
DIRECTIONS To receive full credit, you must provide complete legible solutions to the following problems in the space provided. Transfer all your answers to the space provided on the test paper.

1. Determine whether the integral is convergent or divergent.

$$\int_1^{\infty} \frac{\ln x}{x} dx$$

2. Determine whether the integral is convergent or divergent. If it is convergent, evaluate it.

$$\int_{-\infty}^{\infty} x^2 e^{-x^3} dx$$

3. Determine whether the integral is convergent or divergent.

$$\int_0^1 \frac{dx}{x^5}$$

4. Determine whether the integral is convergent or divergent. If it is convergent, evaluate it.

$$\int_0^9 \frac{1}{\sqrt[3]{x-1}} dx$$

5. Use the Comparison Theorem to determine whether the integral is convergent or divergent.

$$\int_0^{\infty} \frac{\tan^{-1} x}{2 + e^x} dx$$