When I have a given series, such as following:

$$\sum_{n=0}^{\infty} \frac{(-1)^n}{\sqrt{n+1}} = 0.604898643421630$$

I can easily use from Extrapolation methods to accelerate it's convergence.

But when I want to accelerate convergence of equivalent series of an infinite integral, I don't know how (and where of my code) use from extrapolation methods.

As an example, please consider following infinite integral:

$$I = \int_0^{\infty} \frac{x}{1+x^2} J_0(x)\, dx = K_0(1) = 0.4210244382\ldots$$

At first, we equal it with a series:

$$I = \int_0^{\infty} f(x)\, dx = \sum_{j=0}^{\infty} I_j$$

where
$$I_j = \int_{x_{j-1}}^{x_j} f(x)\, dx,$$

I can solve the integral within sub-intervals, but I don't know how use from extrapolation methods to accelerate convergence of I series.