Math 253

Homework 6

Due Friday, February 23, 2024

For each series, decide which convergence test will be easiest to apply, then use it to decide whether the series converges or diverges. (“Easiest” is a matter of taste, so there’s not necessarily a right or wrong answer to that part, but if you find yourself working very hard then consider trying another test.)

1.
2.
3.
4.
5.
6.
7.
8.

Taylor polynomials:

1. Find the eighth Taylor polynomial for : that is, find the (unique) polynomial of degree 8 whose value at zero and whose first eight derivatives at zero all agree with those of . If you want, put it into Desmos like we did in class; but don’t turn in any graphs.
2. Find the third Taylor polynomial for . Again, put it into Desmos if you want.

Radius of convergence:

1. For which values of does the series converge?