Graphs of several Fourier series

with some review of Taylor series

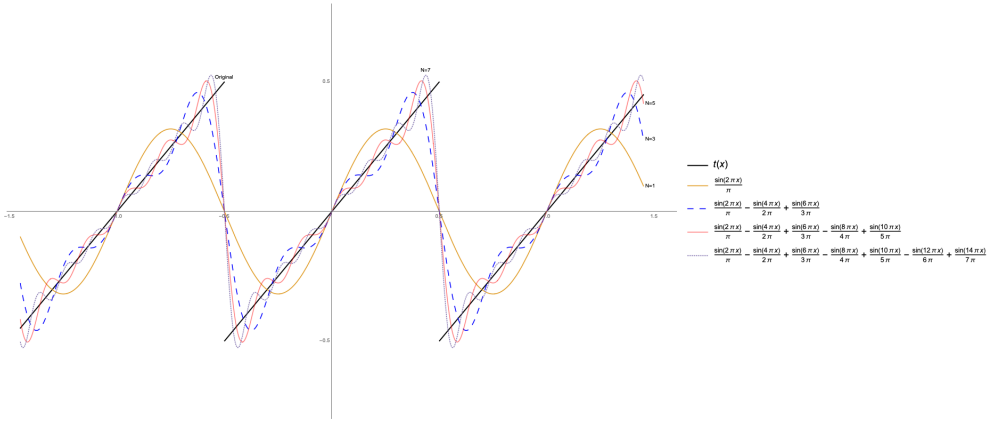

Figure 1: The Fourier series of $f(x) = x$ on the interval $\left[-\frac{1}{2}, \frac{1}{2}\right]$.

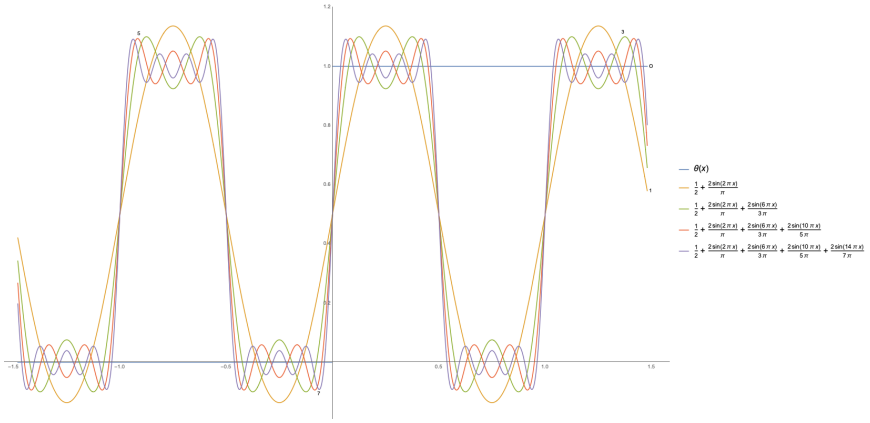

Figure 2: The Fourier series of $f(x) = \chi_{(0,\infty)}(x)$ (0 for $x < 0$ and 1 for $x \geq 0$) on the interval $\left[-\frac{1}{2}, \frac{1}{2}\right]$.

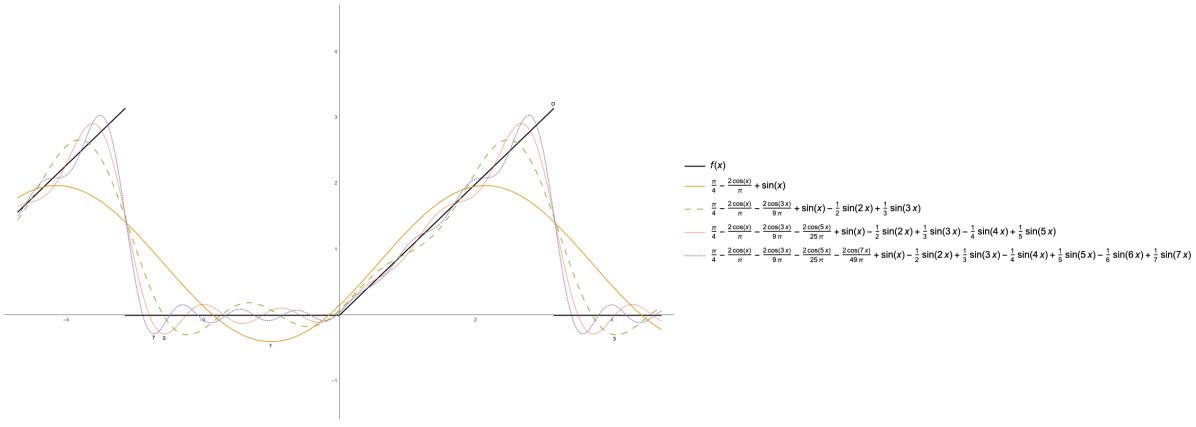

Figure 3: The Fourier series of $f(x) = x * \chi_{(0,\infty)}(x)$ on the interval $[-\pi, \pi]$.

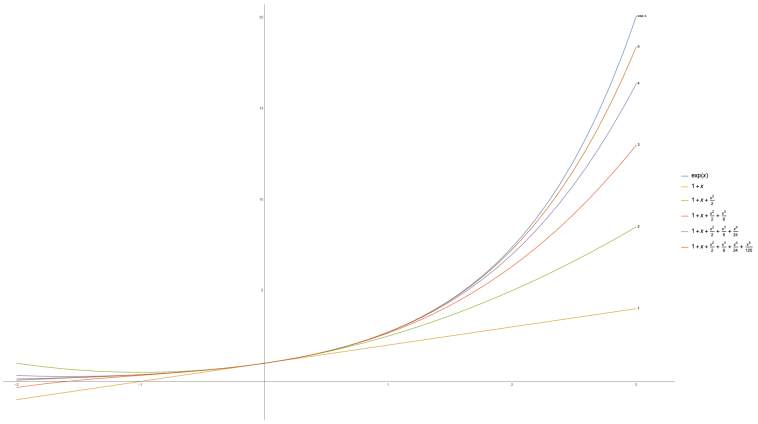

Figure 4: The Taylor series of $f(x) = e^x$ at $x = 0$.

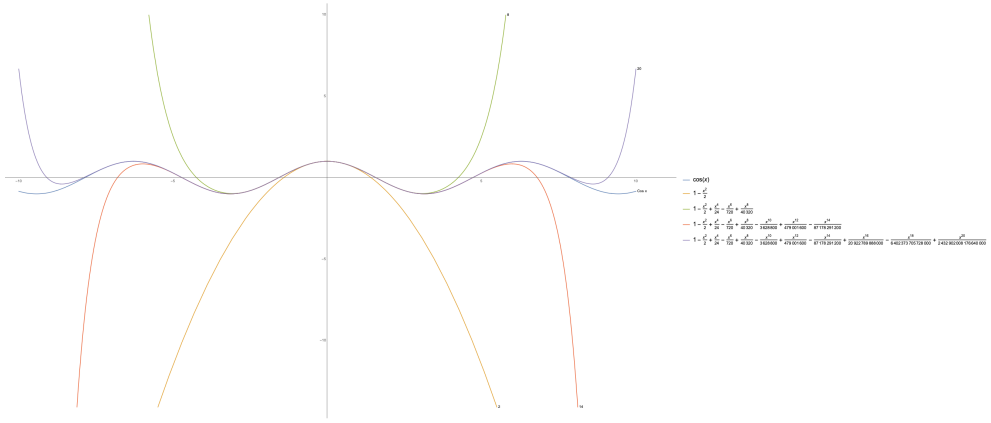

Figure 5: The Taylor series of $f(x) = \cos x$ at $x = 0$.

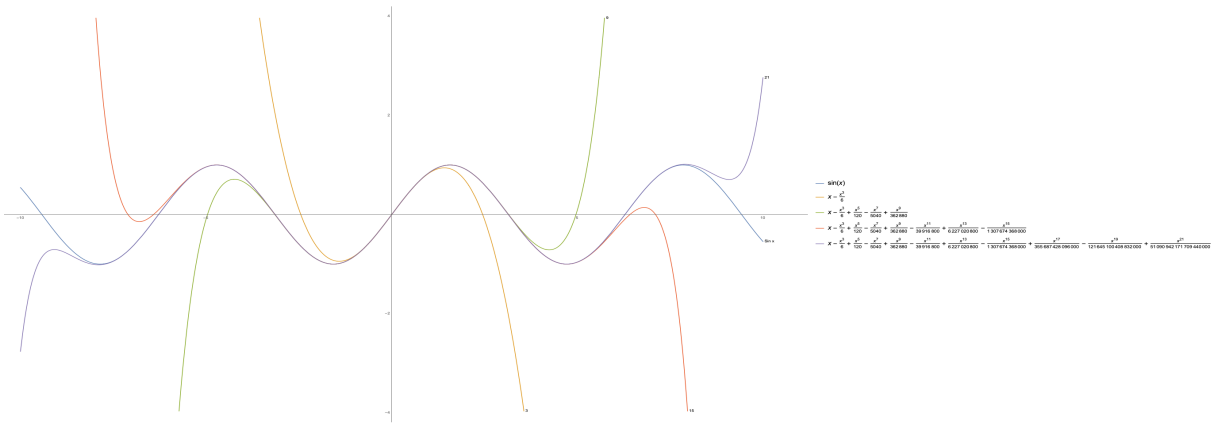

Figure 6: The Taylor series of $f(x) = \sin x$ at $x = 0$.

Comparison of Fourier, Fourier Cosine, and Fourier Sine Series

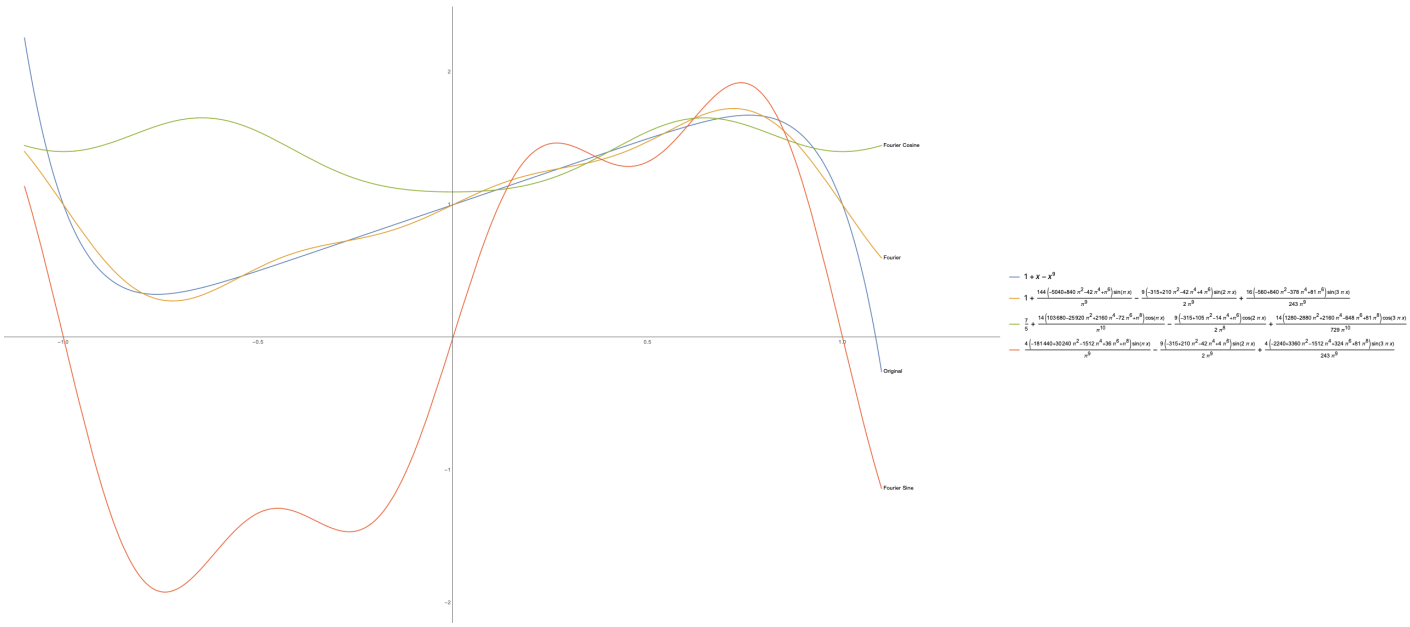

Figure 7: The Fourier, Fourier Cosine, and Fourier Sine series of $f(x) = -x^9 + x + 1$ on the interval $[0, 1]$.

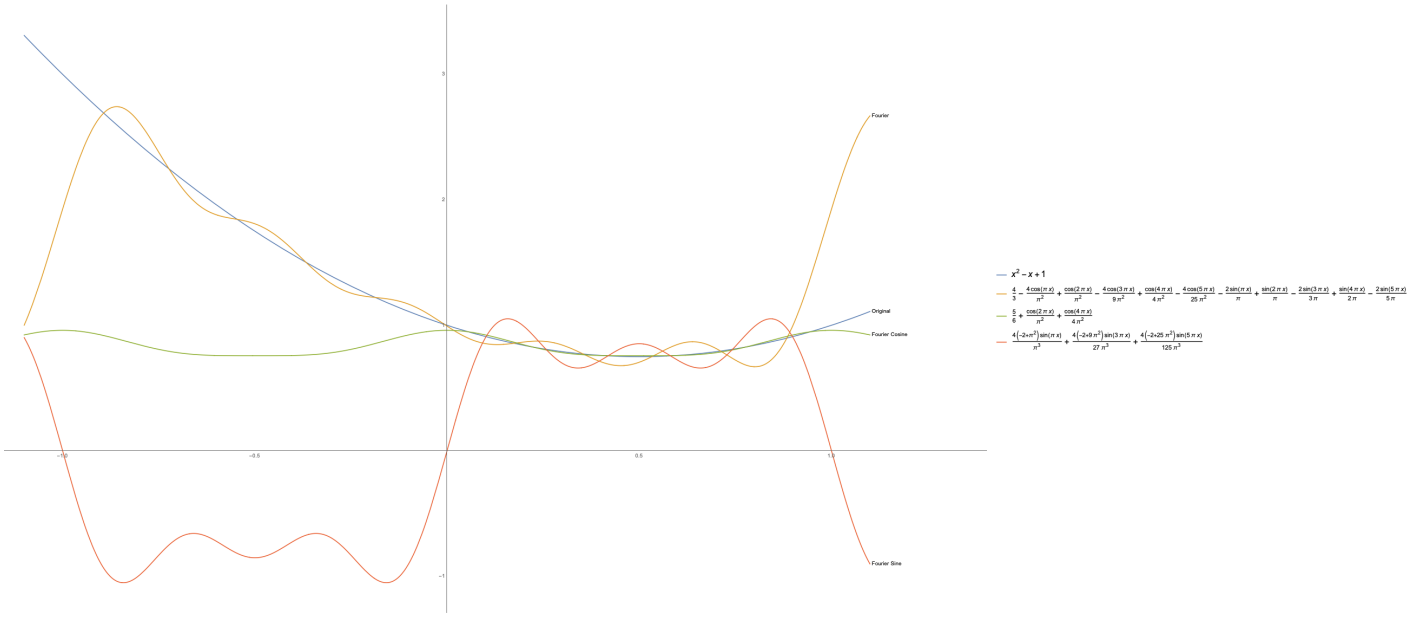

Figure 8: The Fourier, Fourier Cosine, and Fourier Sine series of $f(x) = x^2 - x + 1$ on the interval $[0, 1]$.