
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. Evaluate the integral. (Use C for the constant of integration.)

a. $\int \cos x(1 + \sin^2 x) dx$ Ans _____

b. $\int \frac{\sin^3}{\cos x} dx$ Ans _____

2. Evaluate $\int_{-1}^1 \frac{e^{\tan^{-1} x}}{1+x^2} dx$ Ans _____

3. Evaluate the integral.

Ans _____

$$\int \frac{dx}{(1-x^2)^{3/2}}$$

4. Evaluate the integral

Ans _____

$$\int \sqrt{\frac{1-x}{1+x}} dx$$

5. Find the volume of the resulting solid if the region under the curve over the interval is rotated about the axis.

$$y = \sqrt{\frac{1}{1+x^2}}, \quad 0 \leq x \leq 1, \text{ about the x-axis}$$

Ans _____