Assignment 4

A taste of Fourier optics. Start with a waveform given by the function $f(t) = h \cdot e^{\frac{-t^2}{2\sigma^2}}$. First plot this function and and name it (it has a formal name). Then take the Fourier transform of this function and show the result g(ω). Plot the frequency spectrum and comment on it.

Note: in this question you're allowed to use one of two methods to find the Fourier transform. You can do it in "full math mode" by hand. Or you can solve it by computer. In my opinion, as long as you know what you're doing the latter method is perfectly acceptable since there is not necessarily always a reason to struggle through a long integral by hand (although one can hardly argue that it isn't better in some cases).