
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.

Ans _____

$$\int_0^{\pi/2} 7 \sin^3 x \cos^4 x dx$$

2. Evaluate the integral.

Ans _____

$$\int_0^{\pi} \sin^2 x \cos^2 x dx$$

3. Evaluate the integral

$$\int \tan^5 x dx$$

Ans _____

4. Evaluate the integral

If $\int_0^{\pi/4} \tan^6 x \sec x dx = I$, express the value of $\int_0^{\pi/4} \tan^8 x \sec x dx$ in terms of I.

5. Set up an integral for the volume V obtained by rotating the region bounded by the given curves about the specified axis.

$$y = 3 \sin x, y = 3 \cos x, 0 \leq x \leq \pi / 4; \text{ about } y = 3.$$

Ans _____