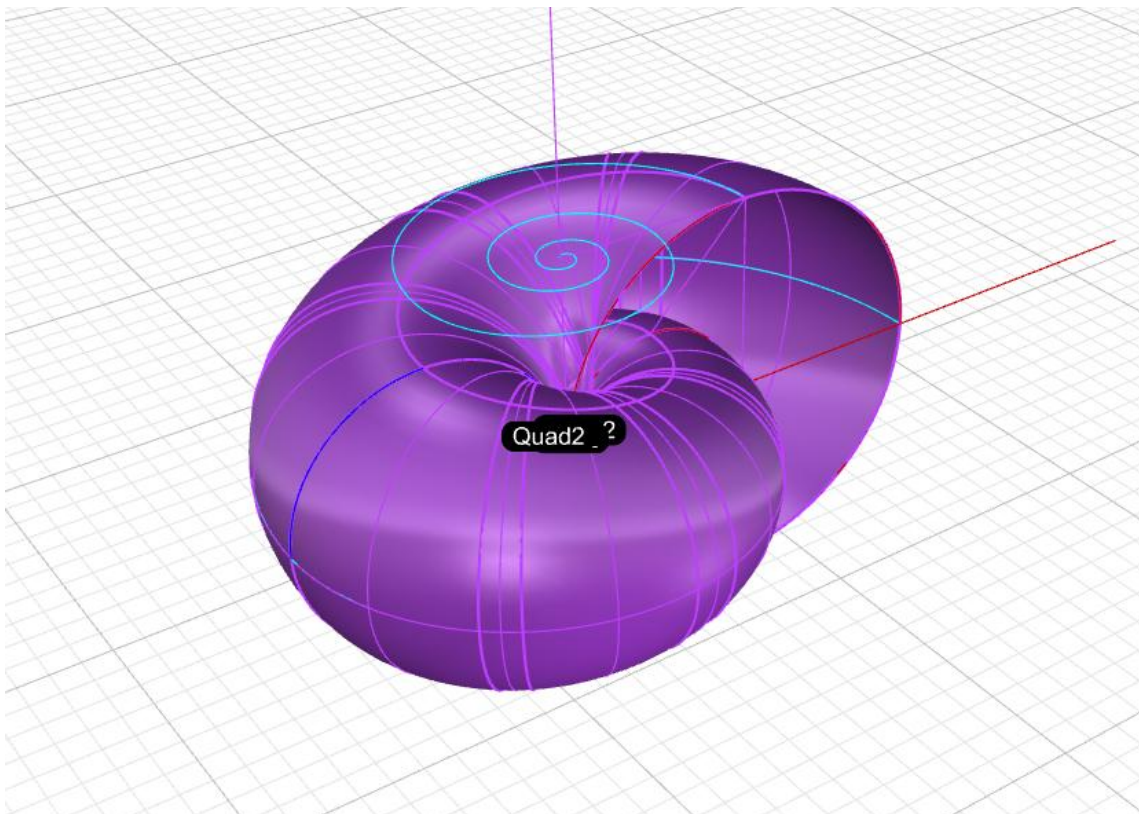
Surface from points para criar uma superfície apartir dos pontos



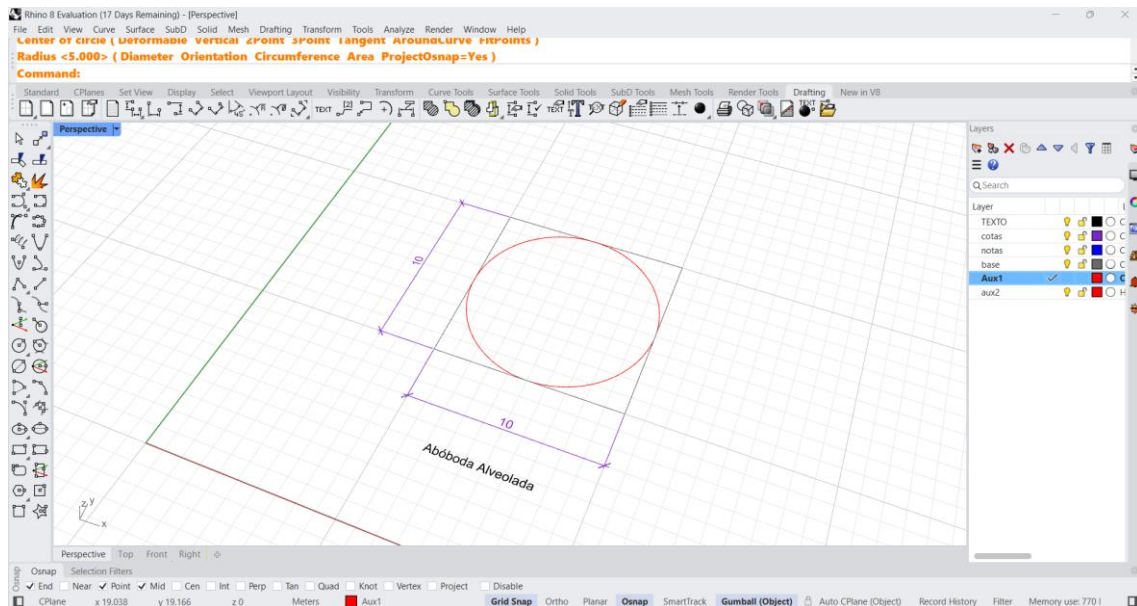
Ao dar bake consigo agora meter a superfície
no rhino editável



Revolve

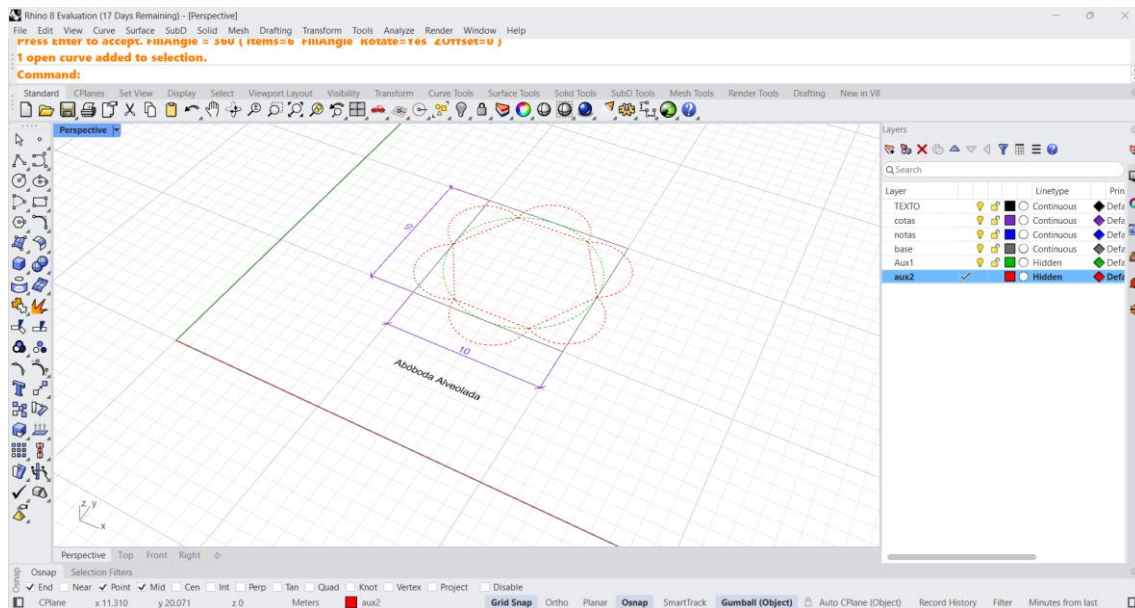


TRABALHO II

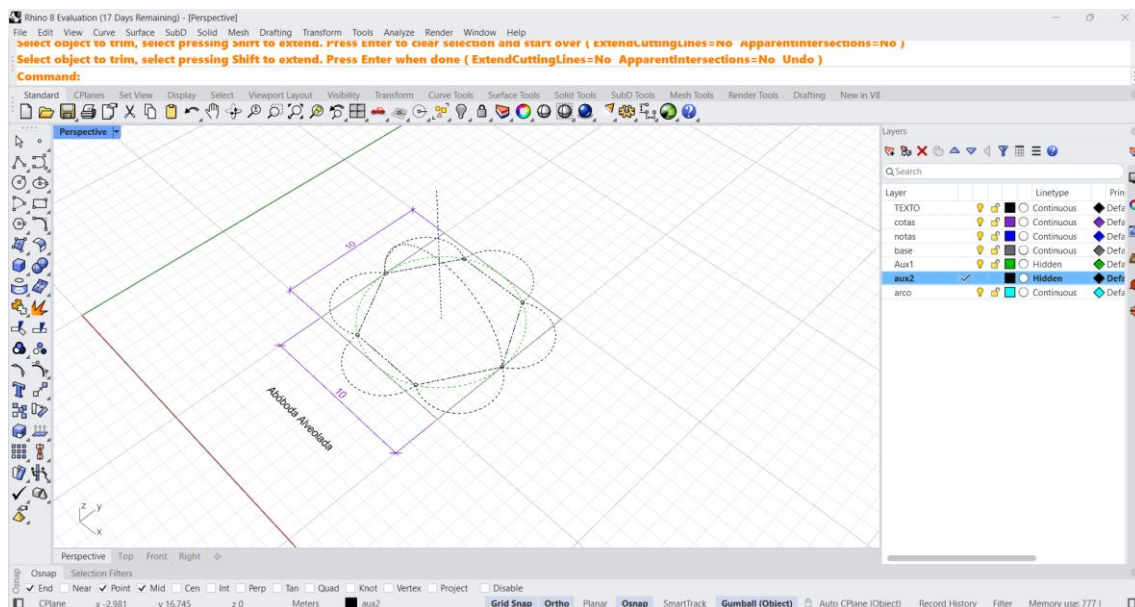


Começo por desenhar uma circunferência no centro da base

1. Abóboda Alveolada

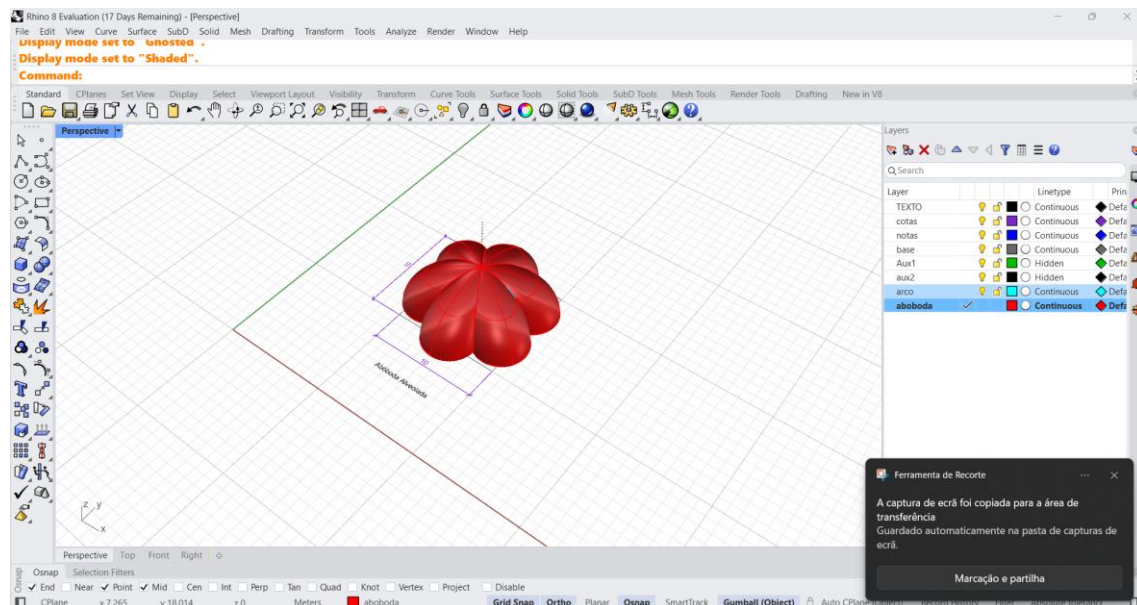


Inscrevo um hexágono e coloco arcos em todas as faces do mesmo utilizando o comando arraypolar 360



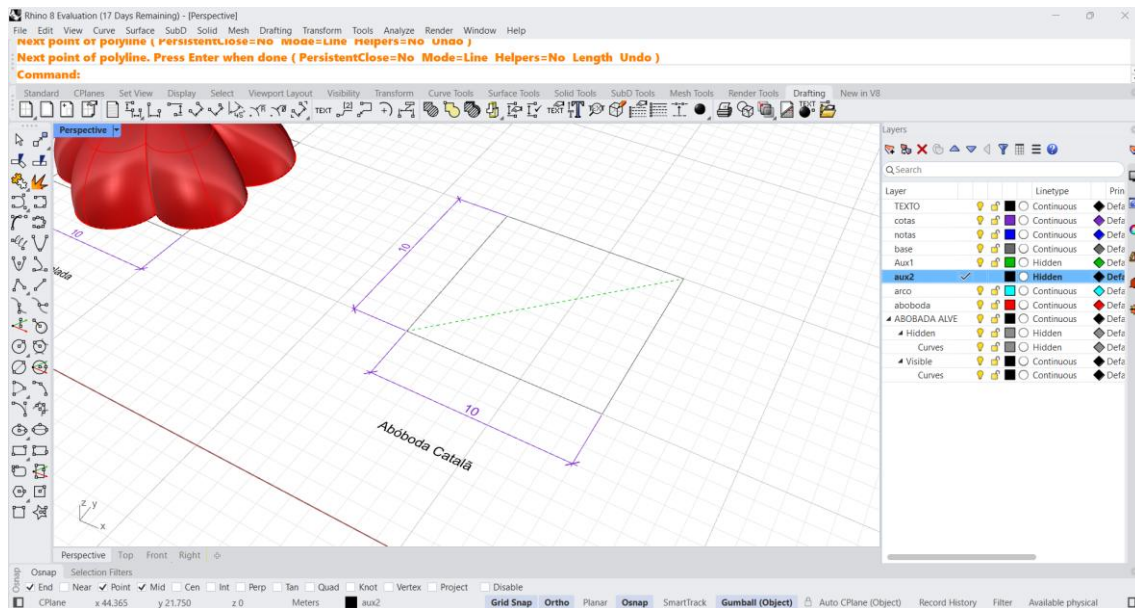
Uma linha no centro da base com 10m de altura e uma circunferência vertical de dois pontos que une dois vértices alinhados um com o outro que de seguida dou trim através do hexágono a um dos arcos da

circunferência. De seguida doi split ao arco usando a linha que parte do centro da base

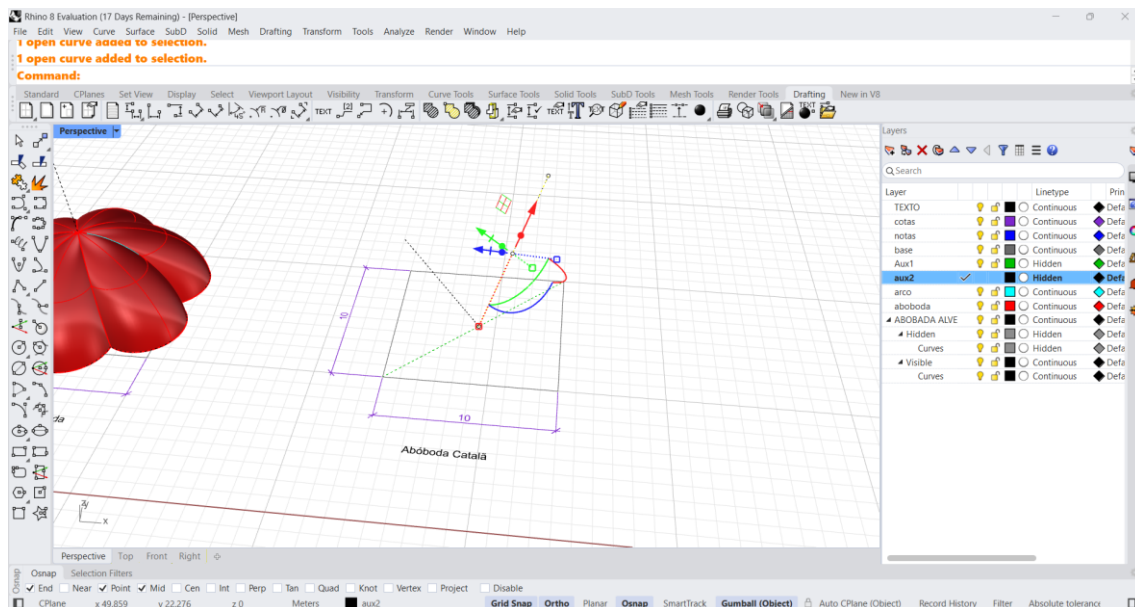


De seguida, seleccionando apenas um dos dois arcos verticais que agora tinha, faço railrevolve seleccionando os arcos que estão no plano horizontal da base. E uso a linha vertical como eixo.

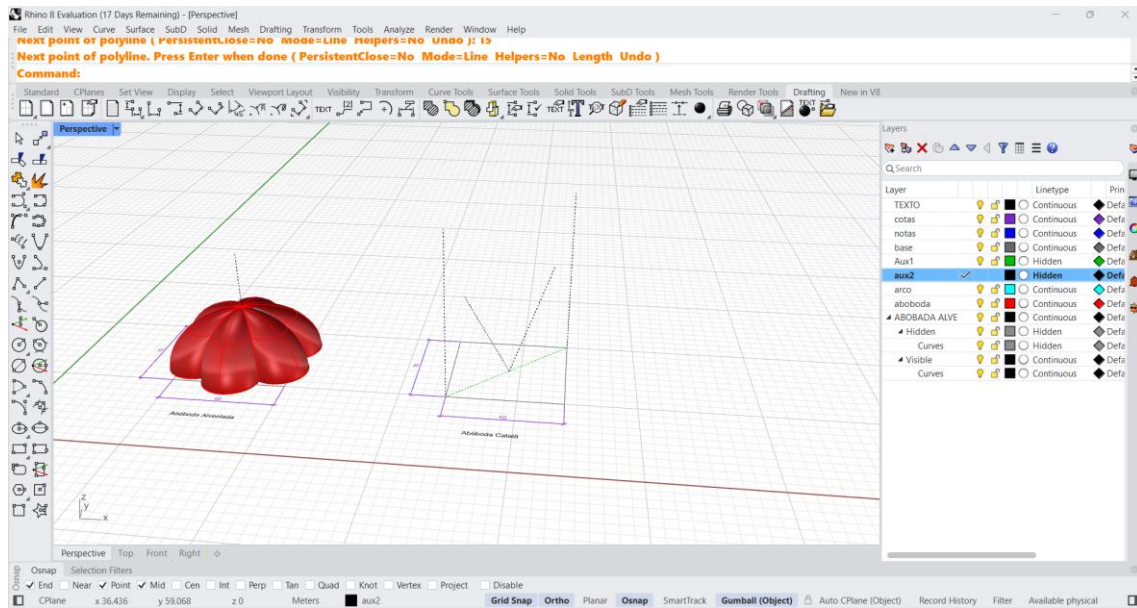
Abóboda Catalã



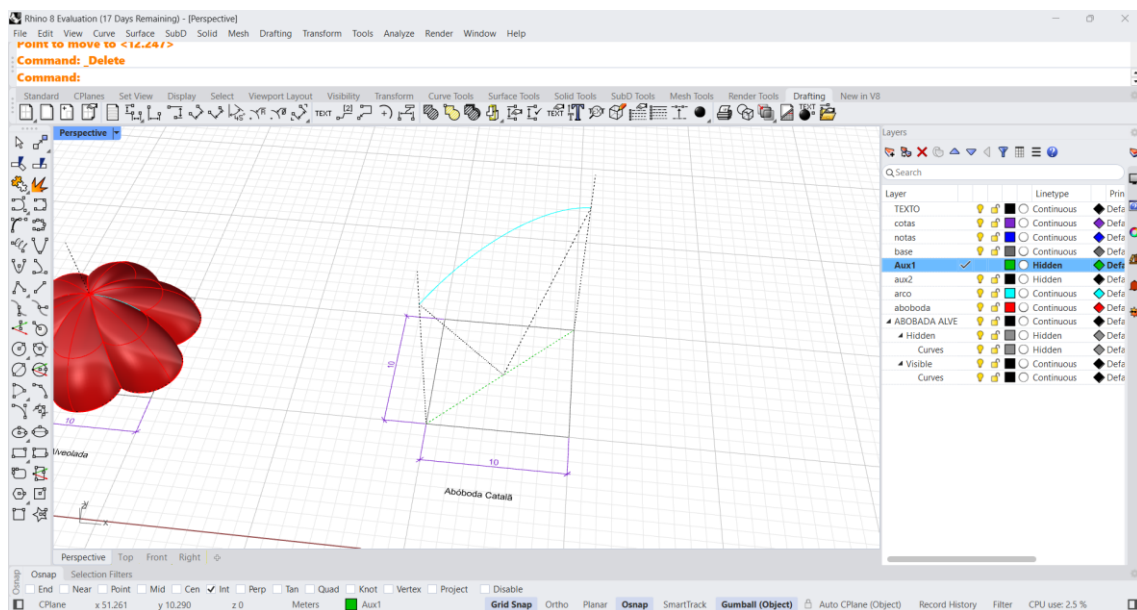
Desenho uma linha de vértice a vértice oposto



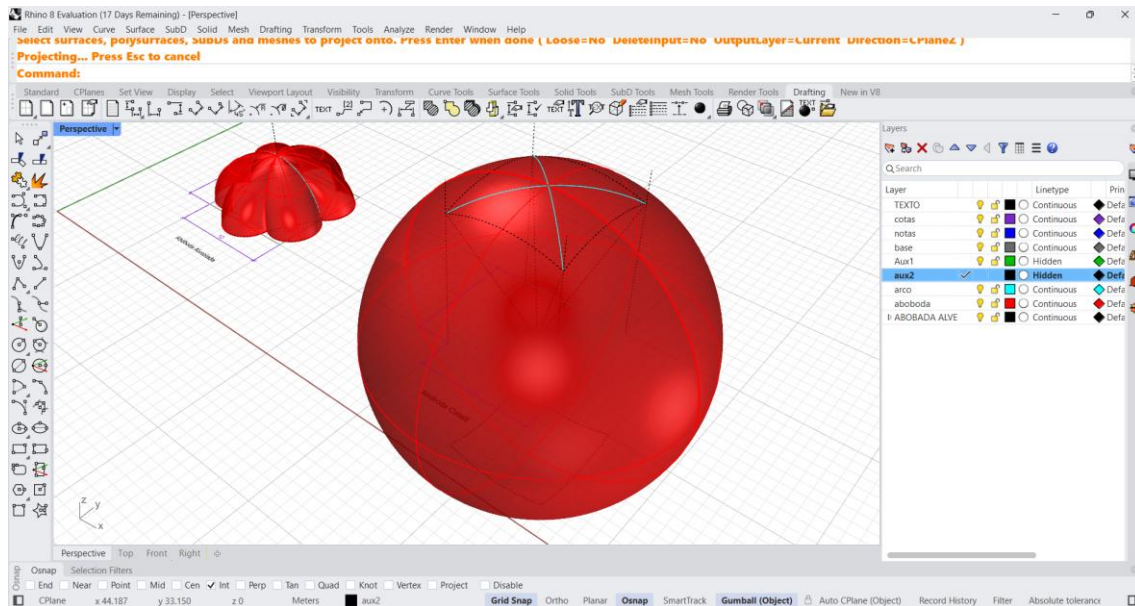
Apartir do midpoit dessa linha faço uma outra linha
@10<45>60 e depois dou-lhe mirror



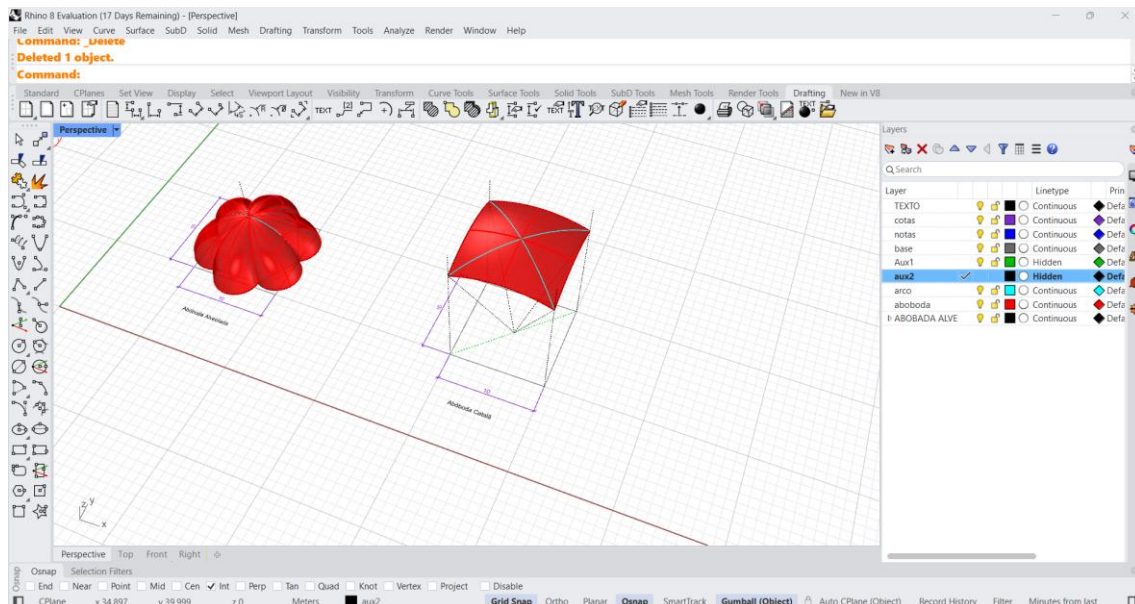
Duas linhas nos vértices com 15m de altura



Depois faço um arco através destas linhas inclinadas

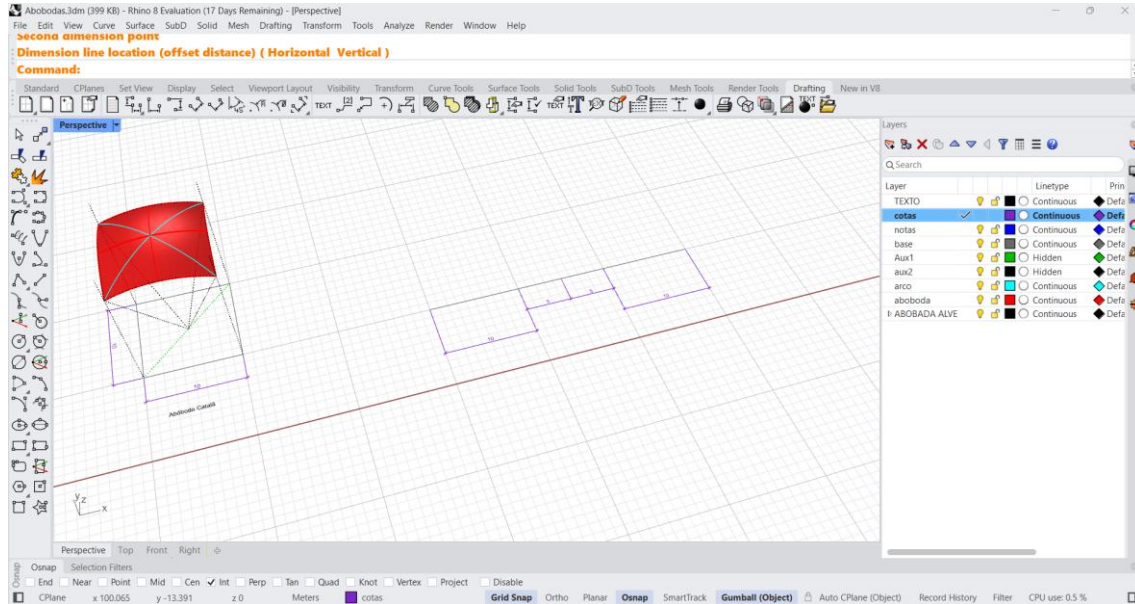


Dou mirror ao arco e meto-o de forma perpendicular ao outro, depois crio uma esfera do centro da base ate o ponto de interseção dos dois arcos e faço “project” nas linhas da base ate a esfera

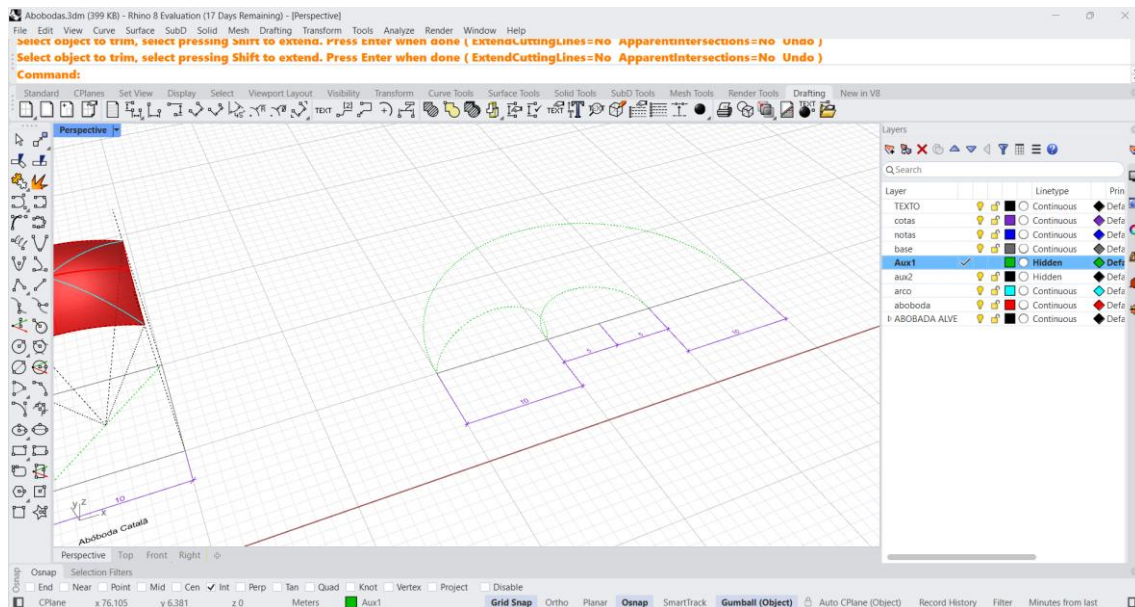


Trim

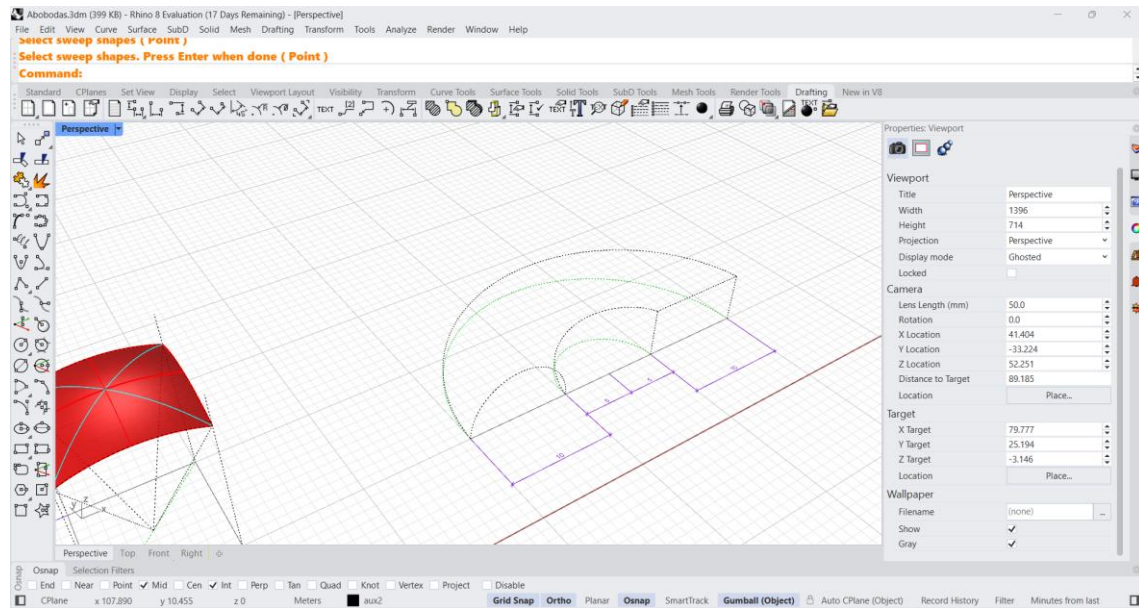
Abóboda Helicoidal



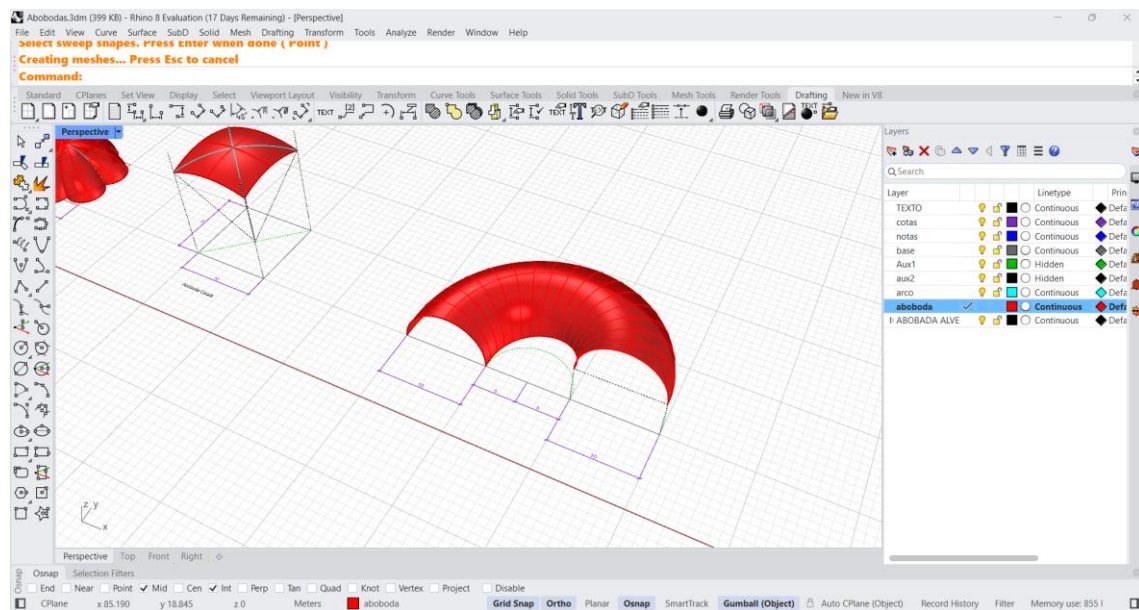
Começamos por desenhar as linhas onde vao estar os dois arcos



Desenho as linhas da projeção horizontal das espirais e um dos arcos da aboboda



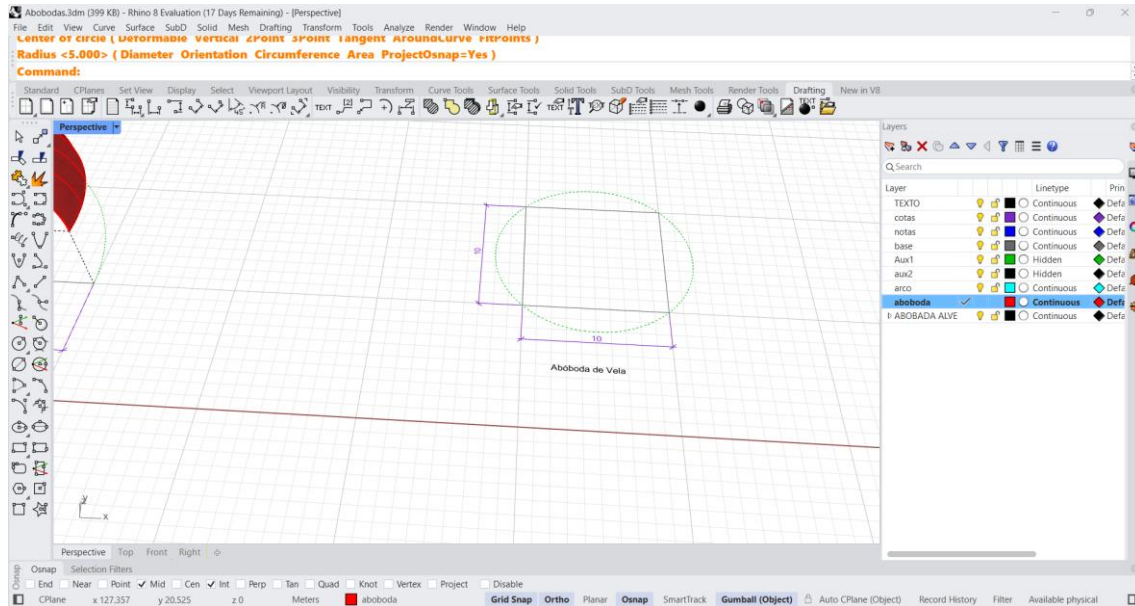
Faço espirais utilizando a altura do arco da esquerda como referencia e o meio da linha da base como centro do eixo



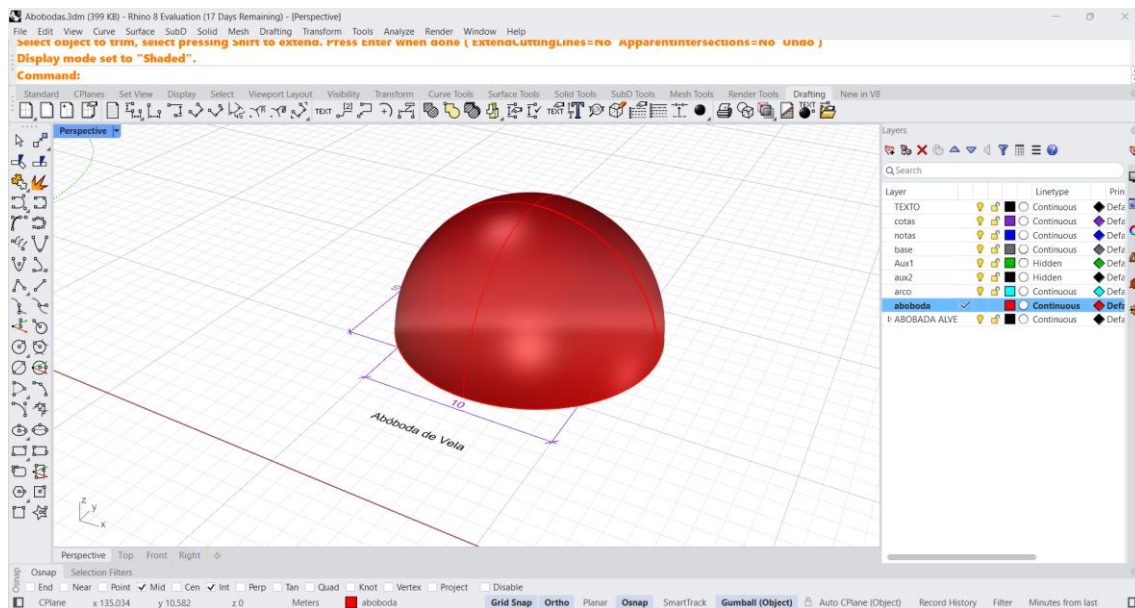
Comando sweep 2

E as espirais são os rails

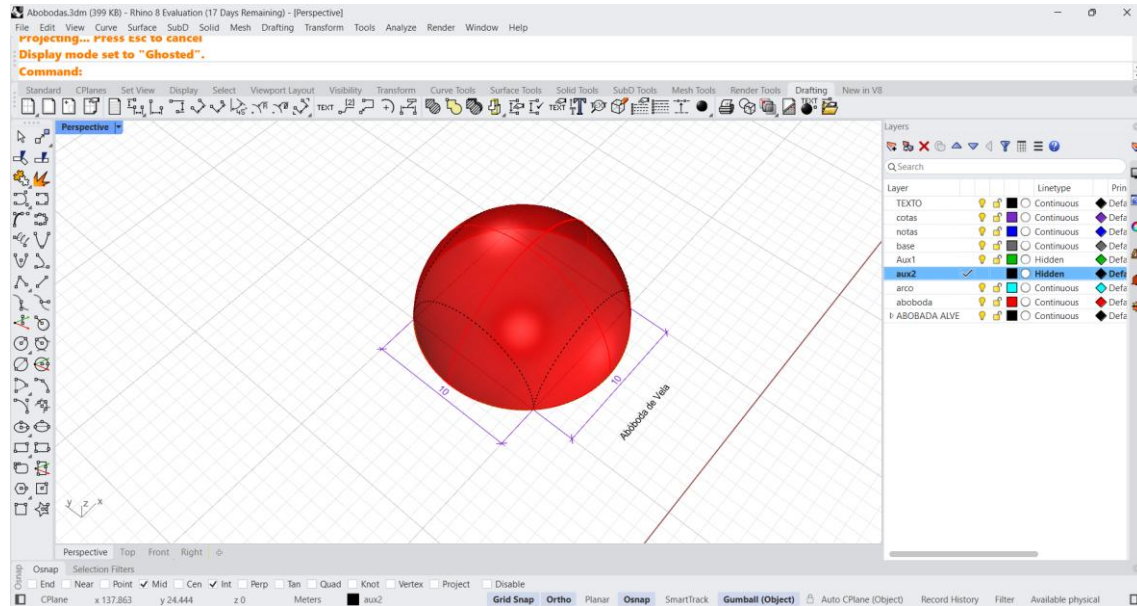
ABÓBODA DE VELA



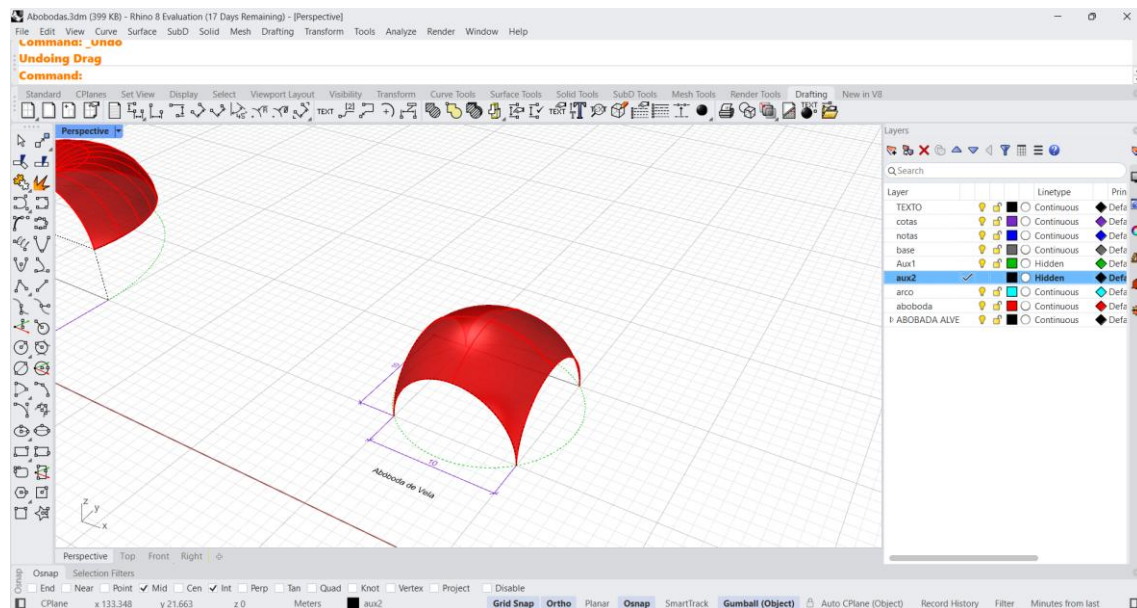
Uso a mesma base que usei para as primeiras abóbodas e desenho uma circunferência em que a base se circunscreve



Desenho um sphere do centro da base para a circunferência e faço trim na esfera com a circunferência

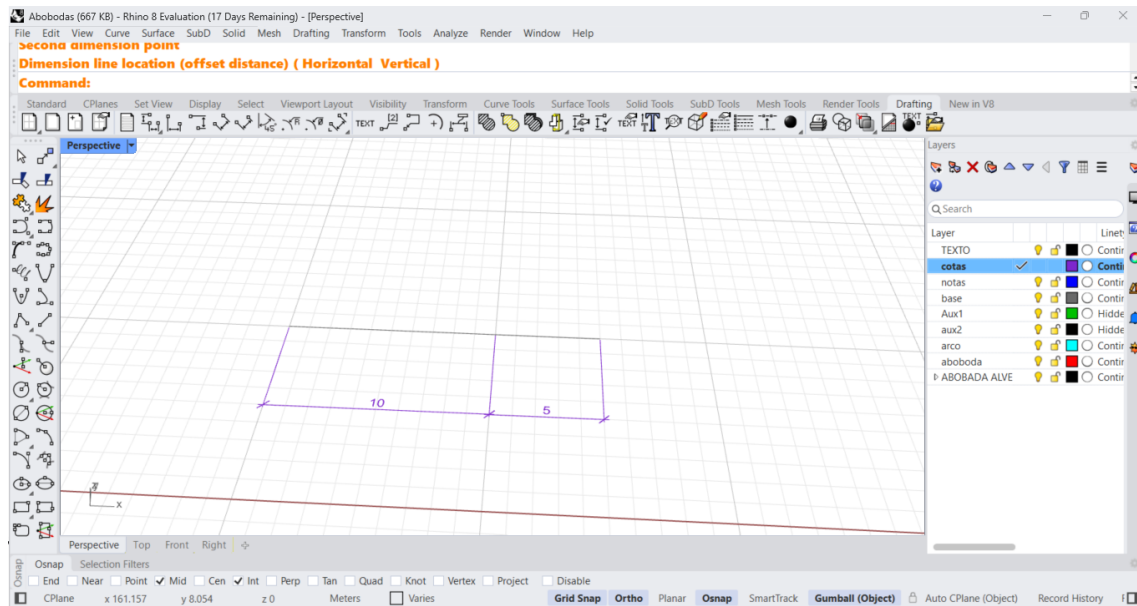


Depois uso project do quadrado da base para a esfera

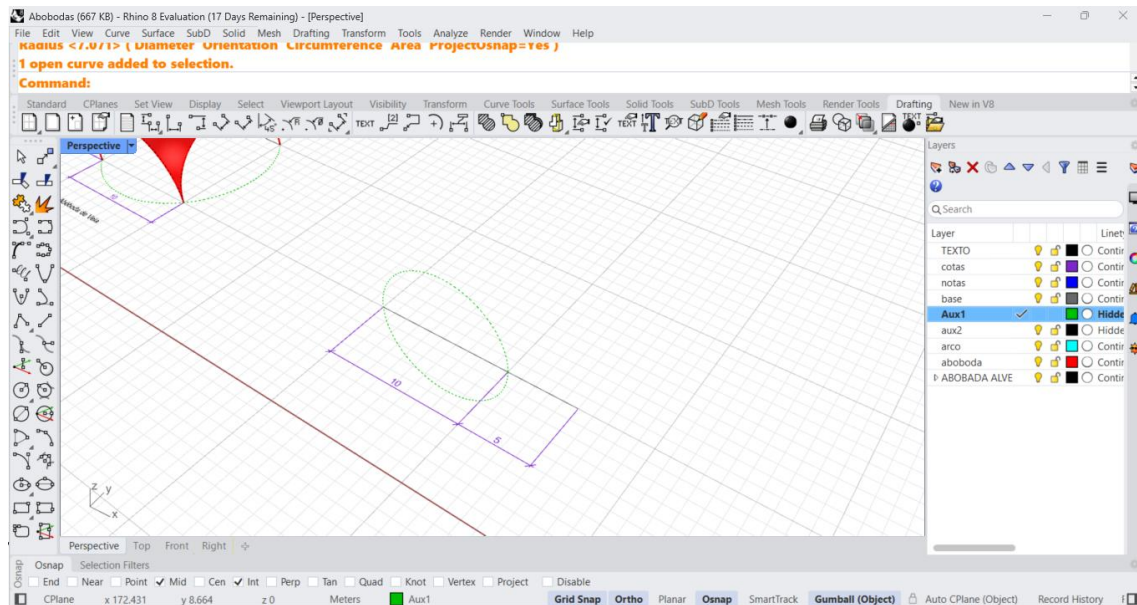


e depois faço trim

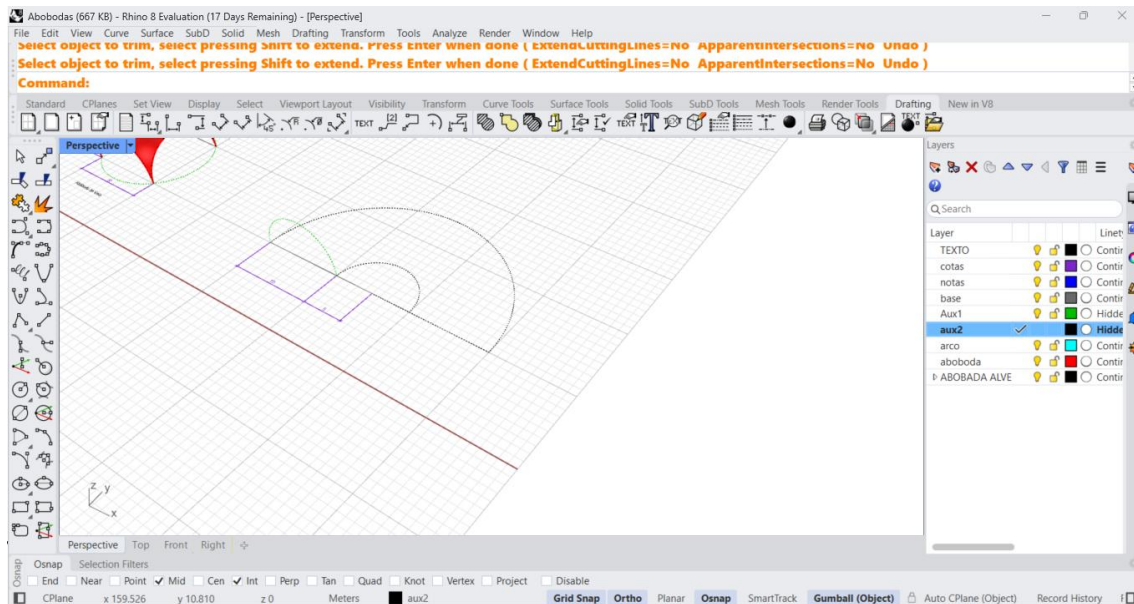
ABOBODA TÓRICA



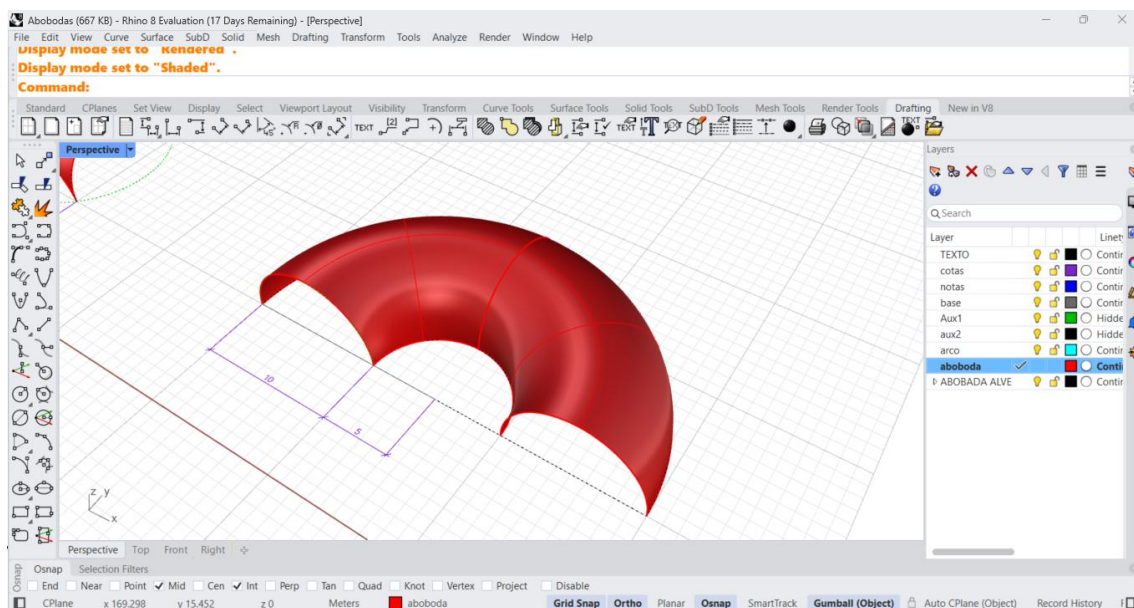
Começo por desenhar uma linha com 10 e outra com 5



Desenho uma circunferência vertical com centro no meio da linha com 10 cm

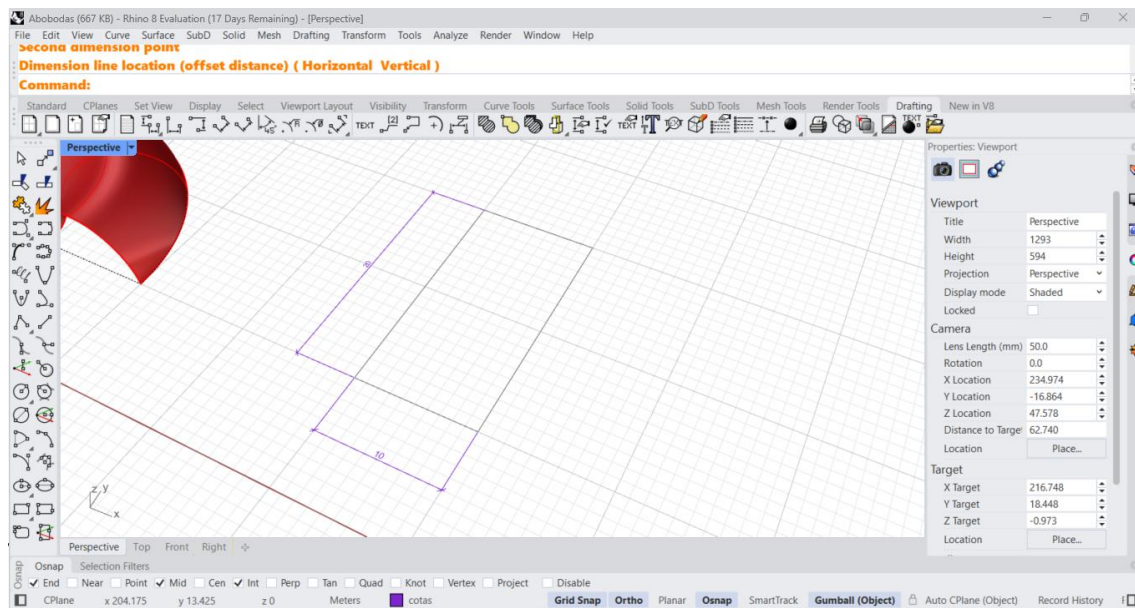


Desenho as linhas pelas quais vou usar como rails para fazer a nossa abóboda isto é faço duas circunferências e prolongo a linha de 10+5 e depois dou trim nas linhas

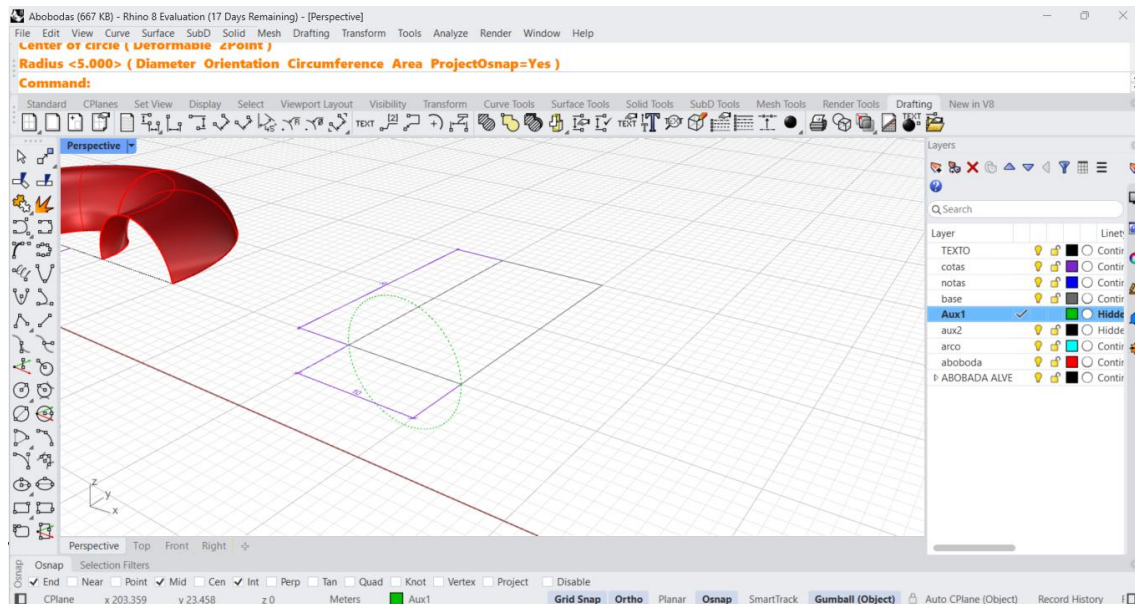


sweep 2

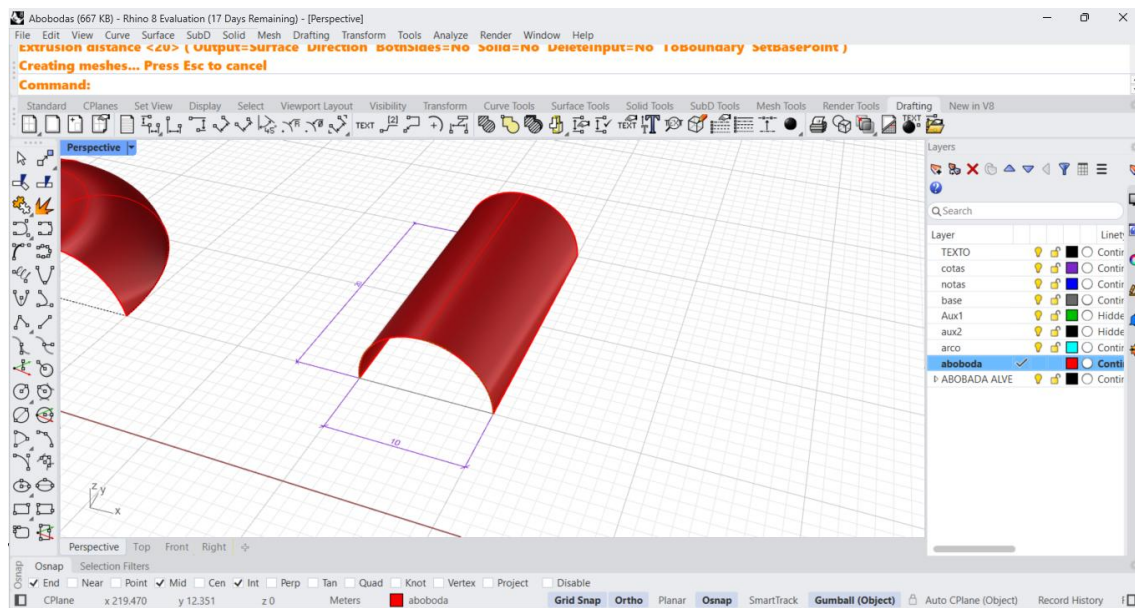
Abóboda de Berço



Começo por desenhar a base 20x10



fazemos um circle vertical num dos lados com 10



De seguida dou trim ao circle e extrudecrv ao mesmo