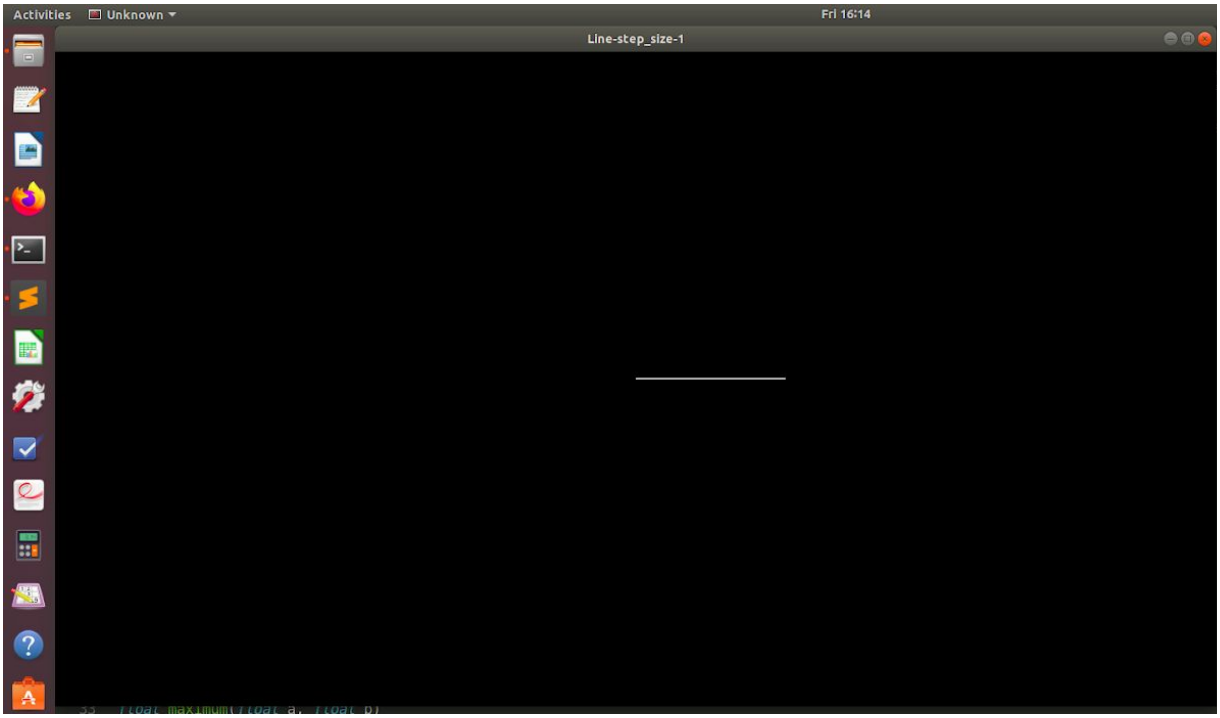
COMPUTER GRAPHICS
Lab - 5

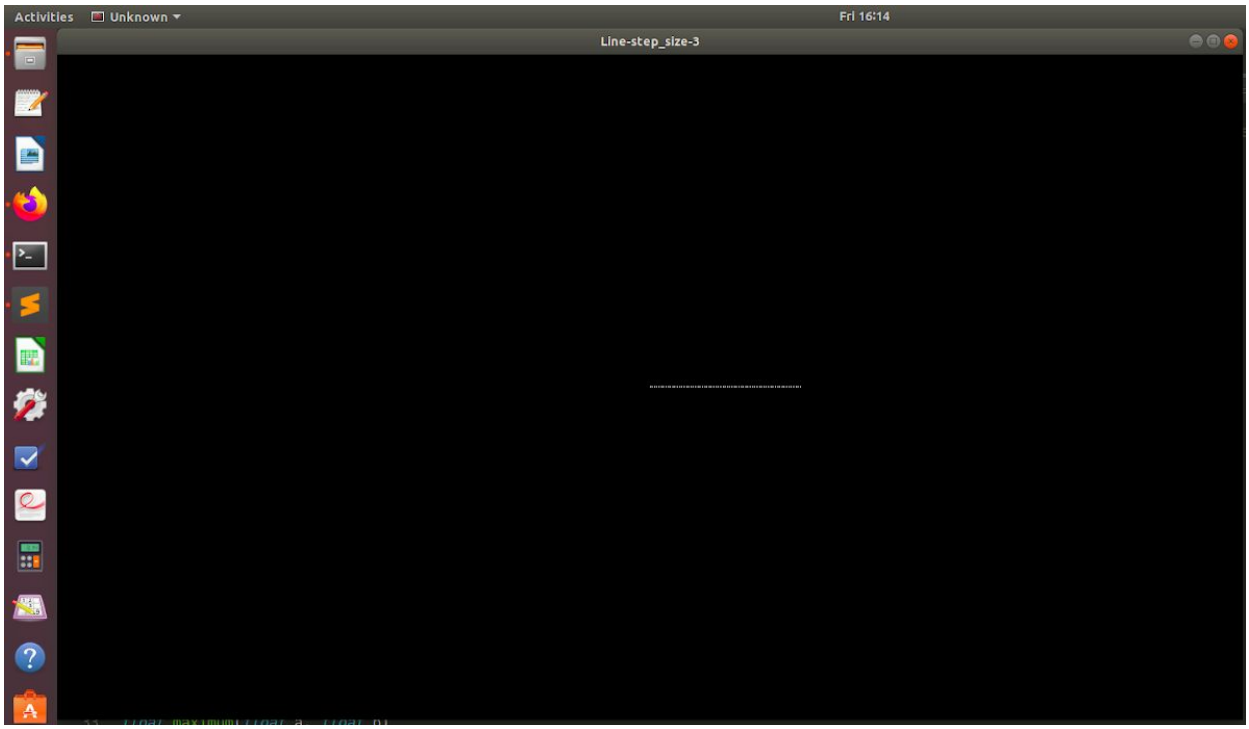
Q1. Given the endpoints (x1, y1) and (x2, y2) of a line segment, find slope m, and y-intercept b. Compute the value of y=mx+b for each integer value of x starting from x1 to x2 and plot (round(x), round(y)) with the step size 5. Repeat the plotting for step size 4, step size 3, step, size 1. What do you observe on these 5 plots?

a. When m>1, check if your program works

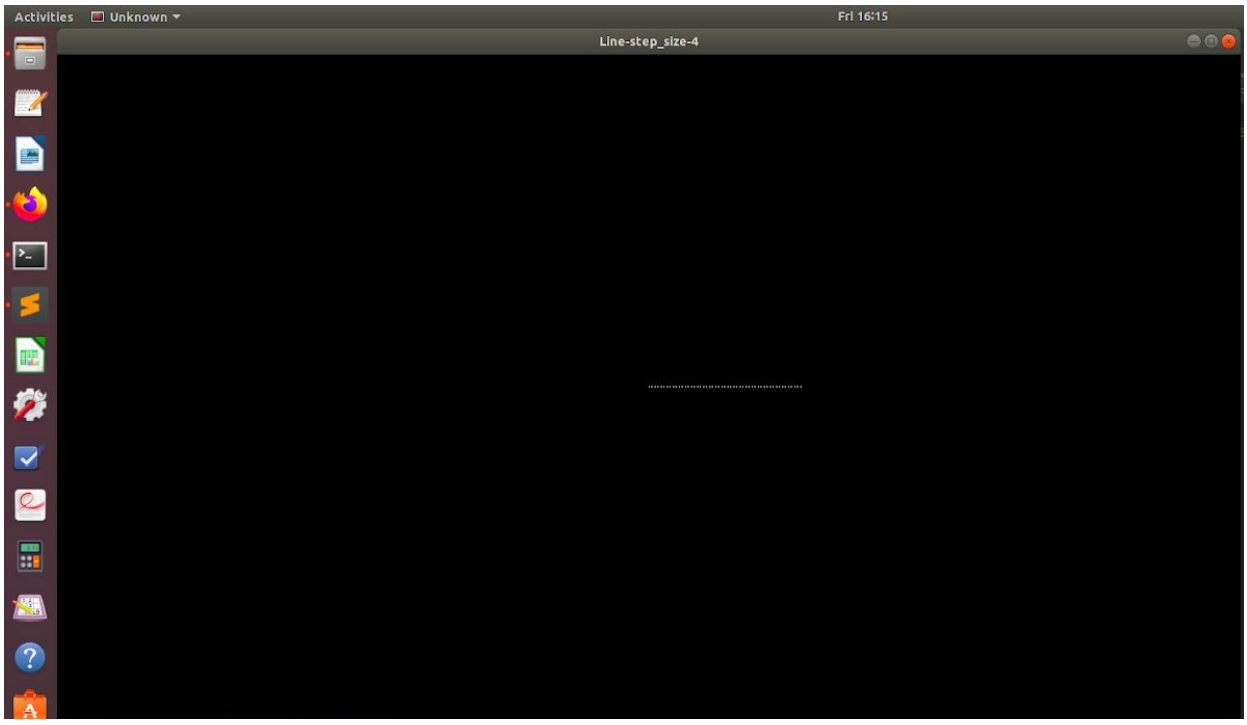
b. When line segment is horizontal or vertical, check if your program works



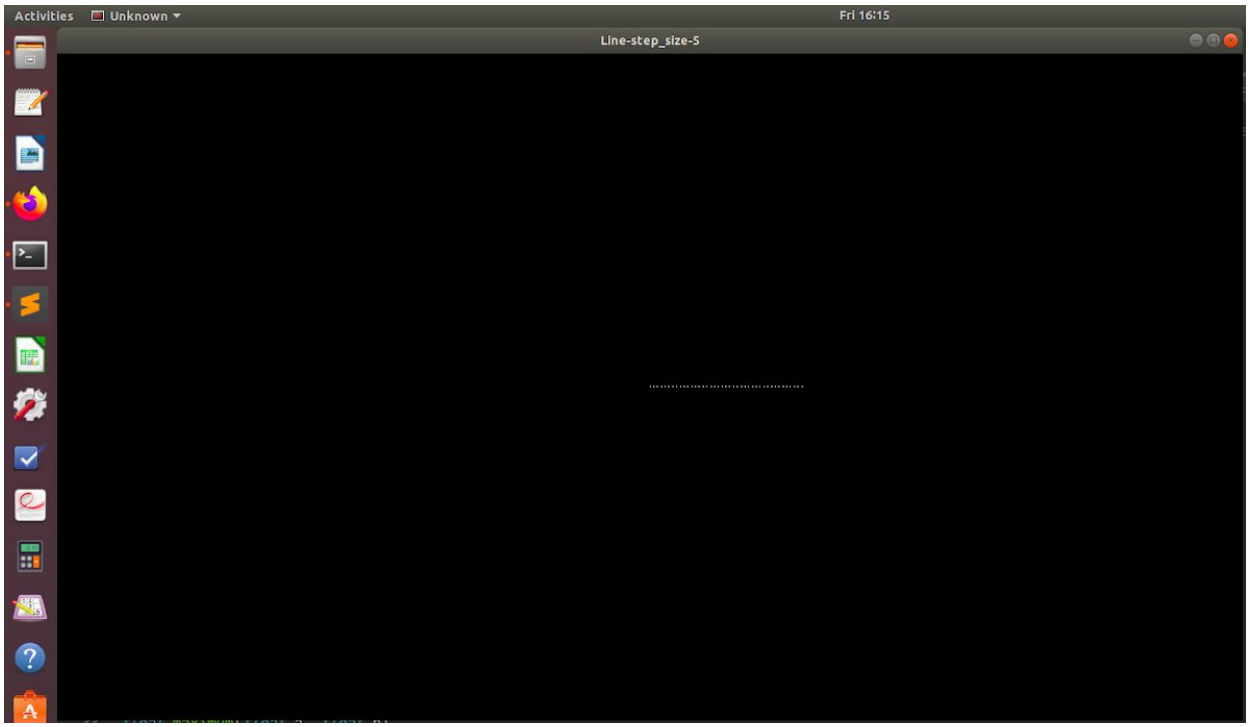
Step size 1 - horizontal line



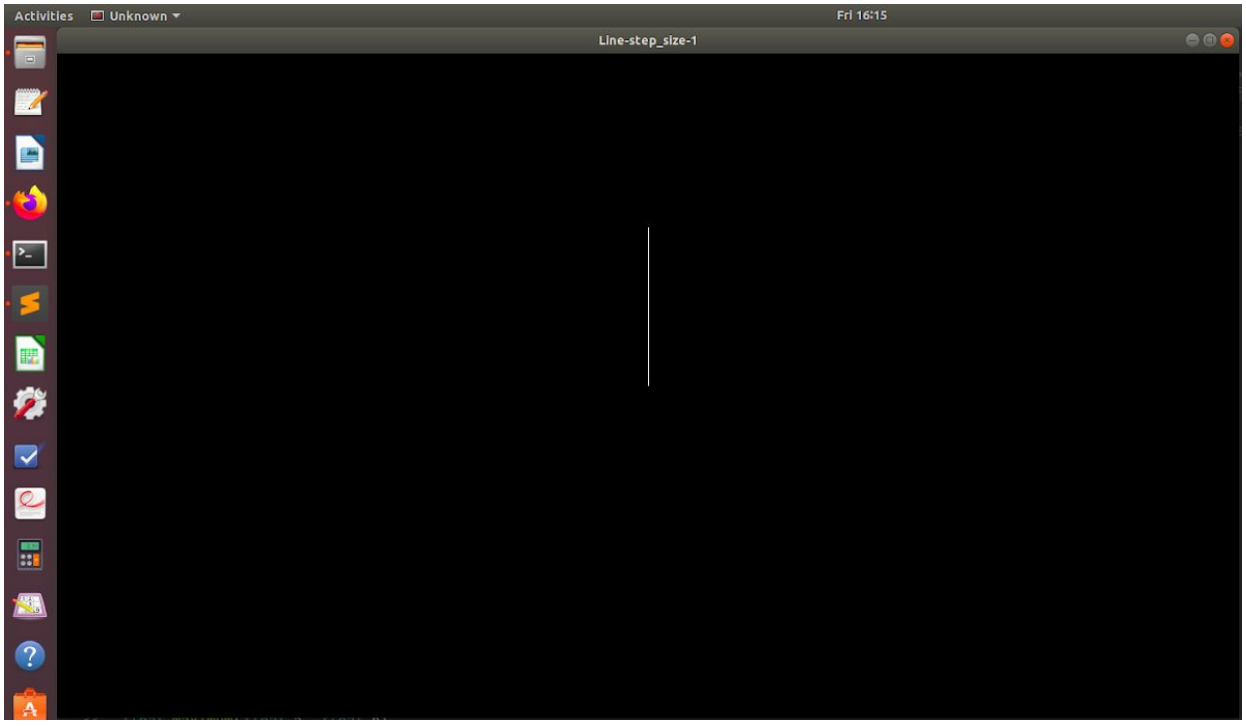
Step size 3 - horizontal line



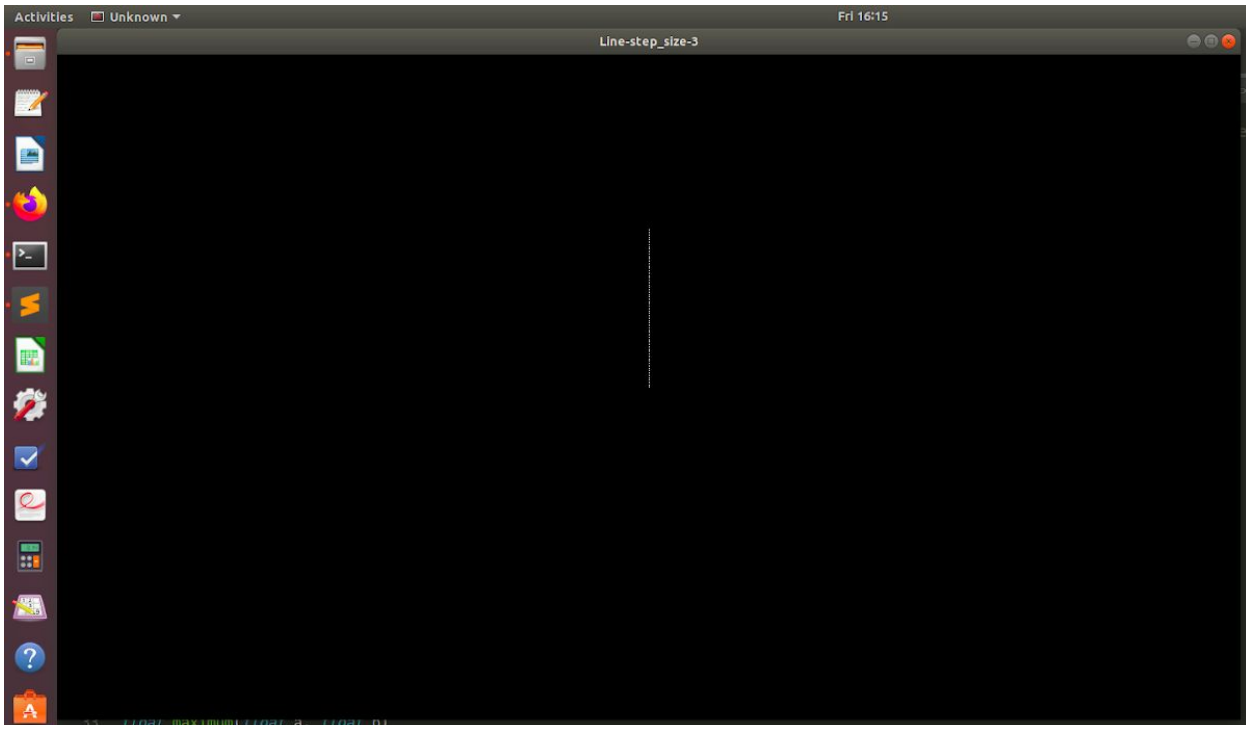
Step size 4 - horizontal line



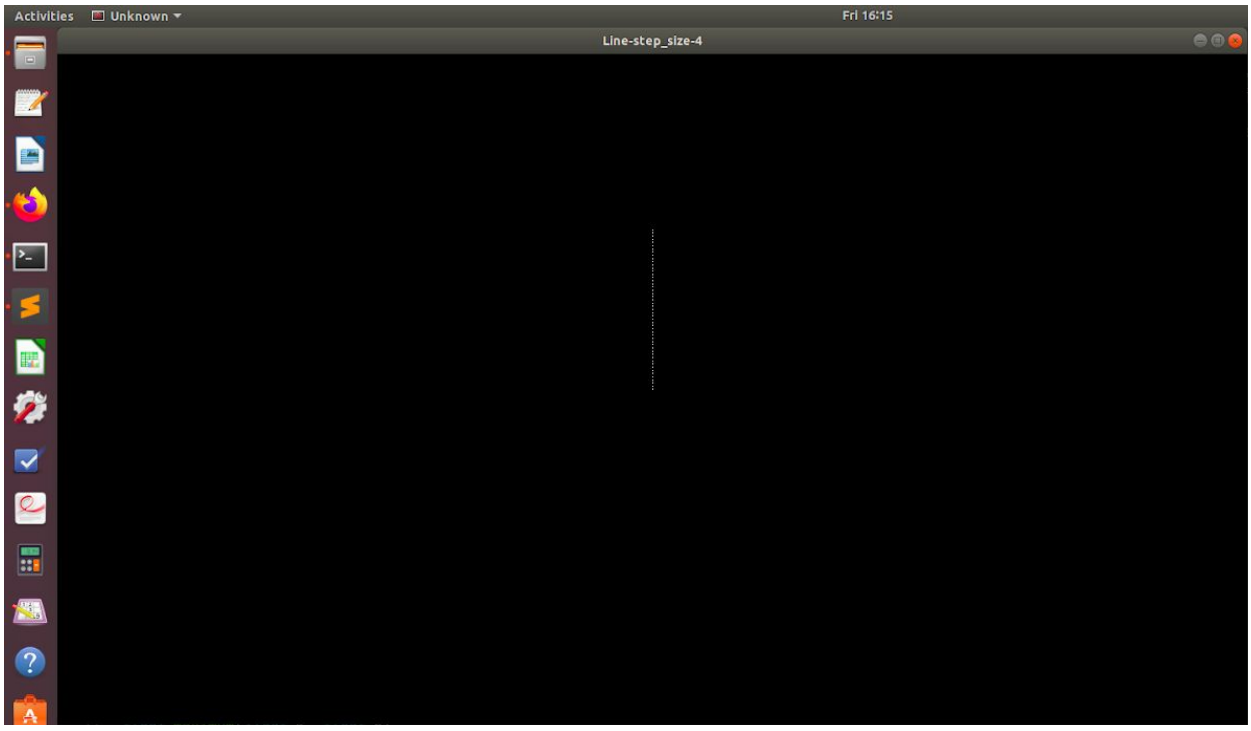
Step size 5 - horizontal line



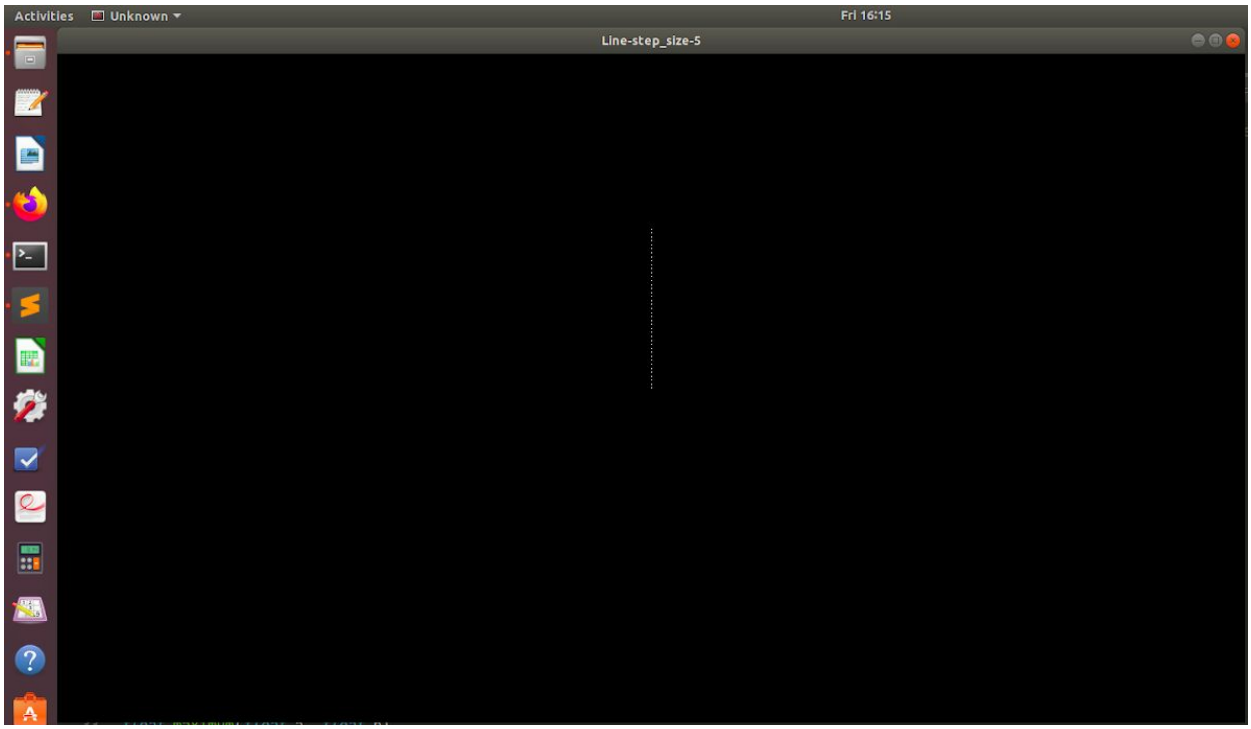
Step size 1 - vertical line



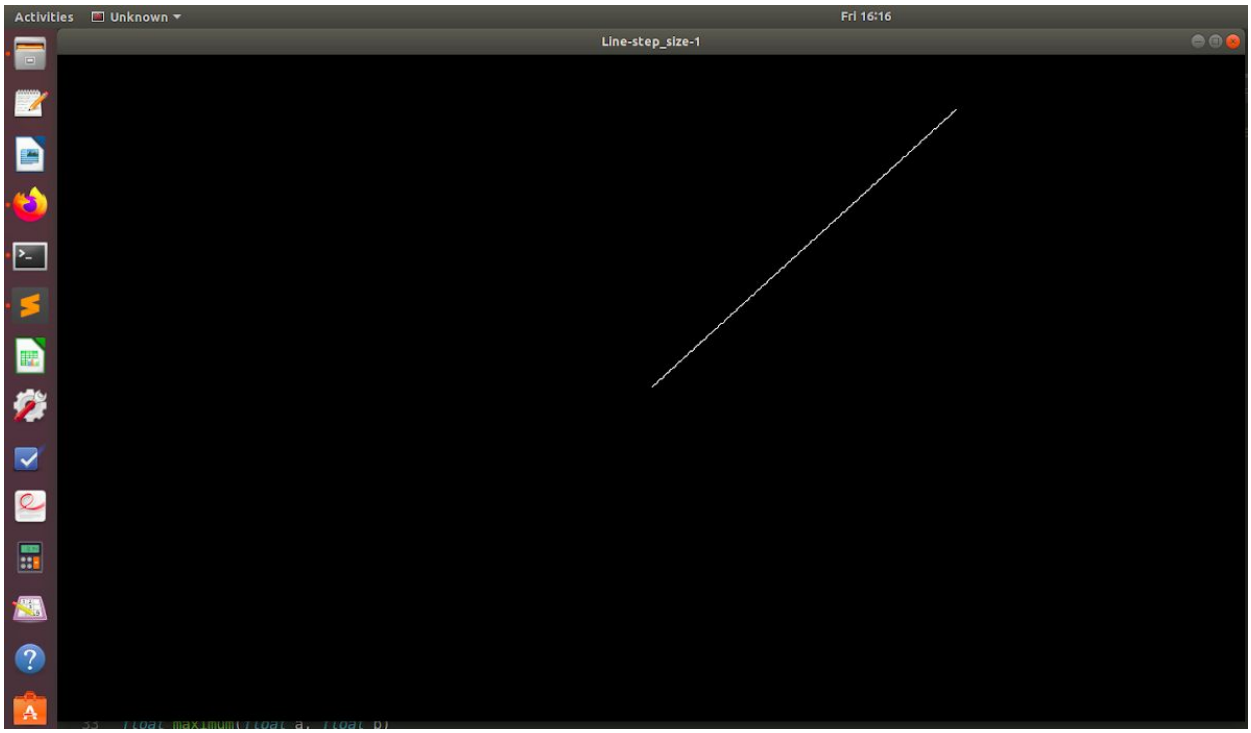
Step size 3 - vertical line



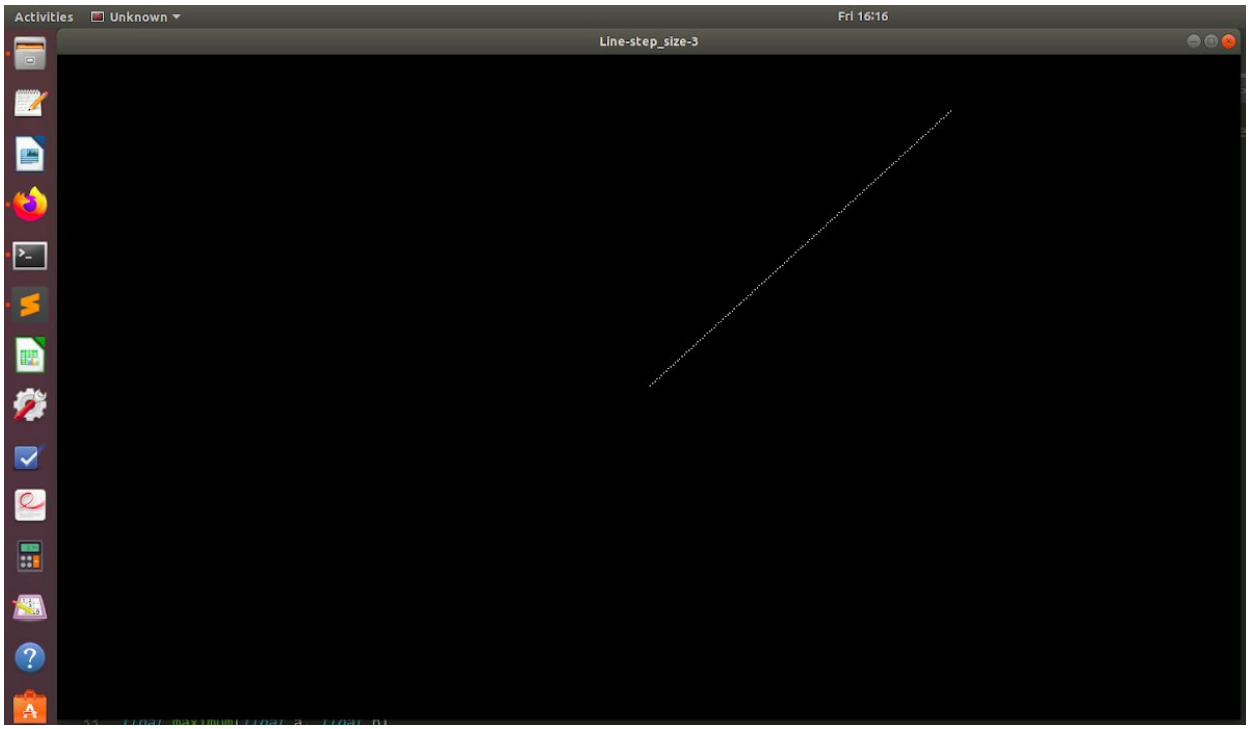
Step size 4 - vertical line



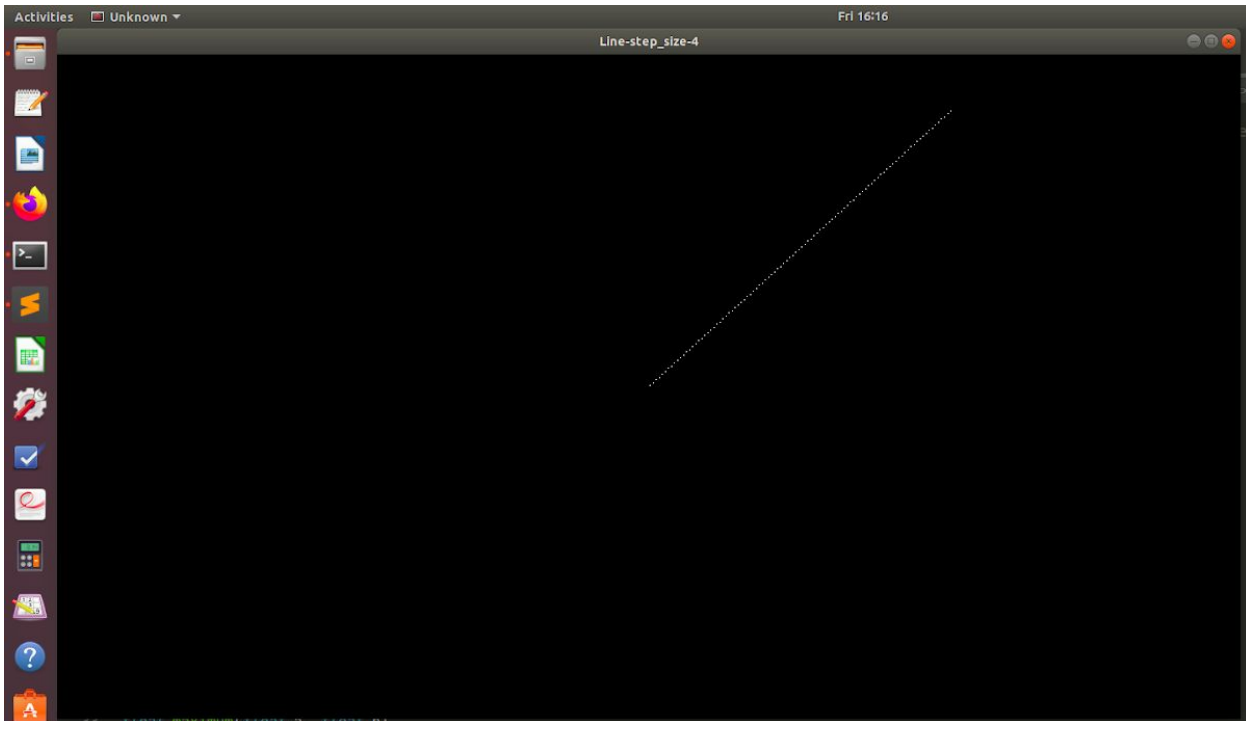
Step size 5 - vertical line



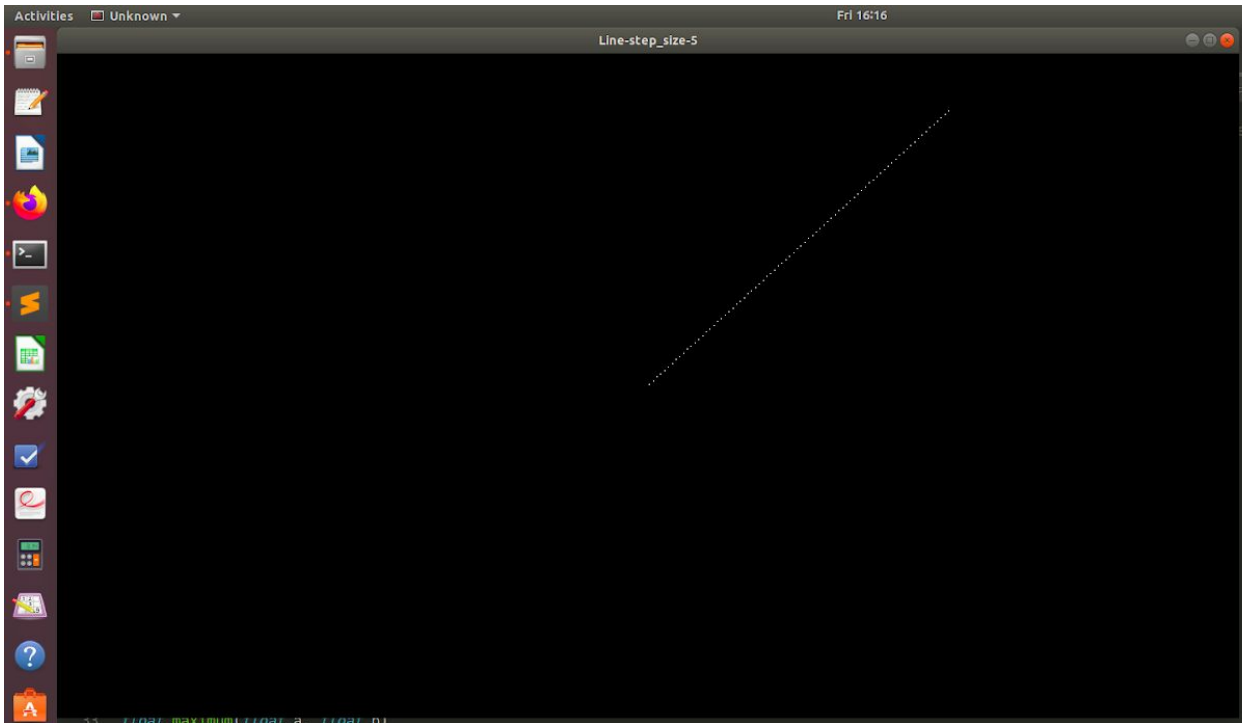
Step size 1 - slant line



Step size 3 - slant line

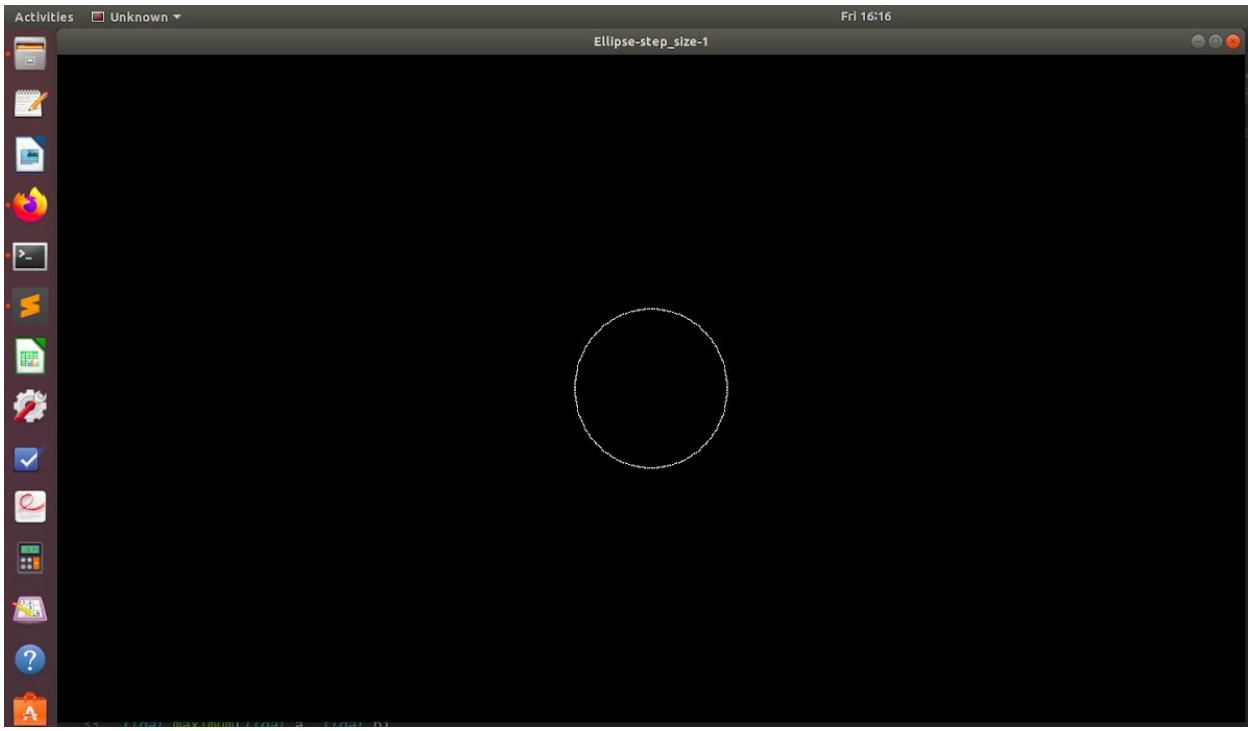


Step size 4 - slant line

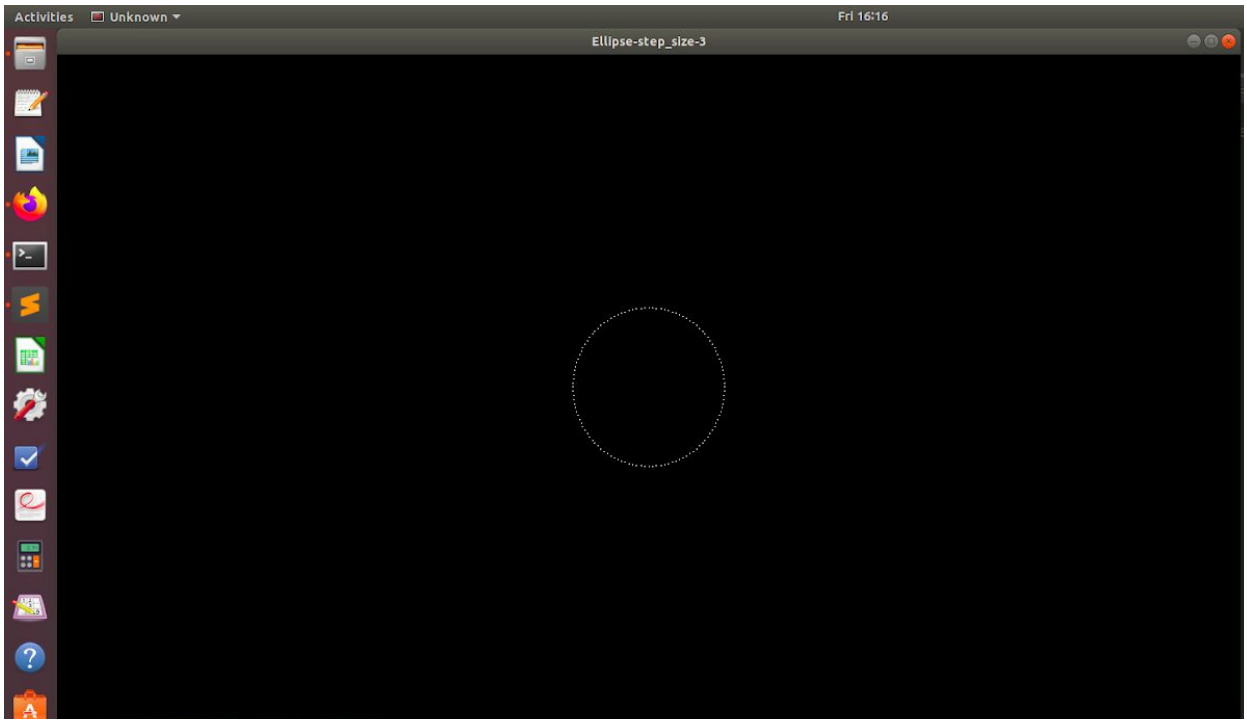


Step size 5 - slant line

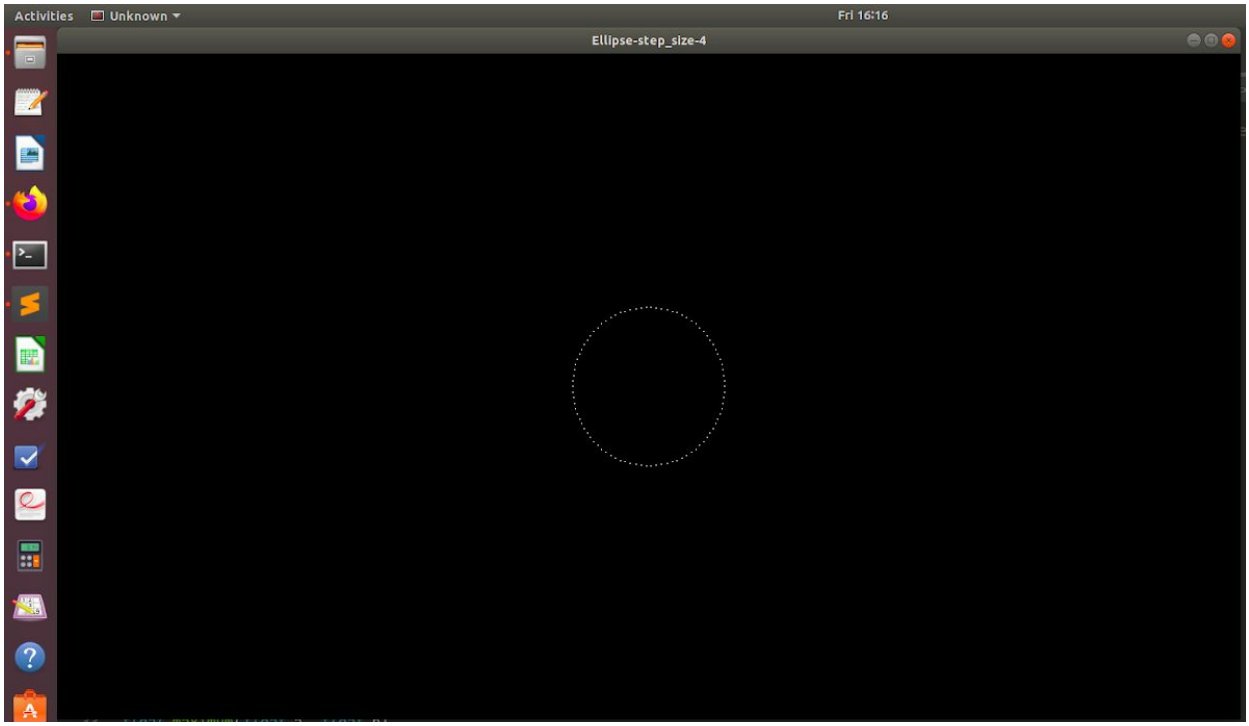
Q2. Given the parameter of a and b of ellipse x = a cos(theta); y = b sin(theta), plot the points (round(x), round(y)) for theta varies from 0 to 2*PI, with various step sizes and observe the quality of the plot. Also check if the circle is plotted when a=b.



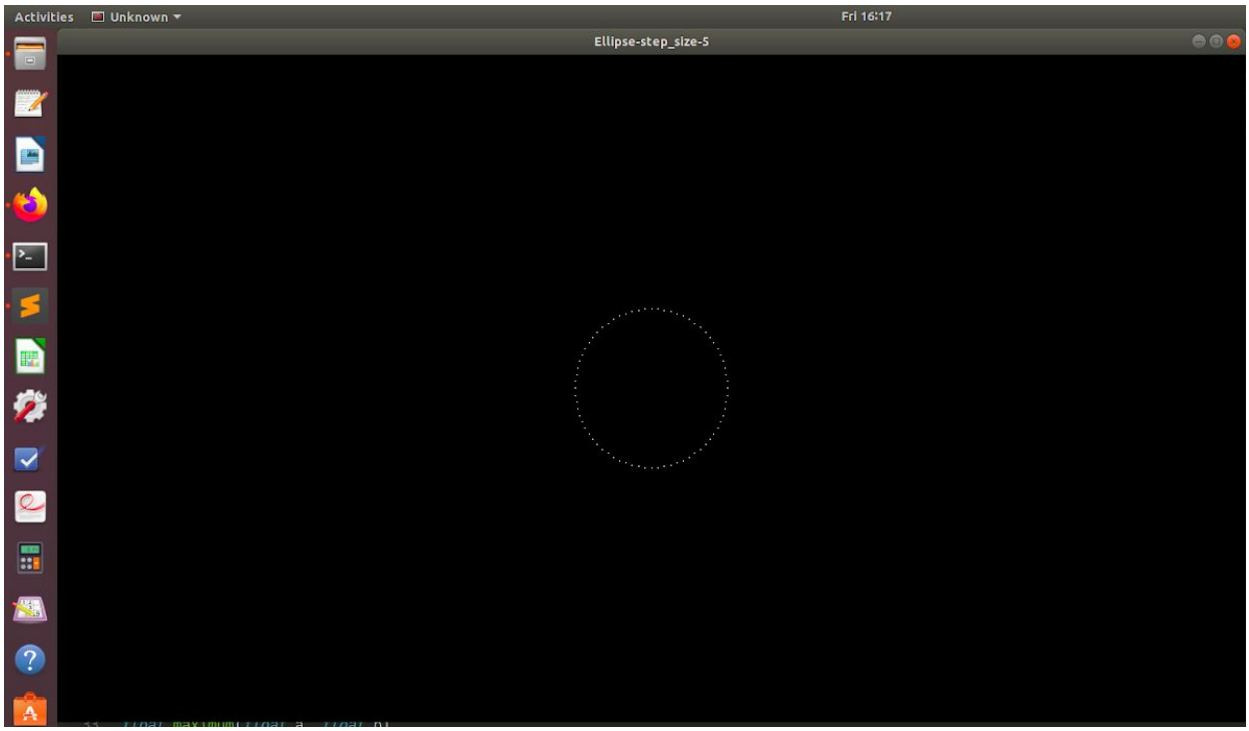
Step size 1 - circle



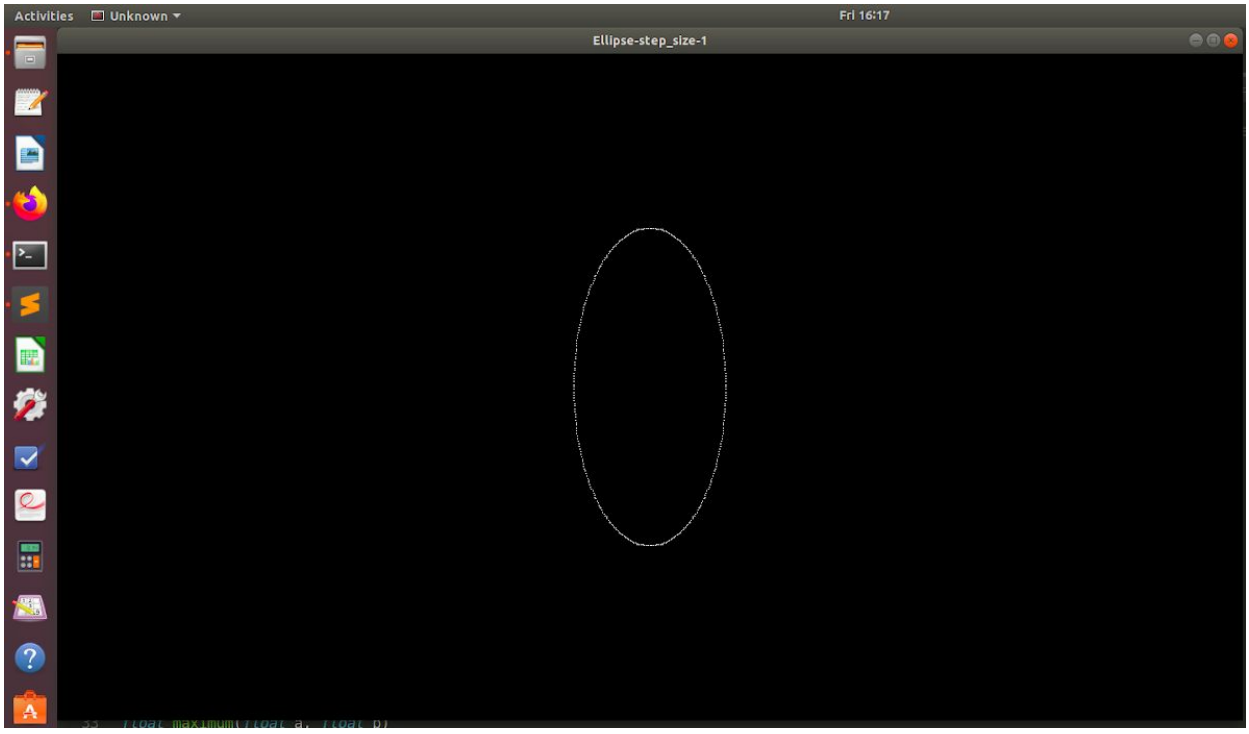
Step size 3 - circle



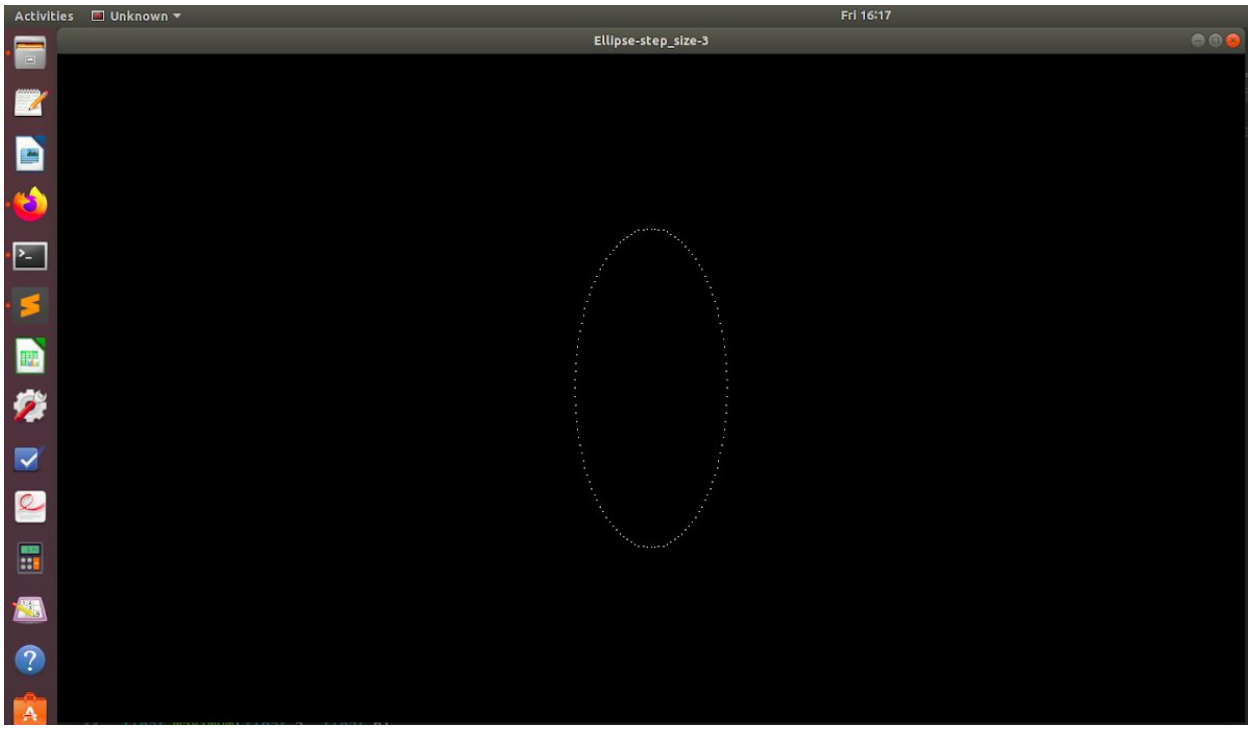
Step size 4 - circle



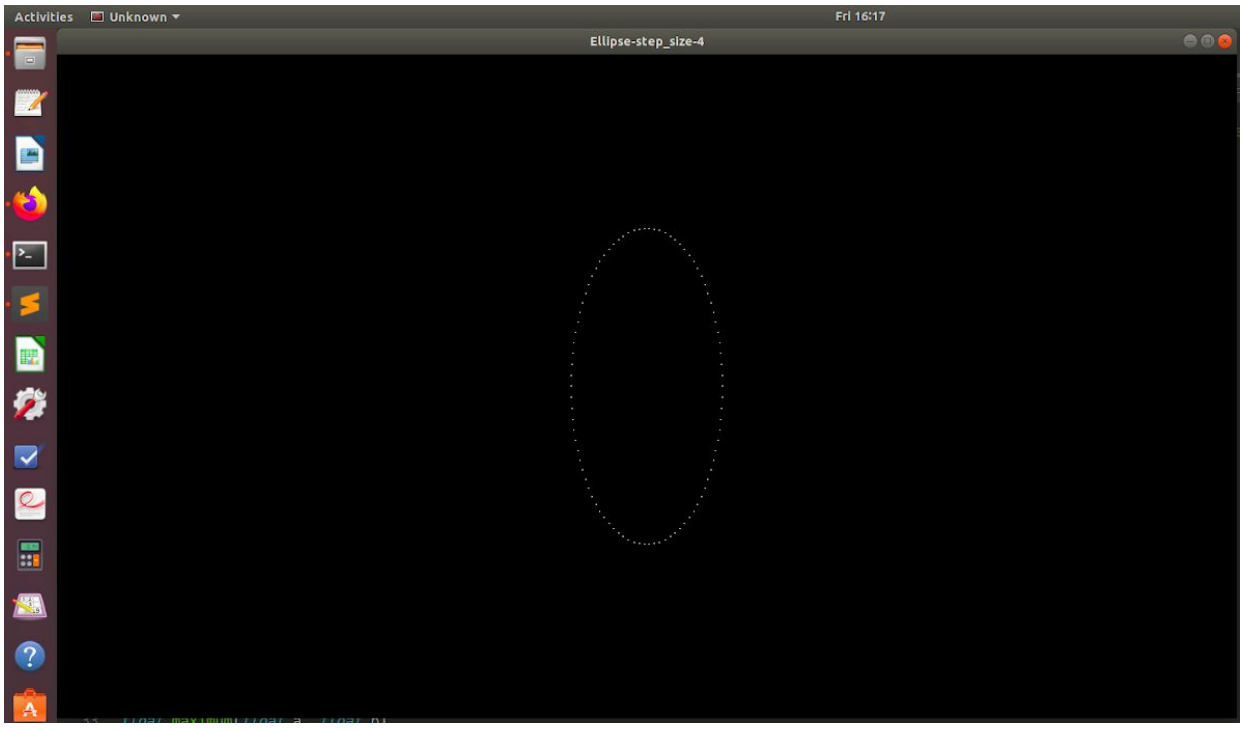
Step size 5 - circle



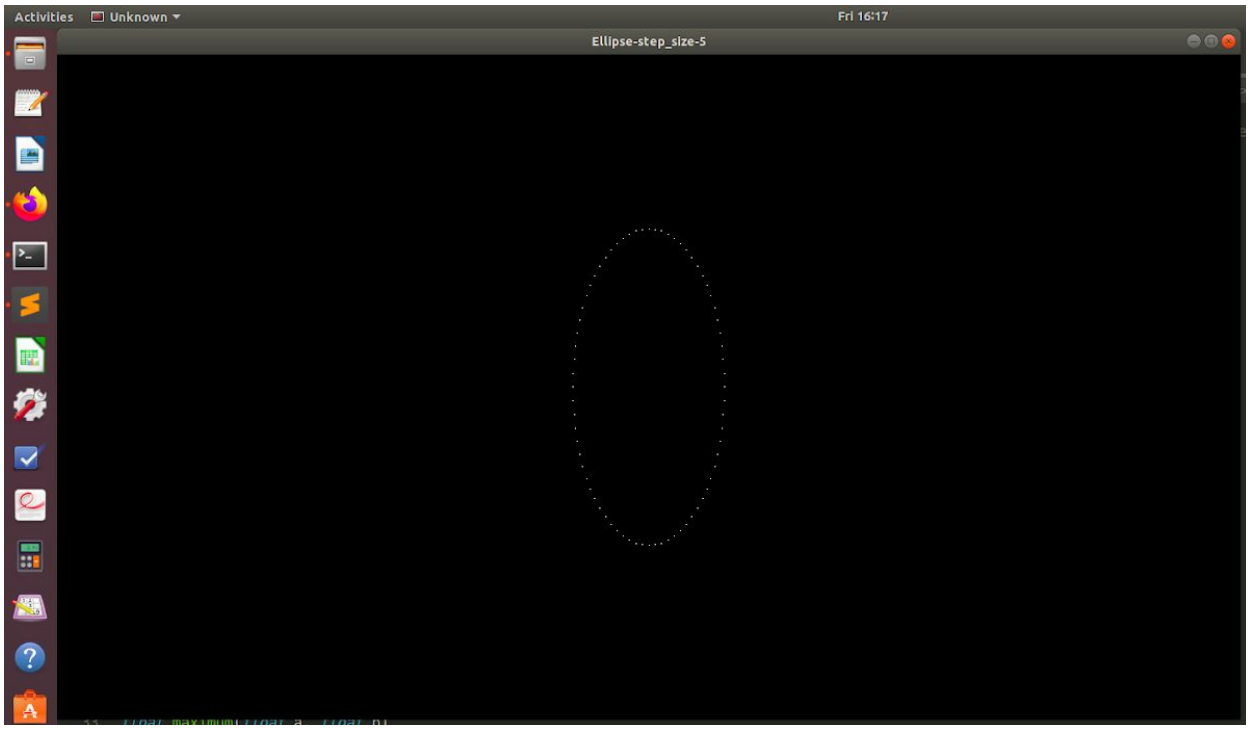
Step size 1 - ellipse



Step size 3 - ellipse



Step size 4 - ellipse



Step size 5 - ellipse