45 Lecture - MTH101

Important Subjective

What is a Taylor series?

Answer: A Taylor series is an infinite series representation of a function as a sum of its derivatives evaluated at a specific point.

What is a Maclaurin series?

Answer: A Maclaurin series is a special case of the Taylor series where the point of expansion is zero.

What is the formula for a Taylor series?

Answer: The formula for a Taylor series is: f(x) = f(a) + f'(a)(x-a) + f''(a)(x-a)^2/2! + f'''(a)(x-a)^3/3! + ...

What is the formula for a Maclaurin series?

Answer: The formula for a Maclaurin series is: f(x) = f(0) + f'(0)x + f''(0)x^2/2! + f'''(0)x^3/3! + ...

What is the nth term in a Taylor series?

Answer: The nth term in a Taylor series is: f^(n)(a)(x-a)^n/n!, where f^(n)(a) is the nth derivative of f evaluated at a.

What is the nth term in a Maclaurin series?

Answer: The nth term in a Maclaurin series is: f^(n)(0)x^n/n!, where f^(n)(0) is the nth derivative of f evaluated at zero.

What is the Lagrange form of the remainder term in a Taylor series?

Answer: The Lagrange form of the remainder term in a Taylor series is: Rn(x) = f^(n+1)(c)(x-a)^(n+1)/(n+1)!, where c is a value between a and x.

What is the Lagrange form of the remainder term in a Maclaurin series?

Answer: The Lagrange form of the remainder term in a Maclaurin series is: Rn(x) = f^(n+1)(c)x^(n+1)/(n+1)!, where c is a value between 0 and x.

What is the Taylor series expansion of e^x?

Answer: The Taylor series expansion of e^x is: e^x = 1 + x + x^2/2! + x^3/3! + ...

What is the Maclaurin series expansion of sin x?

Answer: The Maclaurin series expansion of sin x is: sin x = x - x^3/3! + x^5/5! - x^7/7! + ...