

Math 121, Sections 01 and 02, Spring 2021

Homework #18

Due **Friday, April 30th** at the beginning of class.

Watch: Power Series Video #7 on Estimates using A.S.E.T

1. Use Series to Estimate $\frac{1}{e}$ with error less than $\frac{1}{20}$. Justify.
2. Use Series to Estimate $\frac{1}{e}$ with error less than $\frac{1}{100}$. Justify. (Can reuse work from 1)
3. Use Series to Estimate $\frac{1}{e}$ with error less than $\frac{1}{500}$. Justify. (Can reuse work from 1)
4. Use Series to Estimate $\sin(1)$ with error less than $\frac{1}{1000}$. Justify.
5. Use Series to Estimate $e^{-\frac{1}{3}}$ with error less than $\frac{1}{100}$. Justify.
6. Use Series to Estimate $\arctan\left(\frac{1}{2}\right)$ with error less than $\frac{1}{100}$. Justify.
7. Use Series to Estimate $\int_0^1 x \ln(1+x^3) dx$ with error less than $\frac{1}{20}$. Justify.
8. Use Series to Estimate $\int_0^1 x \sin(x^2) dx$ with error less than $\frac{1}{1000}$. Justify.