



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 $-5(-1/4)^n 3^{-(1+n)}$, n=1..infinity

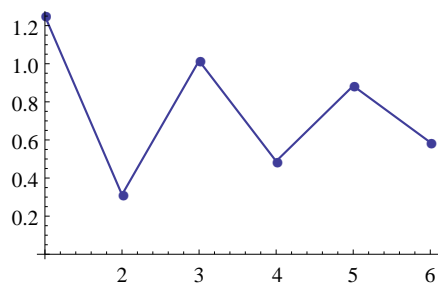


Infinite sum :

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



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

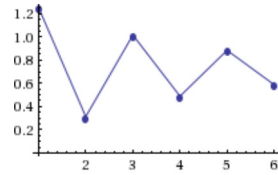
Examples Random

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:

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

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OMG, just plot sin(x)

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

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