

The Secret of Radius and Interval of Convergence of a Power Series in 2022 Calculus BC...

Lesson 346 | Calculus BC | Power series and intervals of convergence

<https://www.youtube.com/watch?v=cjVcszAHhaY>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Find the radius and interval of convergence of $\sum_{m=1}^{\infty} (x-1)^m / (14^m m)$.
Check both endpoints.

02

Find the radius and interval of convergence of $\sum_{m=1}^{\infty} (x-1)^m / (10^m m)$.
Check both endpoints.

03

Find the radius and interval of convergence of $\sum_{m=1}^{\infty} (x-0)^m / (10^m m)$. Check both endpoints.

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04

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-2)^m/(2^m m)$. Check both endpoints.

05

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-0)^m/(9^m m)$. Check both endpoints.

06

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-2)^m/(12^m m)$. Check both endpoints.

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01

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-1)^m/(14^m m)$. Check both endpoints.

Ratio limit $|x-1|/14$; convergence inside $|x-1|<14$. Radius 14. At $x=15$, harmonic series diverges; at $x=-13$, alternating harmonic series converges. Interval $[-13,15)$.

02

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-1)^m/(10^m m)$. Check both endpoints.

Ratio limit $|x-1|/10$; convergence inside $|x-1|<10$. Radius 10. At $x=11$, harmonic series diverges; at $x=-9$, alternating harmonic series converges. Interval $[-9,11)$.

03

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-0)^m/(10^m m)$. Check both endpoints.

Ratio limit $|x-0|/10$; convergence inside $|x-0|<10$. Radius 10. At $x=10$, harmonic series diverges; at $x=-10$, alternating harmonic series converges. Interval $[-10,10)$.

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04

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-2)^m/(2^m m)$. Check both endpoints.

Ratio limit $|x-2|/2$; convergence inside $|x-2|<2$. Radius 2. At $x=0$, harmonic series diverges; at $x=-4$, alternating harmonic series converges. Interval $[-4,0)$.

05

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-0)^m/(9^m m)$. Check both endpoints.

Ratio limit $|x-0|/9$; convergence inside $|x-0|<9$. Radius 9. At $x=9$, harmonic series diverges; at $x=-9$, alternating harmonic series converges. Interval $[-9,9)$.

06

Find the radius and interval of convergence of $\sum$ from $m=1$ to ∞ of $(x-2)^m/(12^m m)$. Check both endpoints.

Ratio limit $|x-2|/12$; convergence inside $|x-2|<12$. Radius 12. At $x=10$, harmonic series diverges; at $x=-14$, alternating harmonic series converges. Interval $[-14,10)$.