$$y_0(x) = -\frac{\cos(x)}{x}$$

$$y_1(x) = -\frac{\cos(x)}{x^2} - \frac{\sin(x)}{x}$$

$$y_2(x) = \left(\frac{1}{x} - \frac{3}{x^3}\right)\cos(x) - \frac{3}{x^2}\sin(x).$$

Details

See the **bessI** function for details on accuracy and speed of execution.

See Also

The **sphericalBessYD** and **sphericalBessJ** functions.

References

Abramowitz, M., and I.A. Stegun, *Handbook of Mathematical Functions*, 446 pp., Dover, New York, 1972.

sphericalBessYD

sphericalBessYD(*n*, *x* [, *accuracy*])

The sphericalBessYD function returns the derivative of the spherical Bessel function of the second kind and order *n*.

Details

See the **bessI** function for details on accuracy and speed of execution.

See Also

The **sphericalBessJ** and **sphericalBessY** functions.

sphericalHarmonics

sphericalHarmonics(*L*, *M*, *q*, *f*)

The sphericalHarmonics function returns the complex-valued spherical harmonics

$$Y_L{}^M(\theta,\phi) = (-1)^M \sqrt{\frac{2L+1}{4\pi}\frac{(L-M)!}{(L+M)!}} P_L{}^M(\cos\theta)e^{iM\phi}$$

$$Y_L^M(\theta,\phi) = (-1)^M \sqrt{\frac{2L+1}{4\pi}\frac{(L-M)!}{(L+M)!}} P_L^M(\cos(\theta))e^{iM\phi},$$

where $P_L^M(\cos(\theta))$ is the associated Legendre function.

See Also

The **legendreA** function. The NumericalIntegrationDemo.pxp experiment.

Demos

Choose File→Example Experiments→Visualization→SphericalHarmonicsDemo.

Choose File→Example Experiments→Analysis→NumericalIntegrationDemo.

References

Arfken, G., *Mathematical Methods for Physicists*, Academic Press, New York, 1985.