

Bellwork:

Find the rule for:

10, 5, 2.5, 1.25, 0.625

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Chapter 12.4: Find Sums of Infinite Geometric Series

- Partial Sum is when you find the sum of a finite series. We want to look at an infinite series

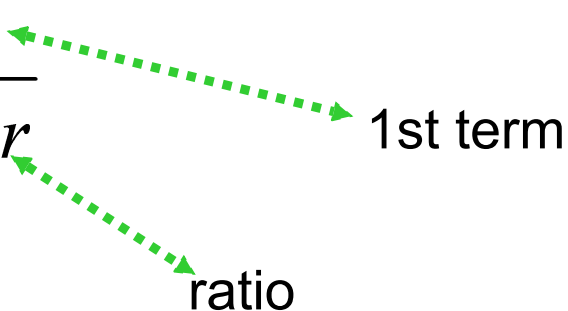
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ex. Consider the infinite geometric series.
Find and graph S_n for $n=1-5$. Then describe
what happens to S_n as n increases.

$$\frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \frac{1}{32} + \dots$$

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Sum of Infinite Series

$$S = \frac{a_1}{1-r}$$


1st term

ratio

if $|r| \geq 1$, the series has no sum

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ex. Find the sum of the infinite series:

a. $\sum_{i=1}^{\infty} 5(0.8)^{i-1}$

b. $1 - \frac{3}{4} + \frac{9}{16} - \frac{27}{64} + \dots$

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ex. What is the sum of: $1-3+9-27+\dots$

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ex. A pendulum that is released to swing freely travels 18 inches on the first swing. On each successive swing, the pendulum travels 80% of the distance of the previous swing. What is the total distance the pendulum travels?

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ex. Write $0.24242424\dots$ as a fraction in lowest terms.

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#'s 4-30e,38

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