

Bellwork:

Change to a fraction: .378378378...



Sep 13-11:40 AM

Chapter 12.5: Use Recursive Rules with Sequences and Functions

- An explicit rule gives a_n as a function of the term's position number n in the sequence. $a_n = 3n - 2$
- A recursive rule gives the beginning term or terms of a sequence and then a recursive equation. $a_1 = 1, a_n = 2a_{n-1} + 3$

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ex. Write the first 6 terms of the sequence.

a. $a_0 = 1, a_n = a_{n-1} + 4$ b. $a_1 = 1, a_n = 3a_{n-1}$

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Recursive Equations for...

Arithmetic: $a_n = a_{n-1} + d$
where d is the common difference

Geometric: $a_n = r \cdot a_{n-1}$
Where r is the common ratio

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ex. Write the recursive rule for the sequence:

a. 3,13,23,33,43,...

b. 16,40,100,250,625,...

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ex. Write the recursive rule:

a. 1,1,2,3,5,...

b. 1,1,2,6,24,...

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ex. An online music service initially has 50,000 annual members. Each year it loses 20% of its current members and adds 5000 new members. Write a recursive rule. Find the number at the 5th year. What happens over time?

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ex. Find the first three iterations x_1, x_2, x_3 of the function $f(x) = -3x + 1$ for an initial value of $x_0 = 2$

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Homework: Ch 12.5 pg.830
#'s 4-20e, 26-30e,34-38e

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