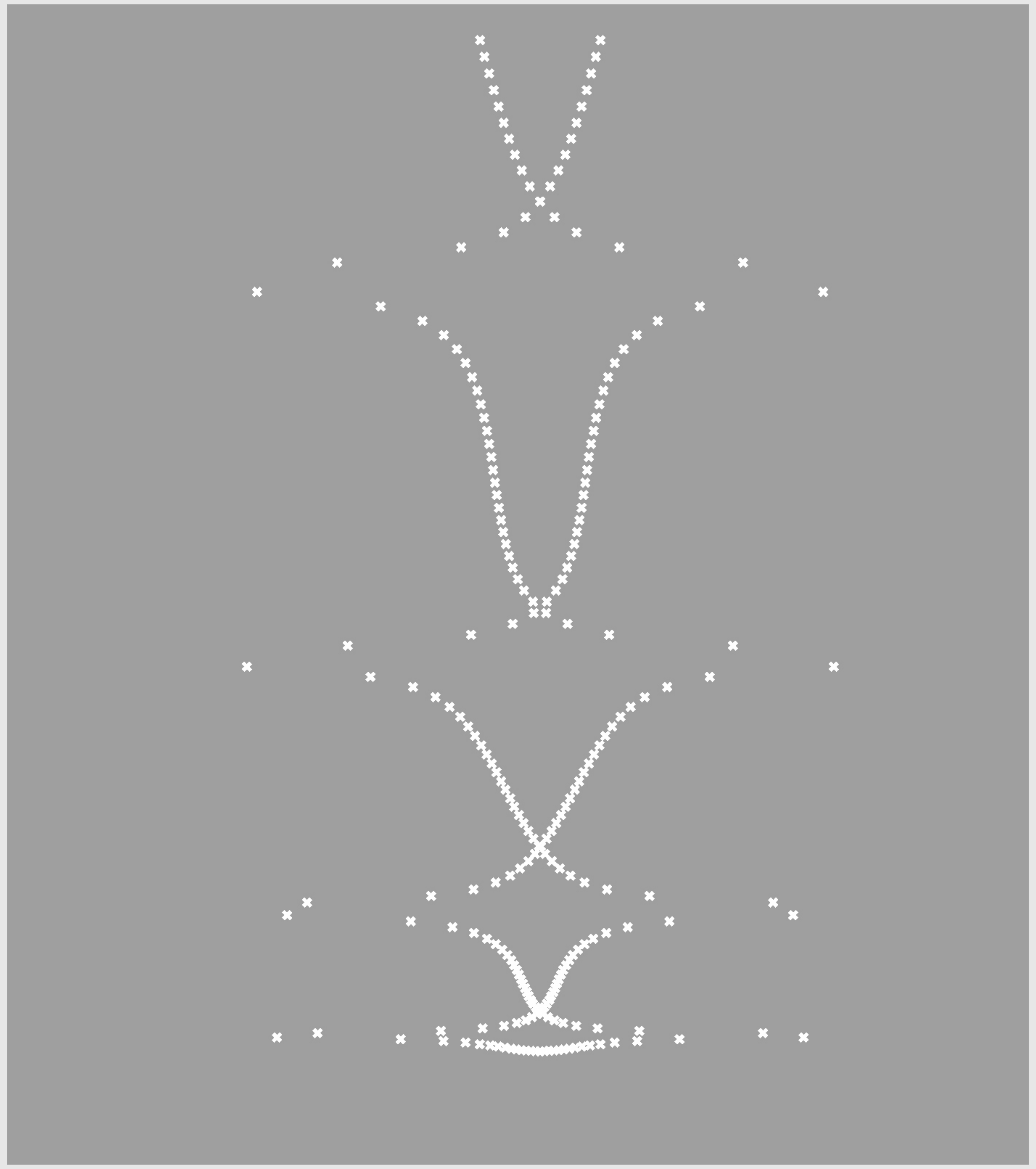
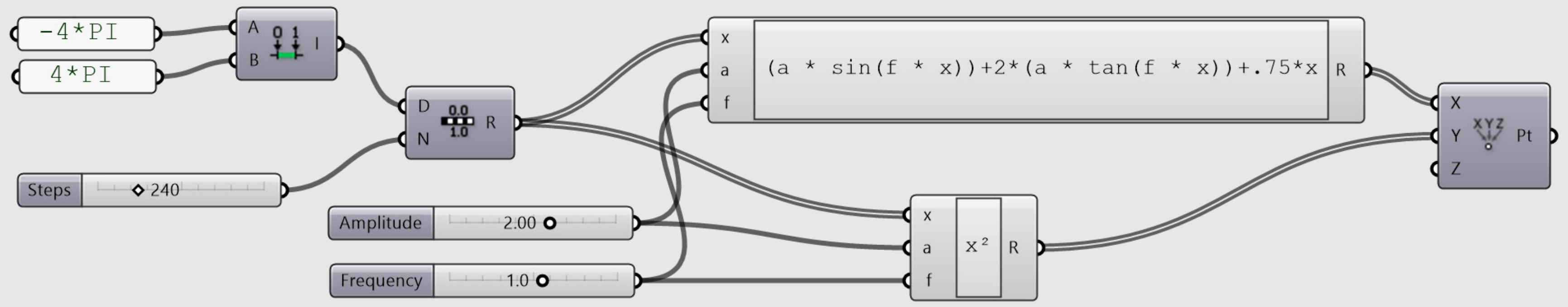
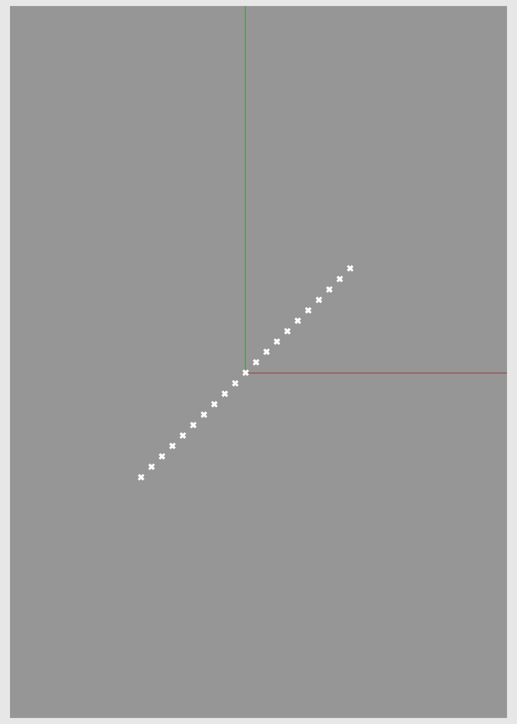
WORKOUT [3]

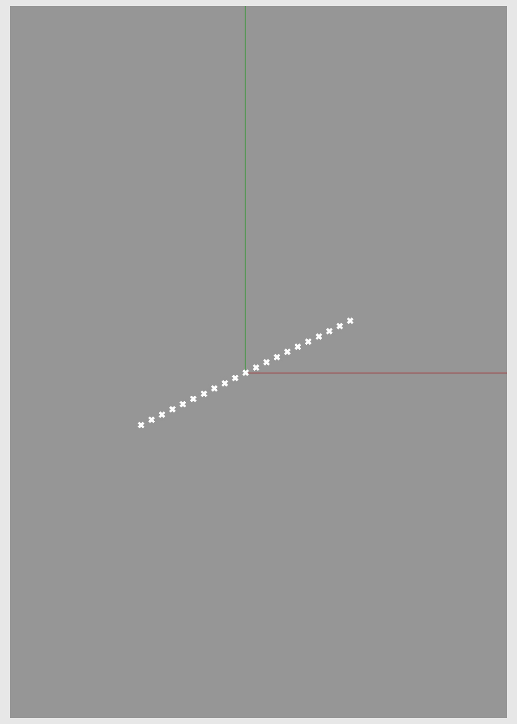
09.14.2020



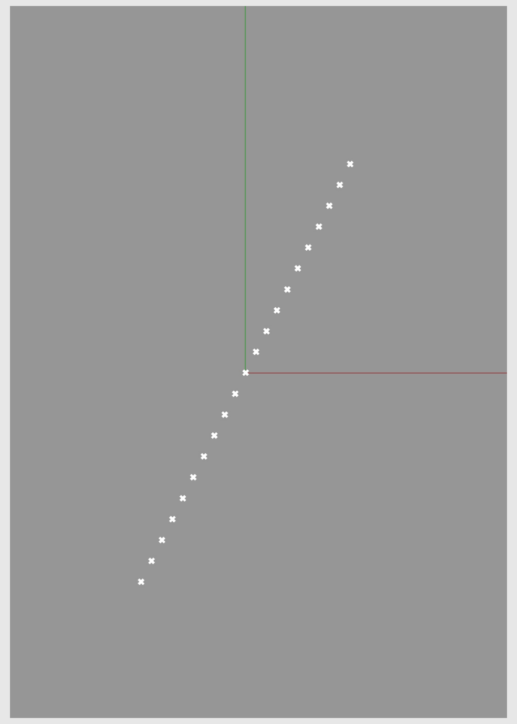




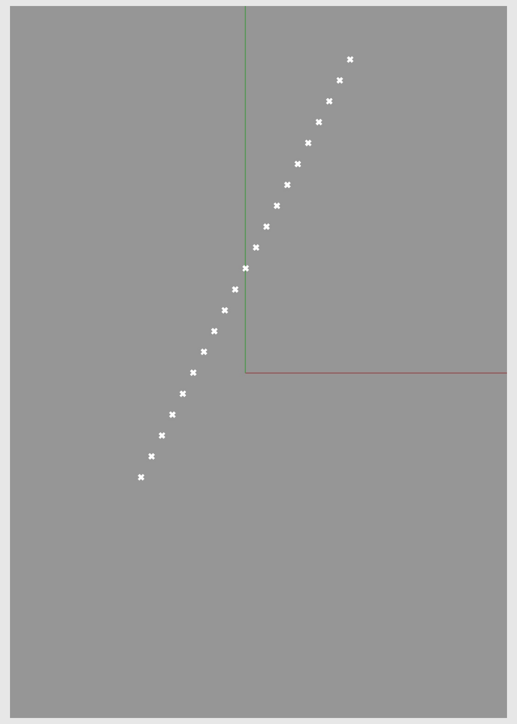
00: y=x



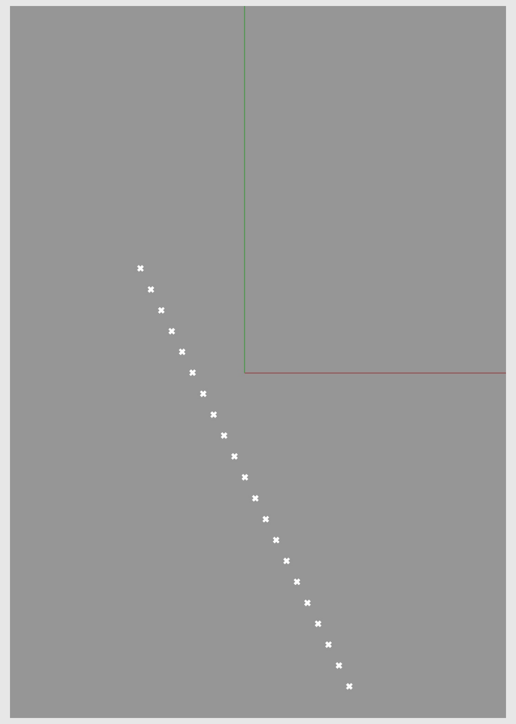
01: y=0.5x



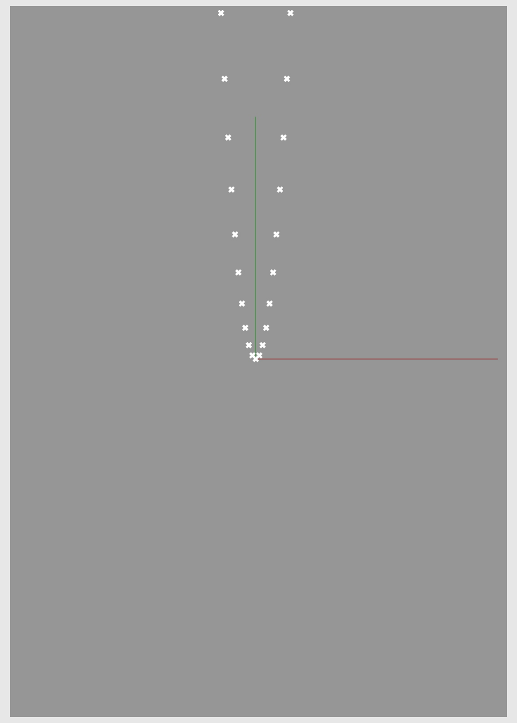
02: y=2x



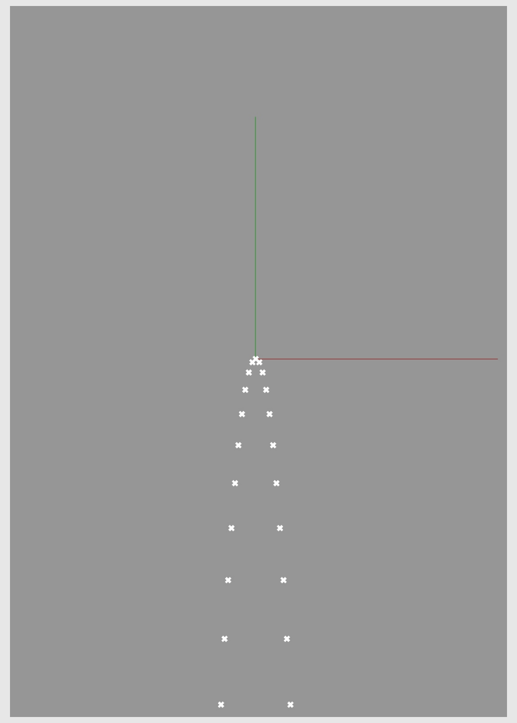
03: y=2x+10



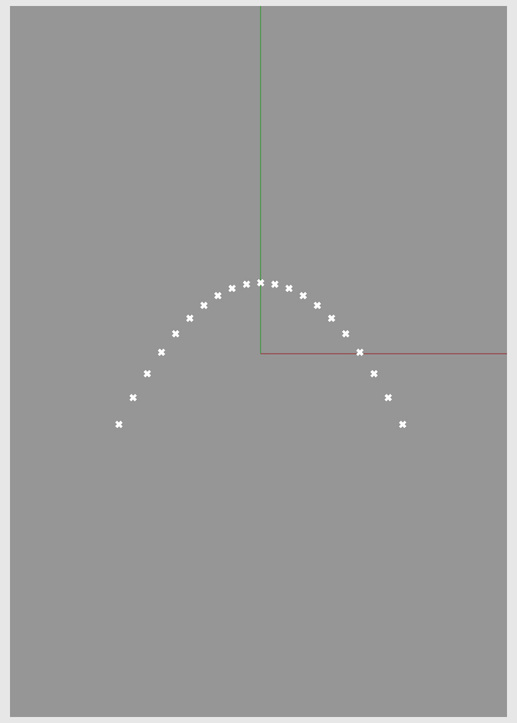
04: y=-2x-10



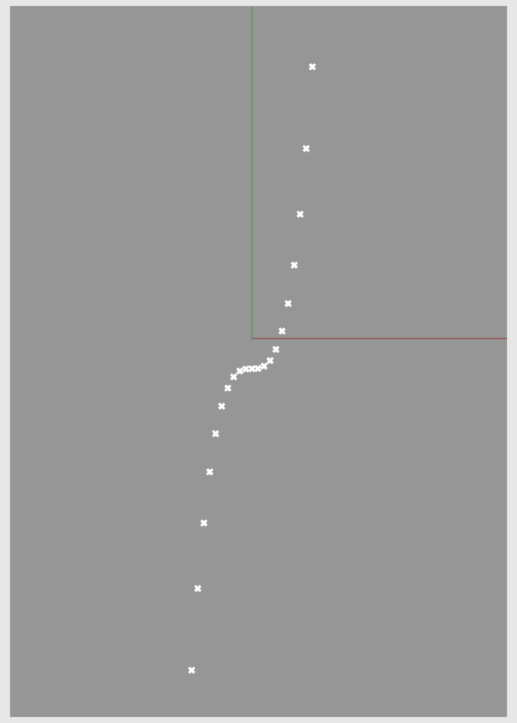
05: $y=x^2$



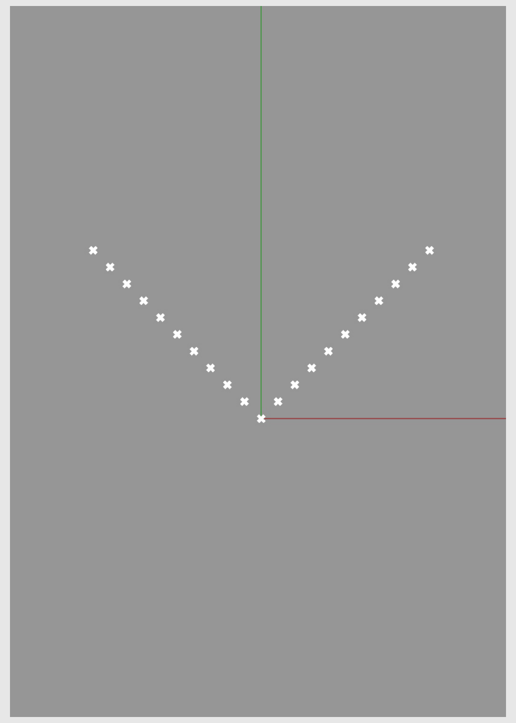
06: $y=-x^2$



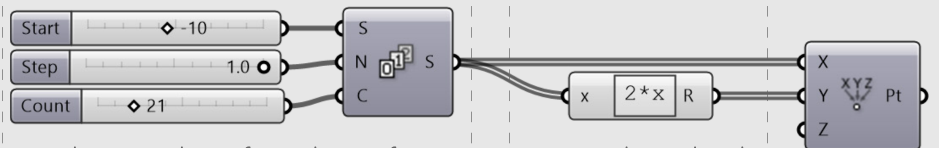
07: $y=0.1x^2+5$



08: $y=x^3-5$



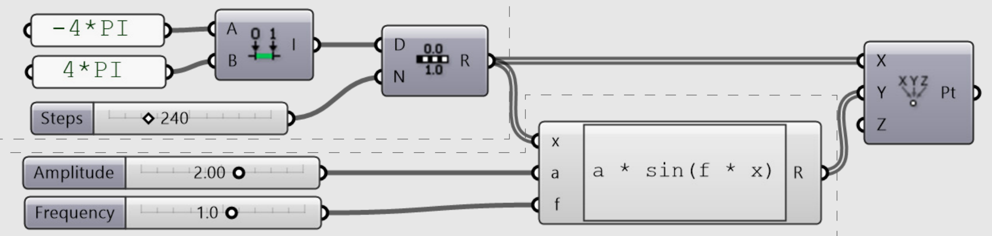
09: y=abs(x)



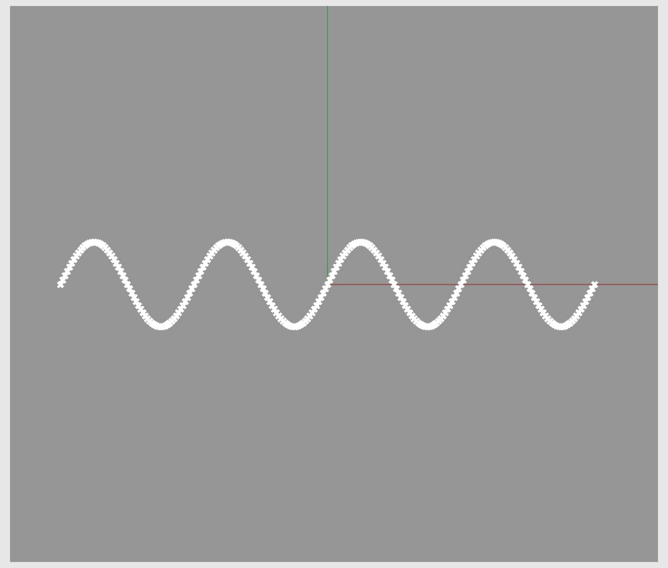
create a series of numbers, from -10, to -10 (21 numbers, staring from -10, add 1 to each of the following numbers) This defines the x values

expression: input x values to obtain y values (y=x in case 00)

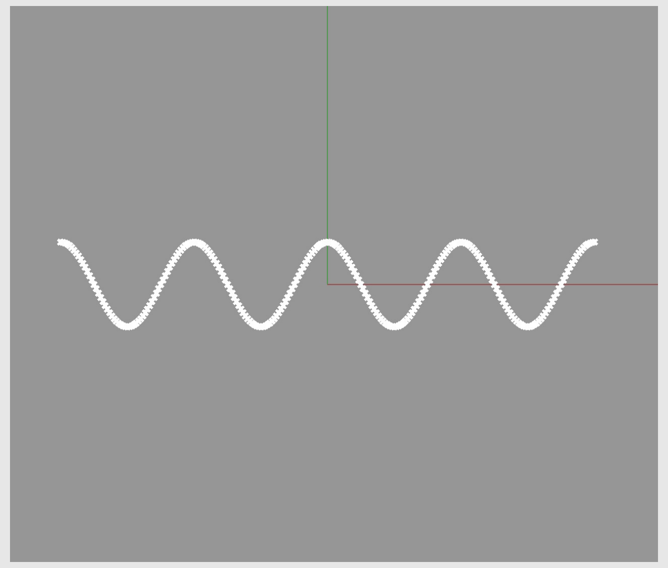
Set domain from -4pi to 4 pi, divide domain into 240 even segments for a list of values used for x



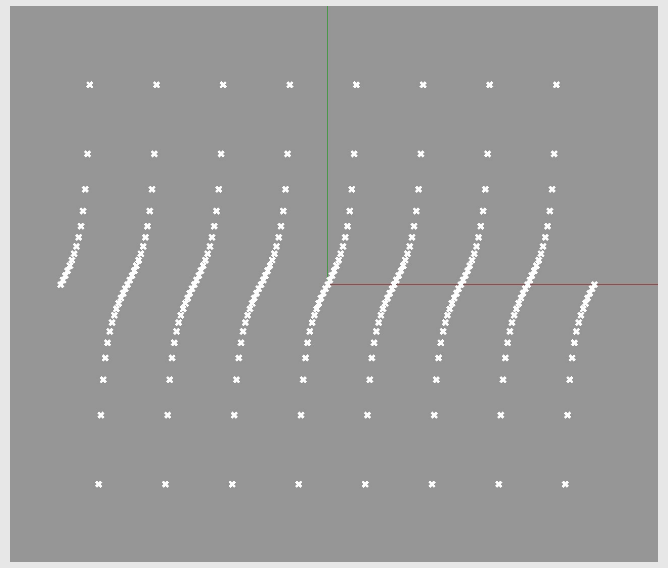
expression: input x values to obtain y values, for trigonometric functions, use amplitude and frequency parameters to adjust the shape



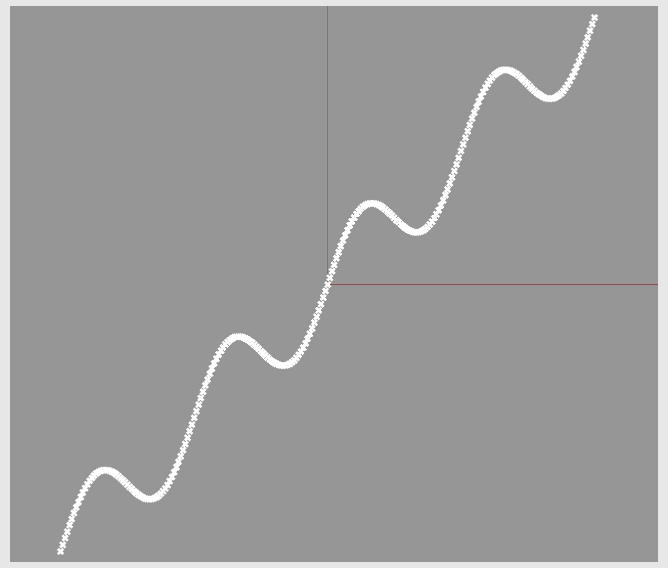
10: y=a*sin(f*x)



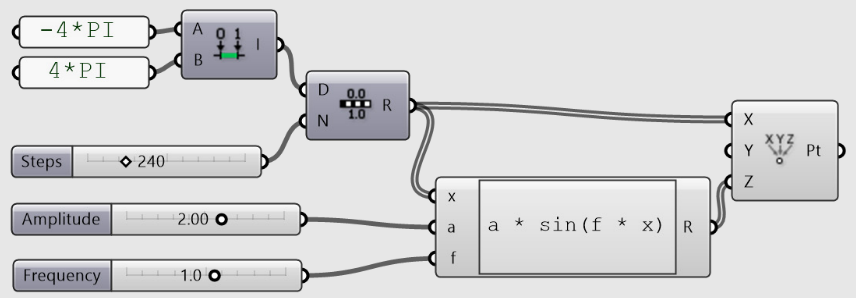
11: y=a*cos(f*x)

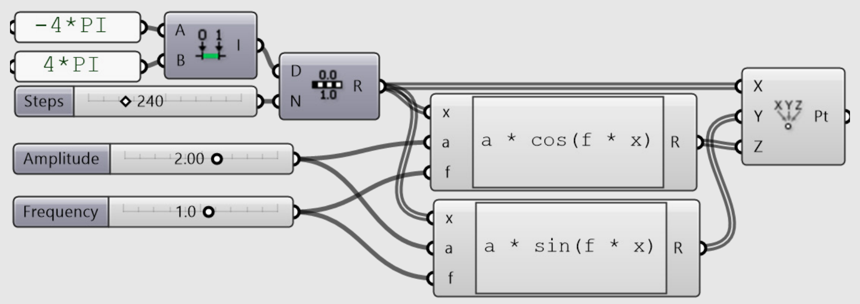


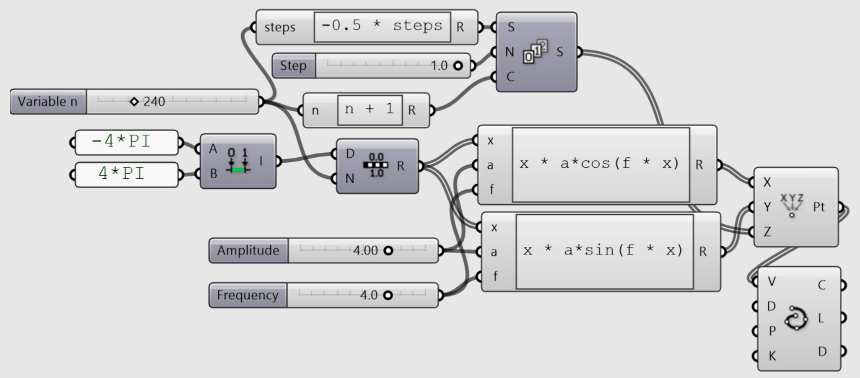
12: y=a*tan(f*x)



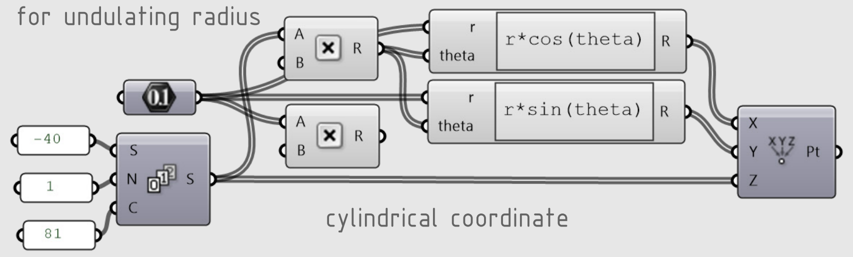
13: y=a*sin(f*x)+x



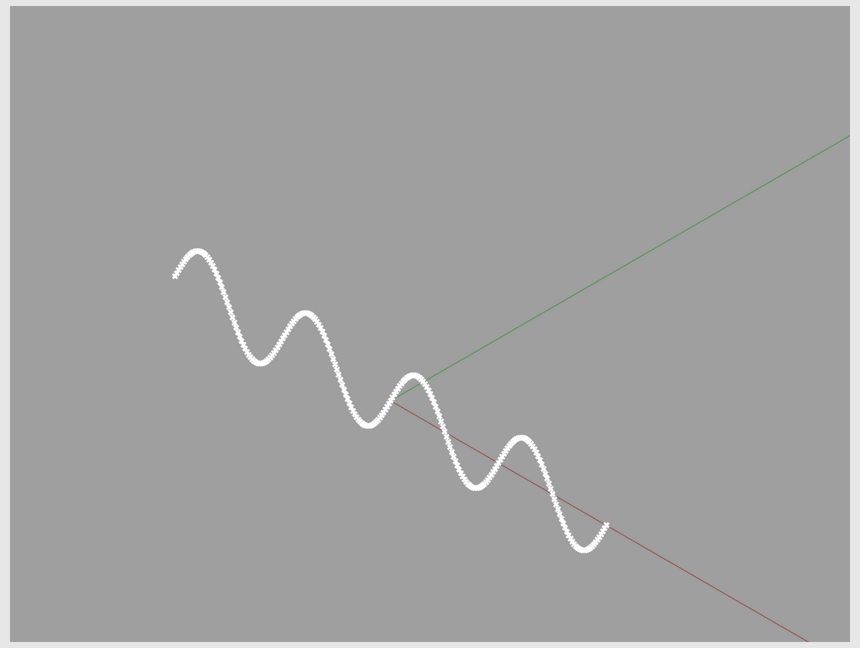


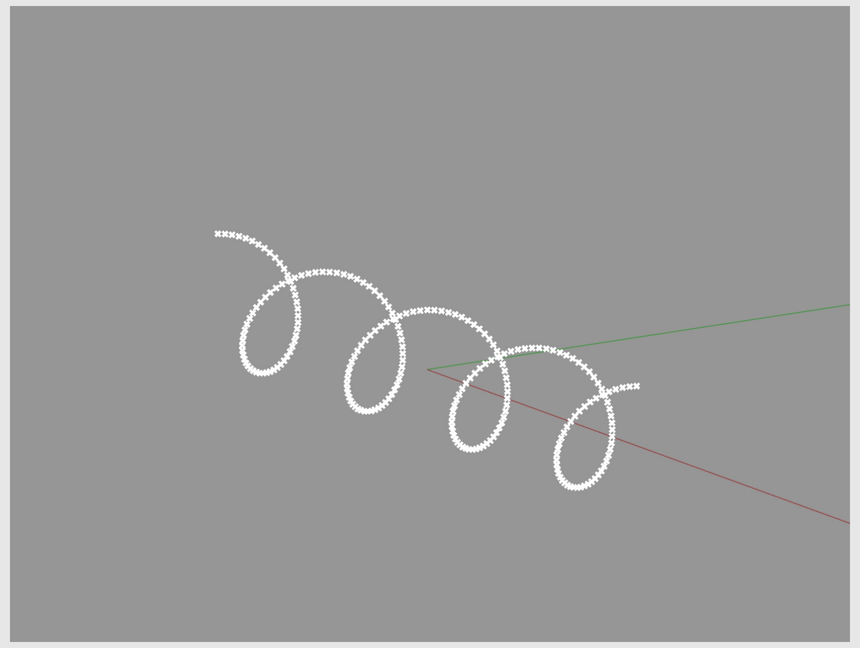


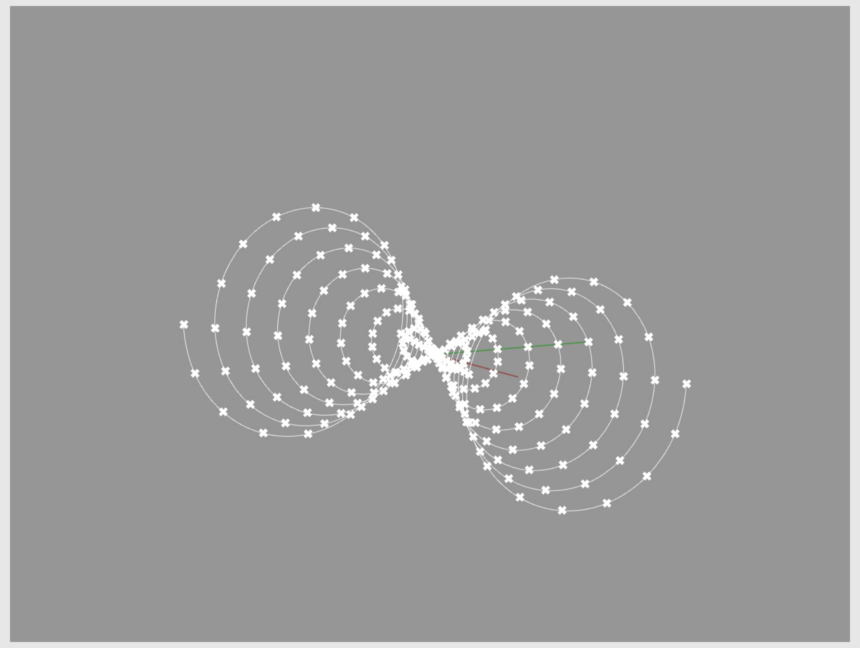
input list 41 values:
[-20,20];[19,-20]
for undulating radius

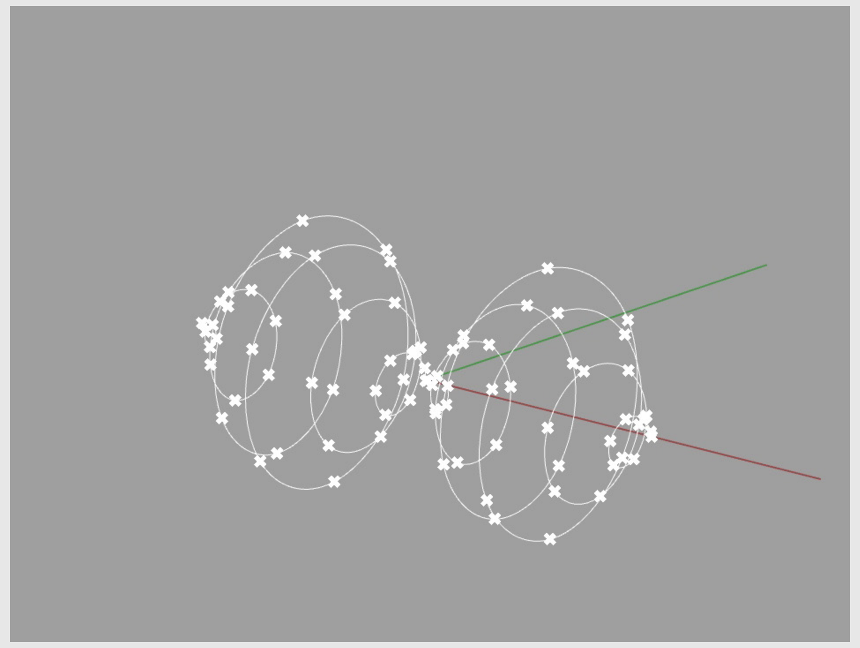


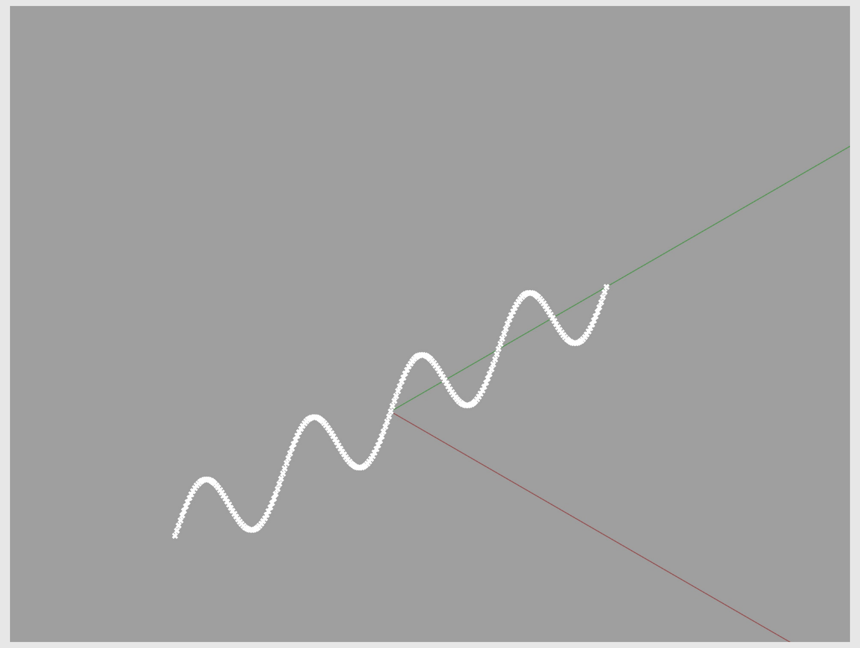
cylindrical coordinate

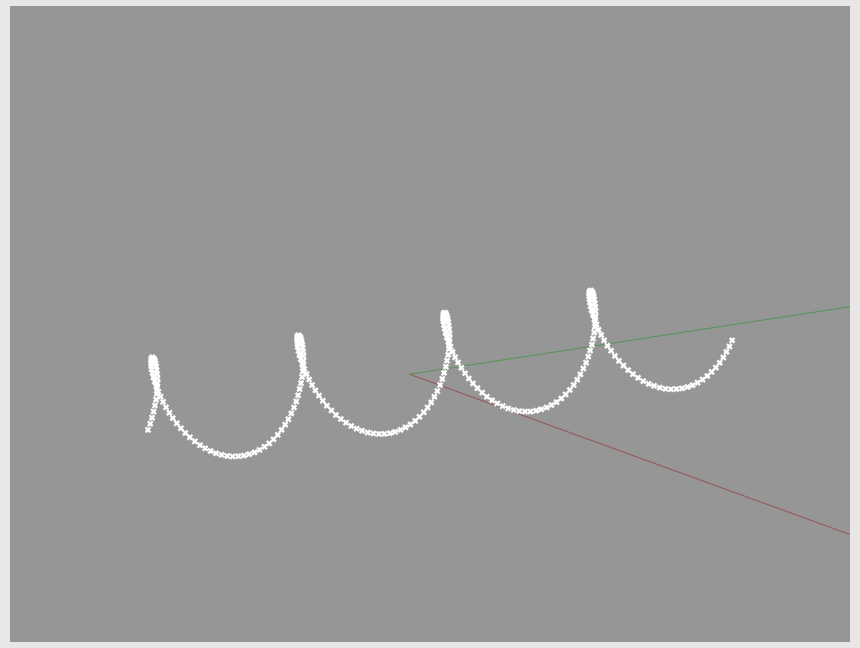

15.0: X=[-4pi,4pi] Y=0 Z=a*sin(f*x)

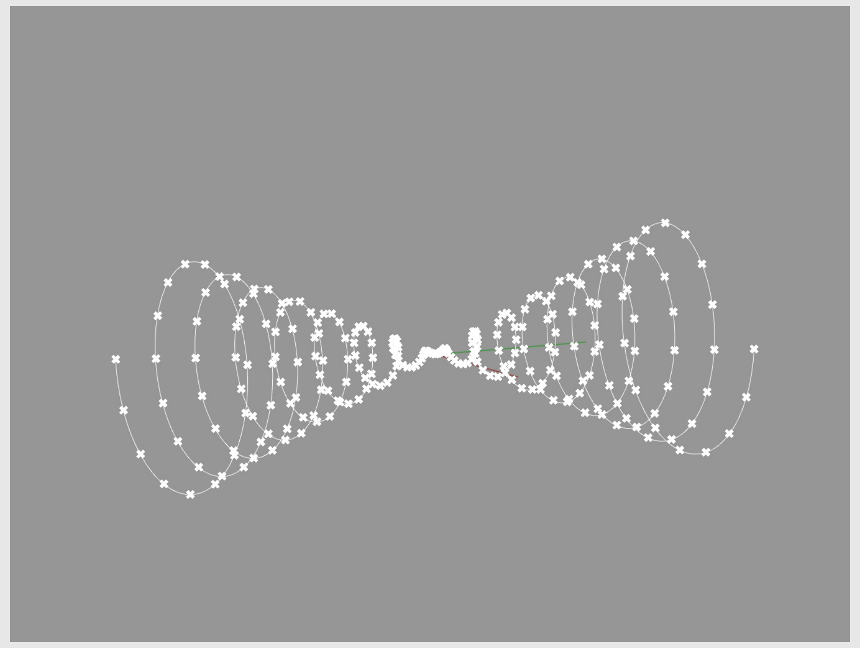

16.0: X=[-4pi,4pi] Y=a*cos(f*x) Z=a*sin(f*x)

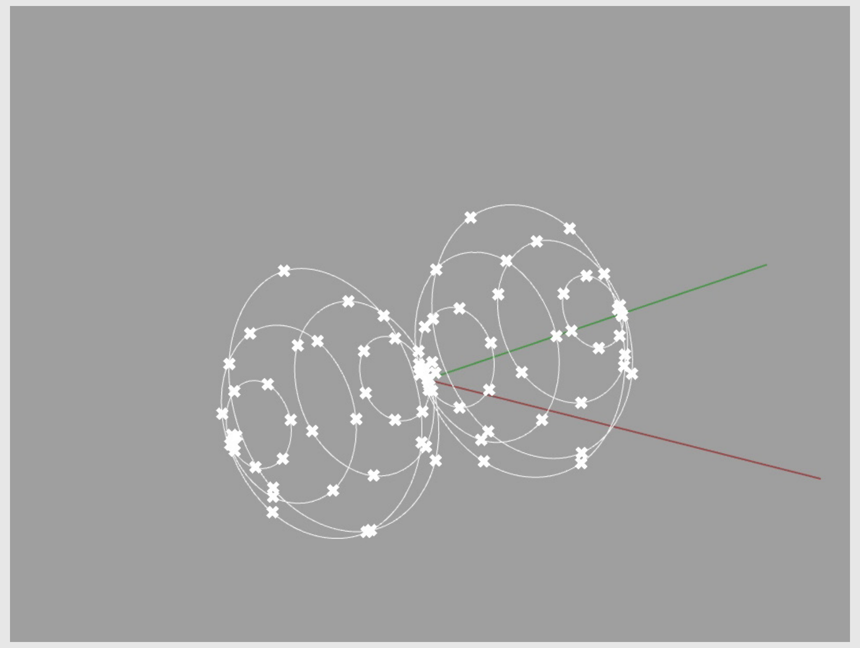

17.0: X=[-120,120] Y=x*a*cos(f*x) Z=x*a*sin(f*x)

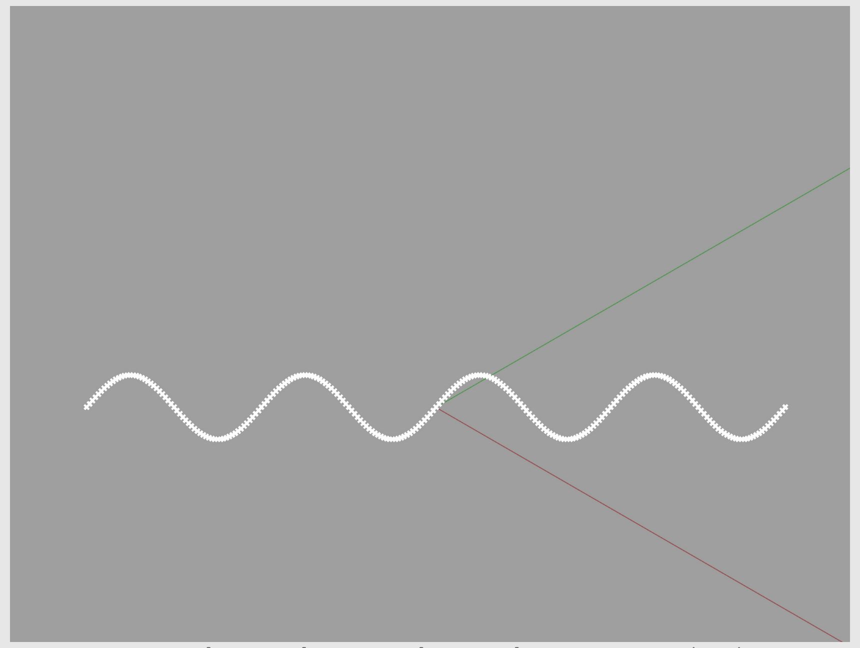

18.0: X=[-40,40] Y=r*sin(theta) Z=r*cos(theta)

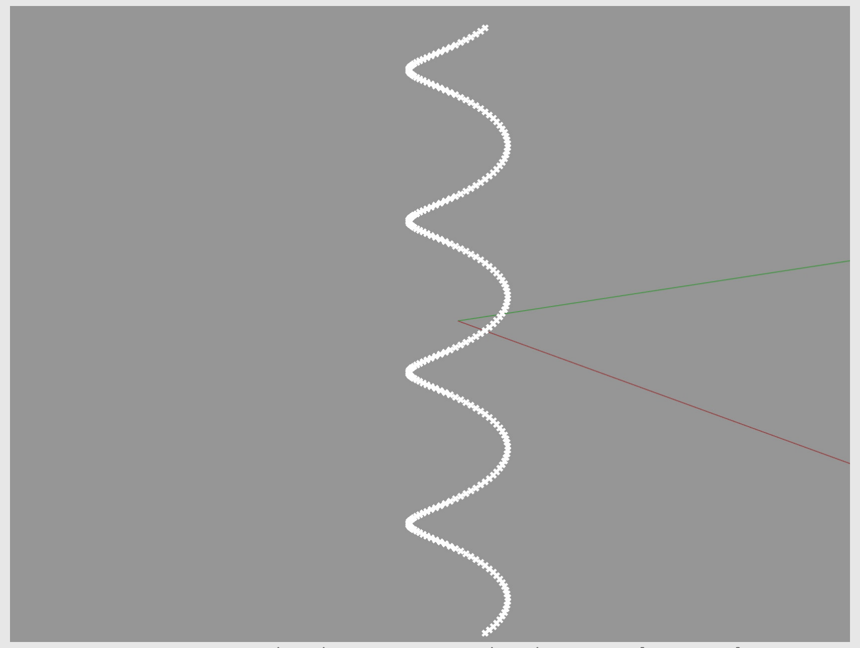

15.1: X=0 Y=[-4pi,4pi] Z=a*sin(f*x)

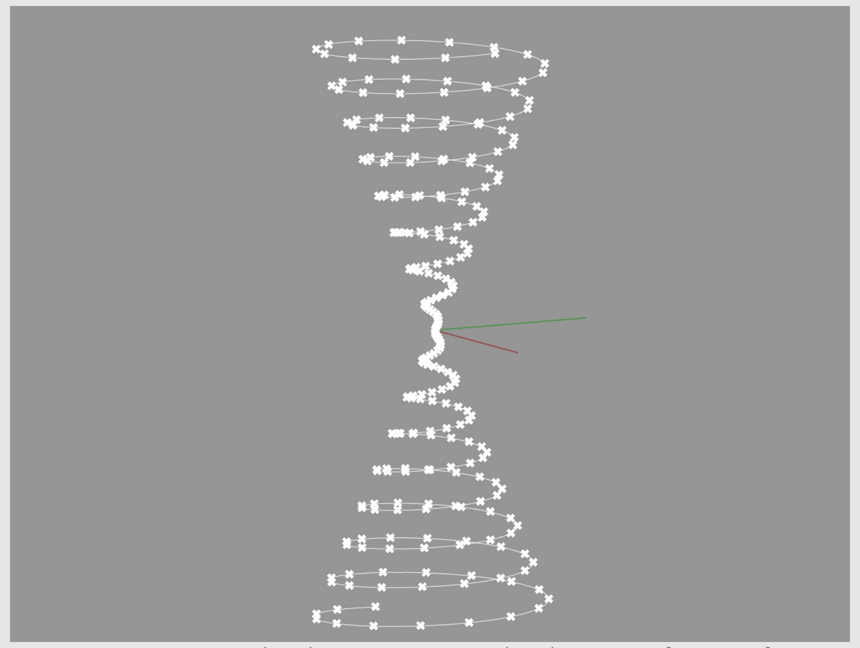

16.1: X=a*cos(f*x) Y=[-4pi,4pi] Z=a*sin(f*x)

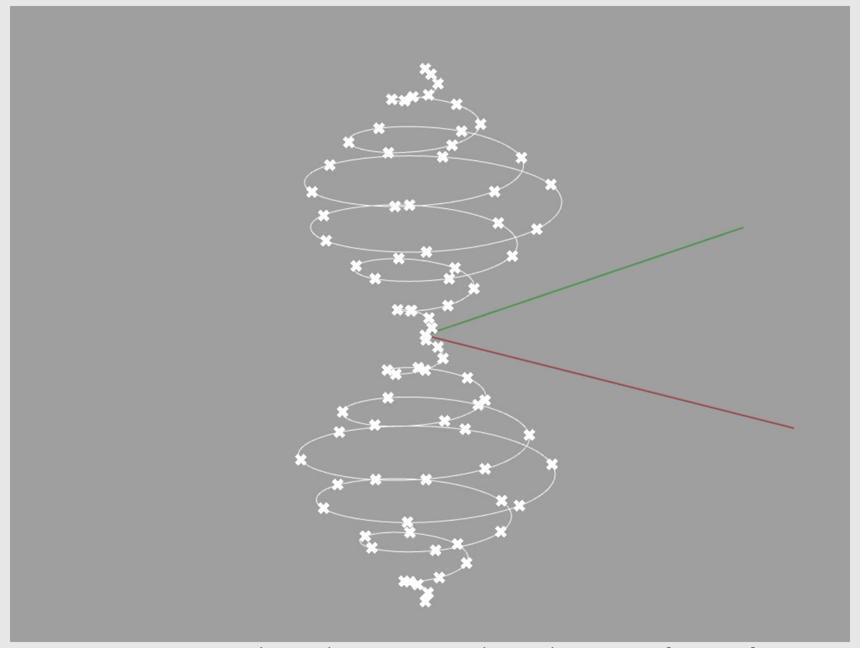

17.1: X=x*a*cos(f*x) Y=[-120,120] Z=x*a*sin(f*x)

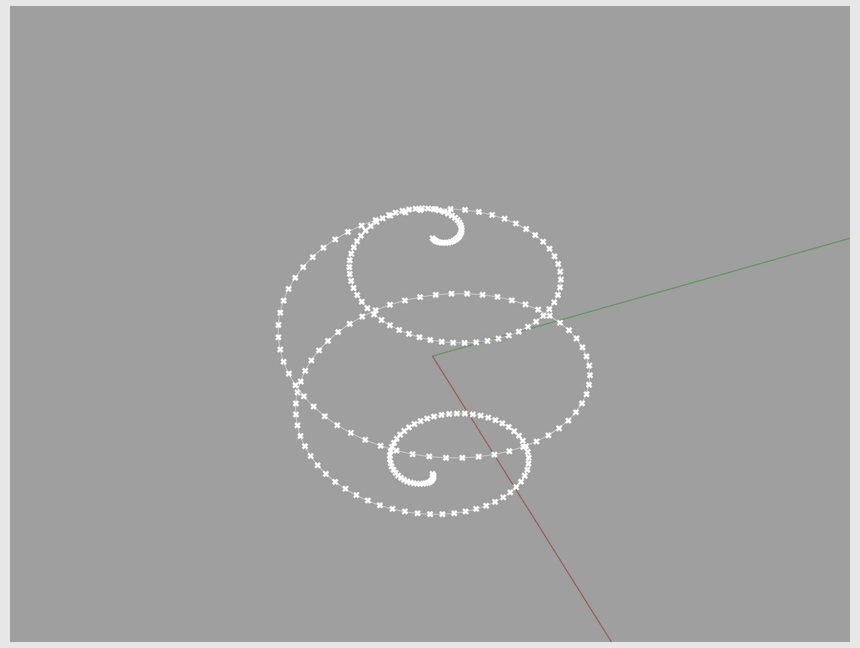

18.1: X=r*cos(theta) Y=[-40,40] Z=r*sin(theta)

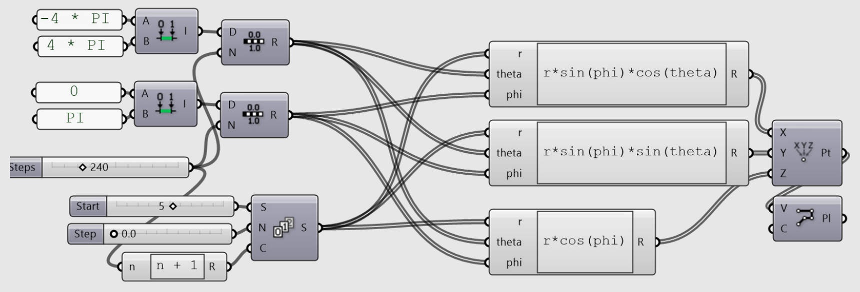

15.2: X=[-4pi,4pi] Y=[-4pi,4pi] Z=a*sin(f*x)


16.2: X=a*cos(f*x) Y=a*sin(f*x) Z=[-4pi,4pi]

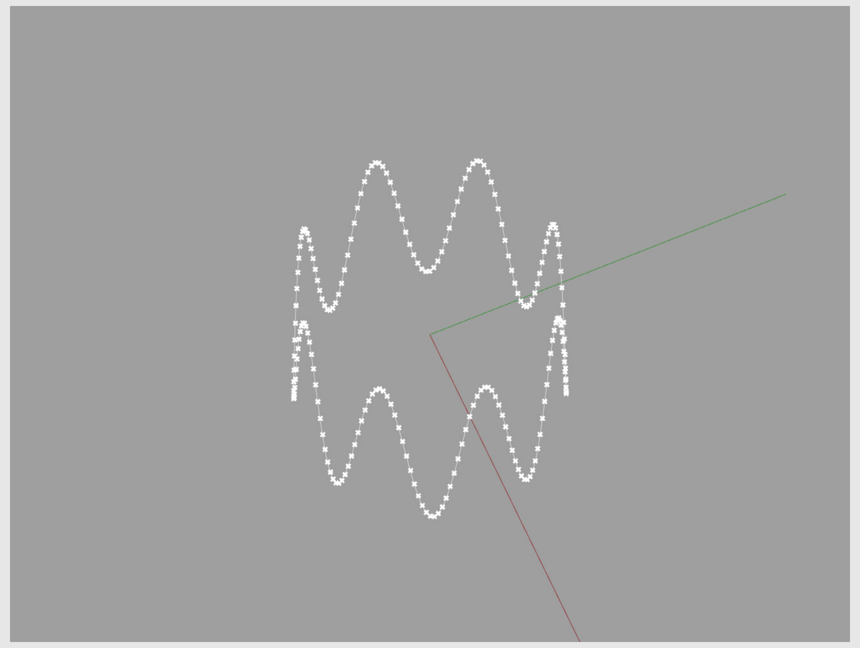

17.2:X=x*a*cos(f*x) Y=x*a*sin(f*x) Z=[-120,120]


18.2: X=r*cos(theta) Y=r*sin(theta) Z=[-40,40]

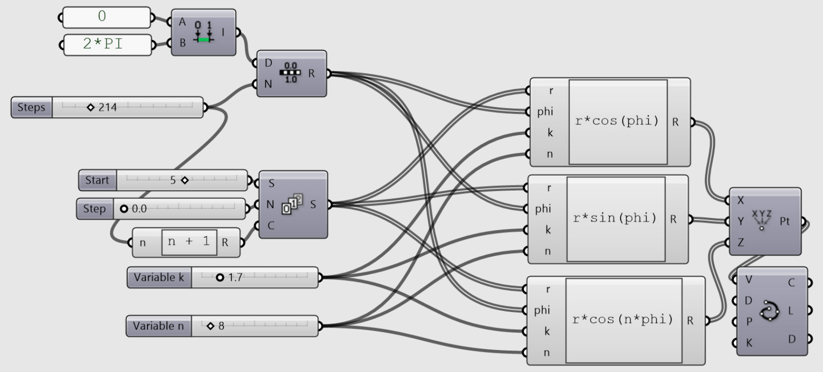


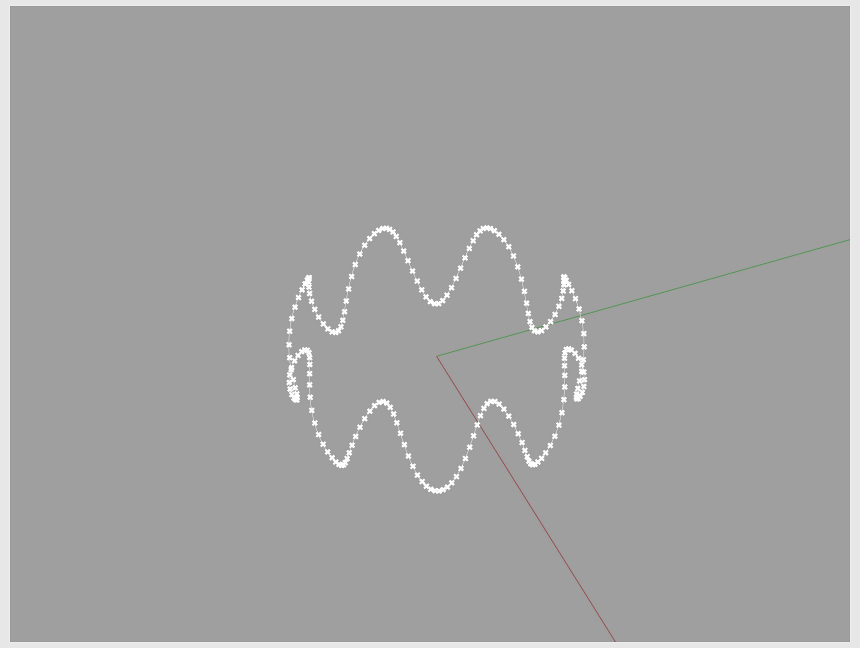


spherical coordinate

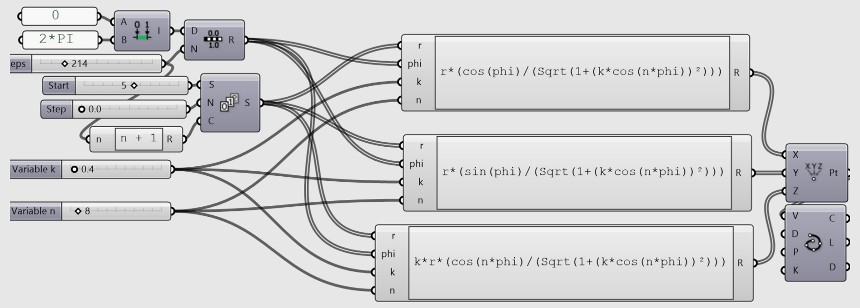


sine wave on a circle



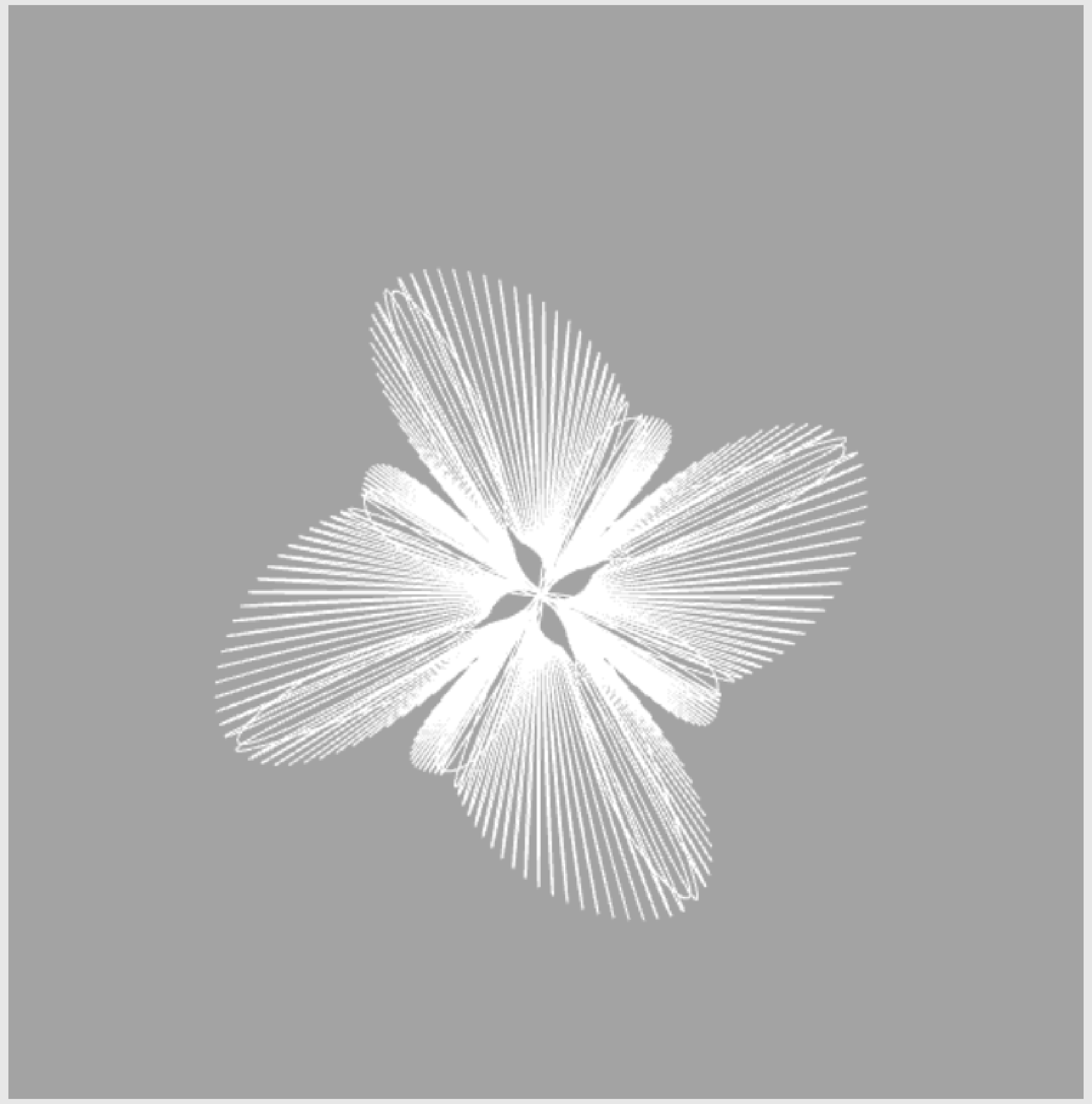


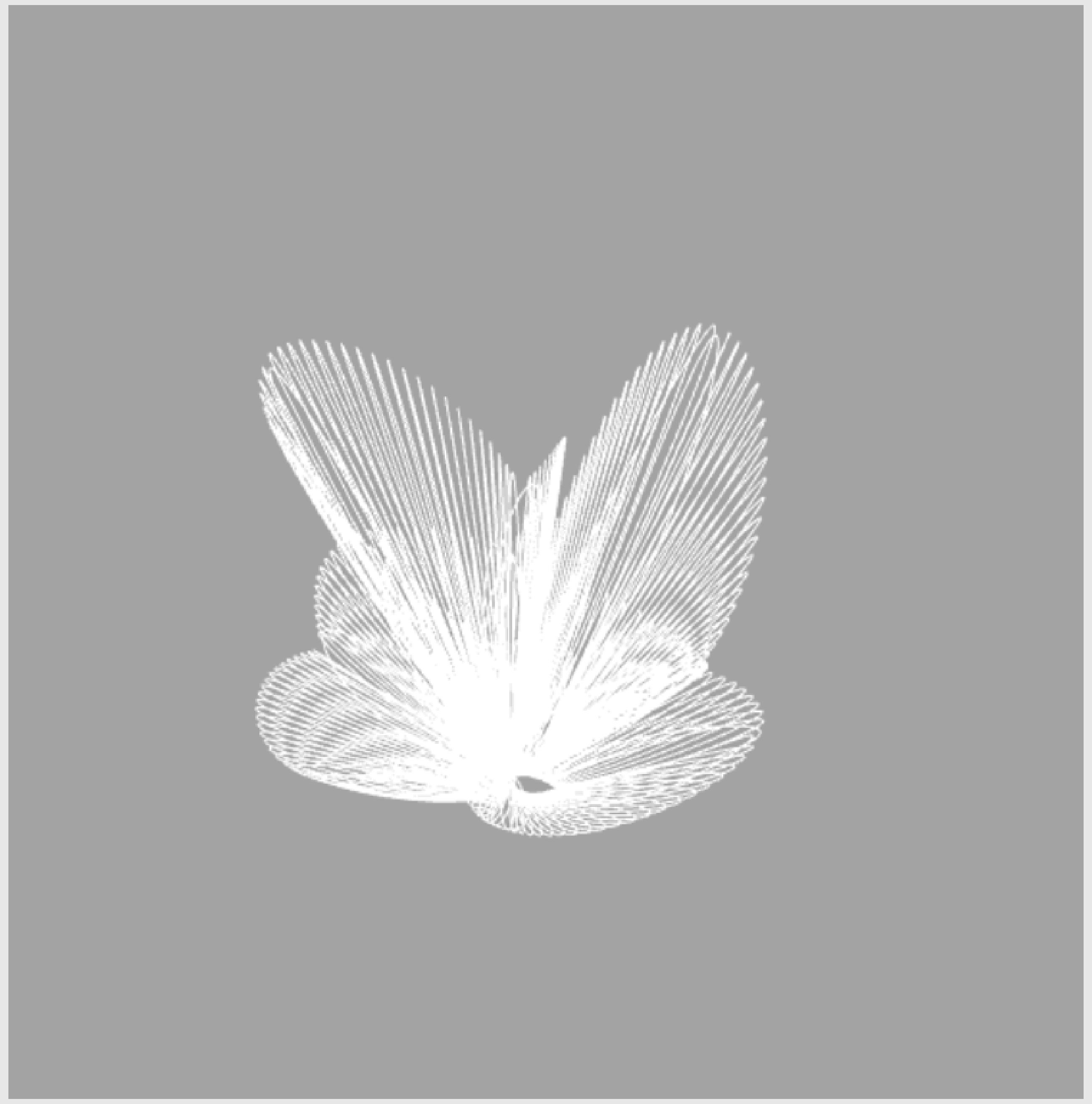
sine wave on a sphere

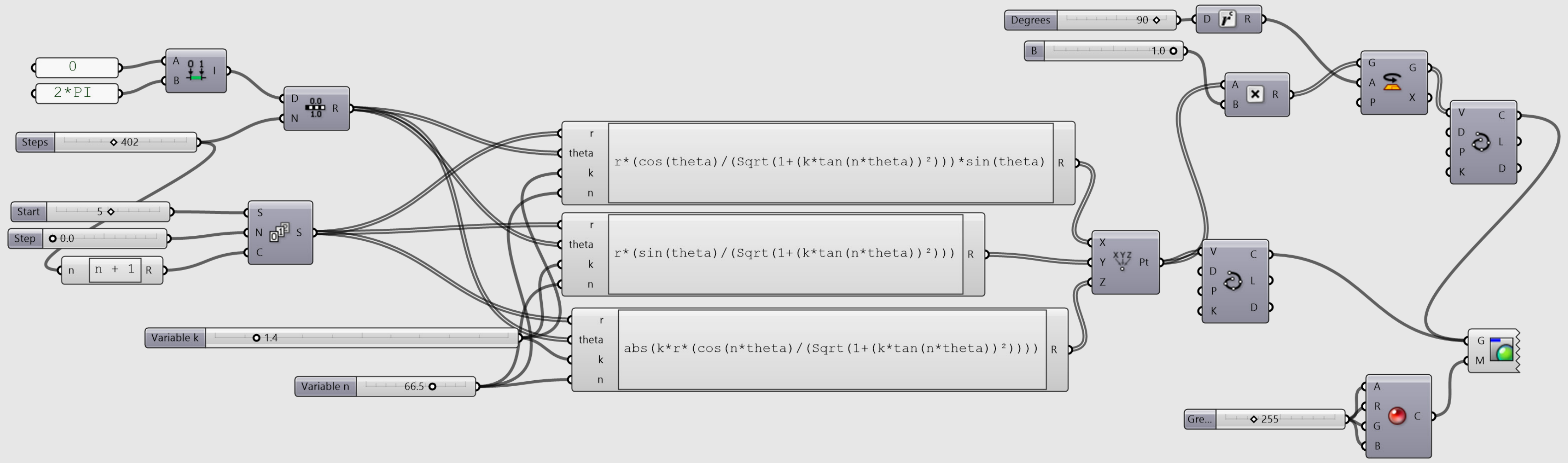


spherical coordinate

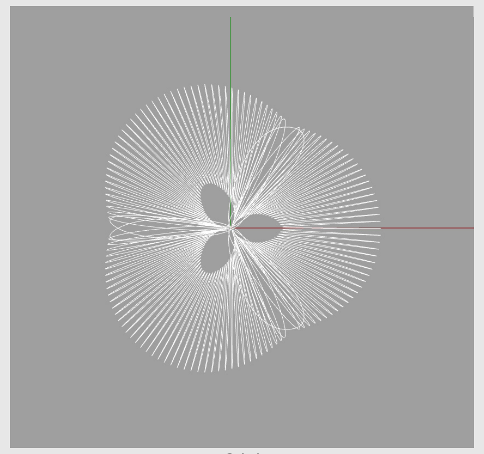
Spherical Sinusoid
Curve studied by Chasles in 1875.
Equation Reference: https://mathcurve.com/courbes3d.gb/sinusoidespherique/sinusoidespherique.shtml#:~:text=The%20spherical%20sinusoids%20are%20the,turn%20develops%20onto%20a%20sinusoid).



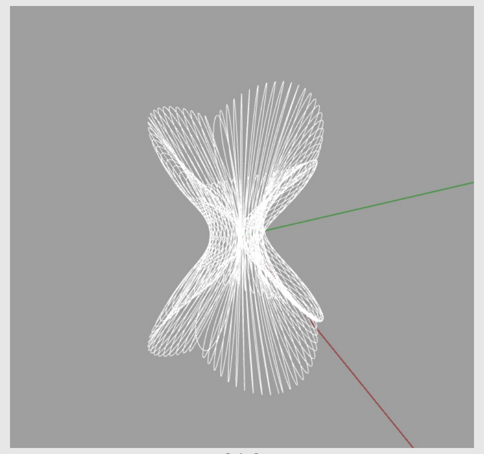




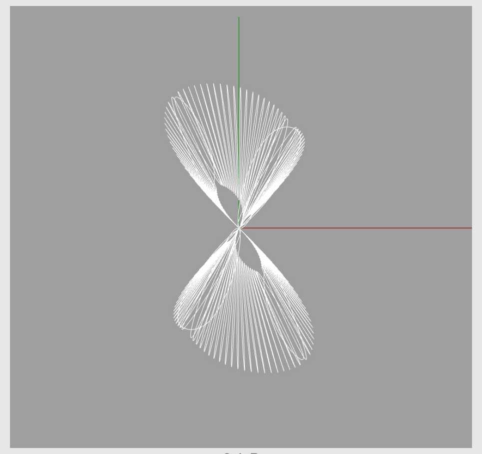
This is an experimentation based on the spherical sinusoid curved. By changing the cosine to tangent function under the square root, creates flower shapes above and below the xy plane (21.1, 21.2). Then multiplying the y value by sin(x) and eliminating the negative values of the Z coordinate by using an absolute function gives a result of two pedal like geometry (21.3). Then, by rotating this geometry by 90 degrees, the result is a clover like geometry.



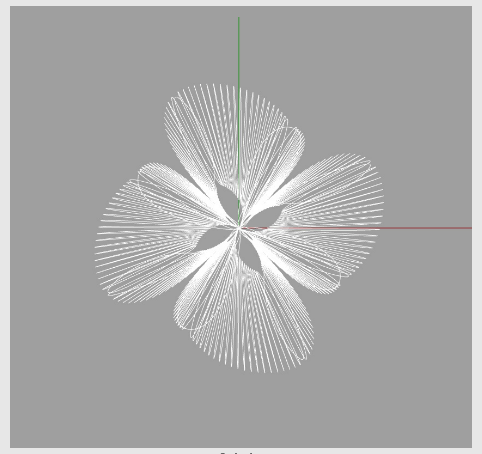
21.1



21.2



21.3



21.4