

Practice test 1

Calculate the following integrals:

$$\int \frac{4x}{\sqrt{25 - 4x^4}} dx$$

$$\int (x \ln x)^2 dx$$

$$\int \cos^2 5x \sin^2 5x dx$$

$$\int \frac{4x^3 + 4x^2 + 2x - 10}{(x^2 + 4x + 5)(x^2 - 4x - 5)} dx$$

$$\int \frac{1}{x\sqrt{4 - 9x^2}} dx$$

Determine whether or not the improper integral converges. If it converges, find its value. If it diverges to $\pm\infty$, specify which one.

$$\int_0^\pi \sec^2 x dx$$