

Partial Sums and Partial Products

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1 Partial Sums

Created Partial Sum: $A_n = \sum_{i=1}^n \frac{3^i + i + 7}{e^i + 4}$

For the S_n partial sum, I think the series will diverge because the terms of the sequence continually get larger and do not seem to level off. I used 10,000 terms for this series. I used 10,000 because I felt as if using a larger number will help me see if the series will continually grow or if it will level off. It is more useful to use 10,000 terms than 30.

For the T_n partial sum, I think the series will diverge as well. I used 10,000 terms for this as well because, for this one in particular, it shows the series getting off to a slow start and then sky rocketing to very large numbers with no intention of leveling off.

For my series, A_n , I think it will converge. Based on the 10,000 terms I used, it looks as if it will converge to .121. Using 10,000 terms in this case allows me to see that the last terms are all the same, meaning that the sequence will eventually converge to that number.

2 Partial Products

Created Partial Product: $A_n = \prod_{i=0}^n \frac{i^2 + 6}{e^i + 1}$

For the series, P_n , I think it will converge to approximately $\frac{2}{3}$ because the last 15 terms show that the series is leveling off at .666 repeat.

For the series, Q_n , I think it will converge to 0. This is because the last 15 terms in the series are 0.

For my series, A_n , I think it will converge to 0 as well. The last 15 terms in this series are also 0.