?

It started with solving a differential equation…

$$y^{\infty} + \ldots + y^{n} + \ldots + y'' + y' + y = e^{x}$$

where a solution is

$$\frac{1}{2 \cdot \pi} \int_{-\pi}^{\pi} e^{cos(\theta) \cdot x} \sin\left(\sin(\theta) \cdot x + \frac{\pi}{4}\right) \cdot \sin\left(\theta \cdot n + \frac{\pi}{4}\right) d\theta$$

The integral for integers n >= 0, not so surprising, is

$$\frac{x^{n}}{n!}$$

and for all n is also

$$\sum_{m=0}^{\infty} sinc\left((m-n) \cdot \pi\right) \cdot \frac{x^{m}}{m!}$$

or to see the link between the Fourier Transform

$$\frac{1}{\pi} \sum_{\omega=0}^{\infty} \sum_{t=0}^{\infty} \sin\left(\omega \cdot t + \frac{\pi}{4}\right) \cdot \sin\left(t \cdot n + \frac{\pi}{4}\right) \cdot \frac{x^{\omega}}{\omega!}$$

It can also be viewed discretely as

$$\frac{1}{p} \sum_{t=0}^{p-1} e^{\cos\left(\frac{2 \cdot \pi \cdot t}{p}\right) \cdot x} \cdot \sin\left(\sin\left(\frac{2 \cdot \pi \cdot t}{p}\right) \cdot x + \frac{\pi}{4}\right) \cdot \sin\left(\frac{2 \cdot \pi \cdot t \cdot n}{p} + \frac{\pi}{4}\right) = \sum_{m=0}^{\infty} \frac{x^{m \cdot p + n}}{(m \cdot p + n)!}$$

This is a start to creating a new hybrid transform of the Laplace transform and the Fourier series and linking all of them together.

Is this not worth anything, if it alone doesn’t make money?