

Closed Loop Integral In the Upper Half Plane, **You Will Need To Consider In More Detail the Reasons That the Added Integral Over the Infinite Semicircle Is Zero.** In Particular, You Will Notice That the Basic Radial Factors In the **Integrand** Will Be of **Order Unity**,  $\lim_{R \rightarrow \infty} A \frac{R^2}{R^2}$ , So That You Will have to **Consider the Exponential Aspect In Order To Prove that the Integral Is Zero**, When Integrating Over the Angle. Given All of These Considerations, the **Residue Theorem Will Result In the Integral Over the Infinite Real Axis.** **Make Sure To Draw Contour, Show Singularities, And Show All Work For Calculation Of the Needed Residues.** Also, As Stated, Give the Result For  $\sin x \rightarrow \sin kx$ .