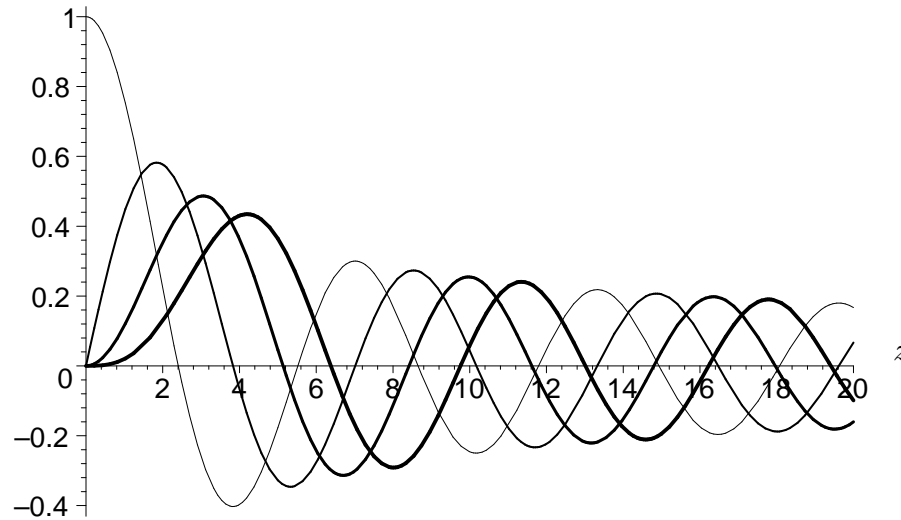


Bessel Functions

Two linearly independent solutions to the Bessel equation of order ν

$$z^2 \frac{d^2 y}{dz^2} + z \frac{dy}{dz} + (z^2 - \nu^2)y = 0$$

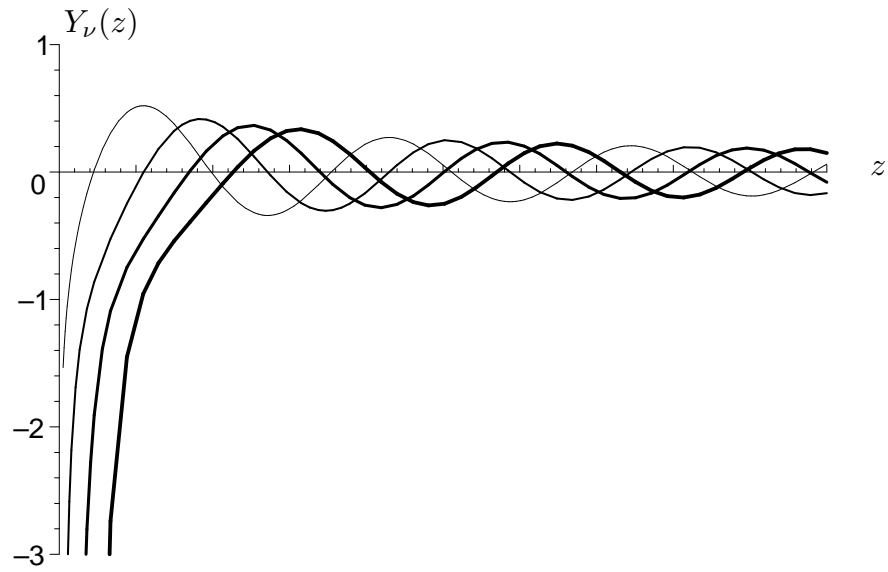
are given by $J_\nu(z)$, $Y_\nu(z)$.



$J_\nu(z)$ vs. z for $n = 0, 1, 2, 3$ (in increasing order of thickness).

Here is a plot of $J_\nu(z)$ for various integral ν . Note that only J_0 is nonzero at $z = 0$. Note also that the zeroes *interlace*; that is,

$$j_{i-1,k} < j_{i,k} < j_{i+1,k} \text{ for all } i, k.$$



$Y_\nu(z)$ vs. z for $n = 0, 1, 2, 3$ (in increasing order of thickness).

Here is a plot of $Y_\nu(z)$ for various integral ν . Note that all diverge as $z \rightarrow 0$. Note also that the zeroes interlace.