MThambeliyagodage\_Data605\_W14\_Assign14

Matheesha Thambeliyagodage

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# Taylor Series

Taylor Series is defined as .

### Function 1:

Find first several derivatives.

Per definition,

The Maclaurin Series of , , .

It is easy to see that this series will only converge if , so the valid range is .

### Function 2:

Find first several derivatives.

Per definition,

The Maclaurin Series of , , .

**Ratio Test**:

and .

This series will converge for any , so the valid range is .

### Function 3:

Find first several derivatives.

Per definition,

The Maclaurin Series of , , .

**Ratio Test**:

This series will only converge if or , so then the valid range is .