

Custom Calculus Test Problems

Problem 1

Find the derivative of: $\csc(x)$

Problem 2

Find the integral of: $\csc(x)$

Problem 3

Use U-substitution to find the integral of: $(2x + 1)^3$

Problem 4

Use integration by parts to find the integral of: xe^x

Problem 5

Find the integral of the trigonometric function: $\sin(x) \cos(x)$

Problem 6

Use trigonometric substitution to find the integral of: $\sqrt{x^2 - 1}$

Problem 7

Use partial fractions to find the integral of: $\frac{1}{x^2+1}$

Problem 8

Find the improper integral of: $\frac{1}{x^2+1}$ from 1 to ∞

Problem 9

Find the limit of: $\sin(\pi x)$ as x approaches ∞

Problem 10

Find the sum of the series: $\sum_{n=0}^{\infty} x^n$