Written HW19 – MATH 2502 Spring 2021

Due by 23 April for timely completion credit

We found a number of power series in the 19 April class that you will find below. For each of them, find the interval of convergence of the series in your favorite way. Don't forget to check endpoints when relevant!!

1. If $f(x) = \displaystyle\int_0^x \frac{1}{1+t^4}\mathrm{d}t$, then we showed in class that

$$f(x) = \sum_{k=0}^{\infty} \frac{(-1)^k x^{4k+1}}{4k+1}.$$

2. If $h(x) = \displaystyle\int_0^x te^{-t^4}\mathrm{d}t$, then we showed in class that

$$h(x) = \sum_{k=0}^{\infty} \frac{(-1)^k x^{4k+2}}{k!(4k+2)}.$$

3. If $g(x) = \displaystyle\int_0^x \cos(t^2)\mathrm{d}t$, then we showed in class that

$$g(x) = \sum_{k=0}^{\infty} \frac{(-1)^k x^{4k+1}}{(2k)!(4k+1)}$$