**NUMERICAL INTERPOLATION:**

1. Given a set of points sitting on curve - expressed as two numpy arrays:

x = np.array([-2.26360847, -2.16610699, -2.02469678, -1.71540778, -1.15546749,-0.29414176, -0.07786256, 0.96114056, 1.07781797, 2.03309523])

y = np.array([-0.04449367, -0.05933075, -0.08624049, -0.1637272,

-0.31774732, -0.86110902, -0.98839902, 0.32224765, 0.44245256, 0.18490792])

Estimate the value of at point 0.16

Given that the analytic form of , check how well each interpolation method (or ‘kind’) matches the actual value at x = 0.16, and in general along entire region from -2.26 to 2.0 by plotting the analytic form and ‘interpolating function’

**NUMERICAL INTEGRATION:**

1. Perform definite integral:

using

1. integrate.quad
2. integrate.trapezoidal
3. Determine the indefinite integral over a range and plot the result.

Check it looks like a cosine function!

1. Perform the indefinite integral over the range :

and plot the result. What is the indefinite integral?