

# 39 Lecture - MTH101

## Important Subjective

What is an improper integral?

Answer: An improper integral is an integral with infinite limits of integration or an integrand that is not defined for some values within the limits of integration.

How do you evaluate a Type I improper integral?

Answer: To evaluate a Type I improper integral, we take the limit as the upper or lower limit of integration approaches infinity or negative infinity, respectively.

What is a divergent improper integral?

Answer: A divergent improper integral is an integral that does not have a finite value.

What is a convergent improper integral?

Answer: A convergent improper integral is an integral that has a finite value.

What is the comparison test for improper integrals?

Answer: The comparison test involves comparing the integrand to a known function whose convergence or divergence is already known.

What is the limit comparison test for improper integrals?

Answer: The limit comparison test involves taking the limit of the ratio of the integrand to a known function as the limits of integration approach infinity.

What is a Type II improper integral?

Answer: A Type II improper integral occurs when the integrand is not defined for some values within the limits of integration.

How do you evaluate a Type II improper integral?

Answer: To evaluate a Type II improper integral, we split the integral into two parts at the point where the integrand is undefined and evaluate each part separately.

What is the difference between a proper and an improper integral?

Answer: A proper integral has finite limits of integration and a continuous integrand over the interval, while an improper integral has infinite limits or an integrand that is not defined for some values within the limits of integration.

How do you determine whether an improper integral converges or diverges?

Answer: To determine whether an improper integral converges or diverges, we need to evaluate the integral and check whether it has a finite value or not. We can also use comparison tests or the limit comparison test to determine convergence or divergence.