

Warm-Up

Ex (a) Find the third-degree Maclaurin polynomial for $f(x) = e^x$.

(b) Use your answer to (a) to find:

$$\lim_{x \rightarrow 0} \frac{f(x) - 1}{2x}$$

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9.4b Radius and Interval of Convergence

For what values of x is $\frac{1}{1+x^2} = 1 - x^2 + x^4 - x^6 + \dots + (-1)^n x^{2n} + \dots$

Analytically:

Graphically:

What are the interval and radius of convergence?

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Find the radius of convergence

$$\sum_{n=0}^{\infty} \frac{nx^n}{10^n}$$

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Find the radius of convergence

$$\sum_{n=0}^{\infty} n!x^n$$

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Find the radius of convergence

$$\sum_{n=0}^{\infty} \frac{\sqrt{nx^n}}{3^n}$$

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