



TUTORIAL 2

Problems under Fourier sine and cosine Transforms

1. Find the Fourier sine transform of $\frac{e^{-ax}}{x}$ and hence, find $F_s \left[\frac{e^{-ax} - e^{-bx}}{x} \right]$
2. Find the Fourier sine transform of $e^{-|x|}$ Hence evaluate $\int_0^{\infty} \frac{x \sin mx}{1+x^2} dx = \frac{\pi}{2} e^{-m} \quad m > 0$
3. Find the cosine transform of $\frac{1}{x^2 + a^2}$