

1.3 Partial Sums

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Programming for Problem Solving

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The partial sums terms I utilized is:

$$\sum_{i=1}^i \frac{(-1)^i \theta (2i + 1)}{(2i + 1)!}$$

Where the current value of θ is 90.

The first provided sum diverges for any value of n input.

The second provided sum appears to converge, however if you increase the value of n to above 8000, it begins to diverge rapidly.

For the partial sum that I created, the sum oscillates with a growing degree of variance until around 45, at which point the variance decreases until 60 where it appears to converge to $-7.005 \times 10^2 1$. This "convergence" appears to hold for at least $n = 20000$ terms.