# BC Review, Mostly Series

1. Write the general and first four terms of the Maclaurin series for
2. Let be a function having derivatives of all orders for all real numbers. The third-degree Taylor polynomial for about is given by .
3. Suppose the fourth derivative of satisfies the inequality for all on the closed interval . Use the Lagrange error bound to justify why is negative.
4. Find the Lagrange error in estimating
5. Find the Lagrange error in estimating
6. Write the first four terms of the Maclaurin series for
7. Write the first four terms of the Maclaurin series for
8. Evaluate:
9. Evaluate:
10. Evaluate: (hint: it’s a geometric series)
11. Evaluate: (hint: it’s a geometric series)
12. Take derivatives of both sides of 9. Then do the same to 10.
13. Evaluate:
14. What’s the formula for total distance traveled? Total displacement? In 1D and in 2D?
15. What is the arc length of the parabola from to ? (Calculator can be used to integrate)
16. Evaluate
17. Evaluate