

Enduring Understandings

(Students will understand that...)

EU 4.2: A function can be represented by an associated power series over the interval of convergence for the power series.

Learning Objectives

(Students will be able to...)

LO 4.2A: Construct and use Taylor polynomials.

Essential Knowledge

(Students will know that...)

EK 4.2A1: The coefficient of the n th-degree term in a Taylor polynomial centered at $x = a$ for the function f is $\frac{f^{(n)}(a)}{n!}$.

EK 4.2A2: Taylor polynomials for a function f centered at $x = a$ can be used to approximate function values of f near $x = a$.

EK 4.2A3: In many cases, as the degree of a Taylor polynomial increases, the n th-degree polynomial will converge to the original function over some interval.

EK 4.2A4: The Lagrange error bound can be used to bound the error of a Taylor polynomial approximation to a function.