



solve $a(1)=5/4$, $a(n)=-3/4 a(n-1)$ for $a(n)$



Input interpretation :

solve

$$a(1) = \frac{5}{4}$$

$$a(n) = -\frac{3}{4} a(n-1)$$

for


$a(n)$



Result:

$$a(n) = -5 \left(-\frac{1}{4}\right)^n 3^{n-1}$$



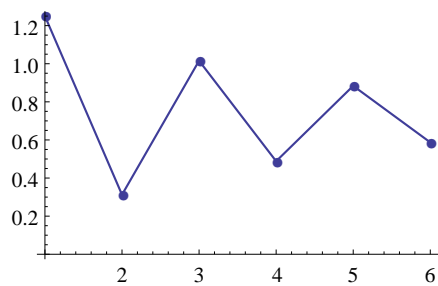
sum $-5 \left(-\frac{1}{4}\right)^n 3^{-1+n}$, $n=1..infinity$ 

Infinite sum :

$$\sum_{n=1}^{\infty} -5 \left(-\frac{1}{4}\right)^n 3^{-1+n} = \frac{5}{7} \approx 0.714286$$



Partial sums :



Convergence tests:

By the alternating series test, the series converges .



Partial sum formula :

$$\sum_{n=1}^m -5 \left(-\frac{1}{4}\right)^n 3^{-1+n} = -\frac{5}{7} \left(\left(-\frac{3}{4}\right)^m - 1 \right)$$



sum -5 (-1/4)^n 3^(-1 + n), n=1..infinity

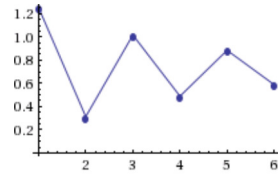
Examples Random

Infinite sum:

$$\sum_{n=1}^{\infty} -5 \left(-\frac{1}{4}\right)^n 3^{-1+n} = \frac{5}{7} \approx 0.714286$$

More digits

Partial sums:



More terms

Convergence tests:

By the ratio test, the series converges.

By the root test, the series converges.



Partial sum formula:

$$\sum_{n=1}^m -5 \left(-\frac{1}{4}\right)^n 3^{-1+n} = -\frac{5}{7} \left(\left(-\frac{3}{4}\right)^m - 1 \right)$$

Computed by Wolfram *Mathematica*

Computation timed out. Experimental feature: Try again with more time »

Give us your feedback:

About Products Mobile Apps Business Solutions For Developers Resources & Tools Blog
Forum Participate Contact Connect

Talk to Mathematica in everyday language »

OMG, just plot sin(x)

Related Wolfram|Alpha Queries

- (integrate -5 (-1/4)^n 3^(-1+...)
- series -5 (-1/4)^n 3^(-1+n)
- plot -5 (-1/4)^n 3^(-1+n)
- (integrate -5 (-1/4)^n 3^(-1+...

Related Links

- N (in Mathematica) »