Bellwork:

Find the rule for:

10, 5, 2.5, 1.25, 0.625

Sep 11-7:07 AM

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.

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

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Sum of Infinite Series

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

a_1: 1st term

r: 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. $1-\frac{3}{4}+\frac{9}{16}-\frac{27}{64}+\ldots$

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

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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... as a fraction in lowest terms.

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Homework: Ch. 12.4 pg.823
#'s 4-30e,38

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