import numpy as np

a = 0 # 积分下限

b = np.pi # 积分上限

n = 6 # 积分点个数

a\_= [] # 积分权

a\_.append(np.array([1/2, 1/2]))

a\_.append(np.array([1/6, 2/3, 1/6]))

a\_.append(np.array([1/8, 3/8, 3/8, 1/8]))

a\_.append(np.array([7/90, 16/45, 2/15, 16/45, 7/90]))

a\_.append(np.array([19/288, 25/96, 25/144, 25/144, 25/96, 19/288]))

a\_.append(np.array([41/840, 9/35, 9/280, 34/105, 9/280, 9/35, 41/840]))

a\_.append(np.array([751/17280, 3577/17280, 1323/17280, 2989/17280, 2989/17280, 1323/17280, 3577/17280, 751/17280]))

a\_.append(np.array([989/28350, 5888/28350, -928/28350, 10496/28350, -4540/28350, 10496/28350, -928/28350, 5888/28350, 989/28350]))

#y=f(x)自定义

f = lambda x: np.sin(x)

x = np.linspace(a,b,n)

y = f(x)

r = (b-a)\*np.sum(a\_[n-2]\*y)

print('---------------------------------------------------------\n')

print('I=','{:.5f}'.format(r))