It can be difficult to plot functions like $\sin(\frac{1}{x})$ that vary infinitely quickly as x approaches a particular value, in this case $x = 0$. Unless the function is sampled more frequently than it oscillates, you will produce plotting artifacts, as can be seen in the figure to the right. In these cases a better result can be obtained by increasing the sample frequency; in gnuplot the command is `set samples 1000`, for example.