

Practice test 2

Calculate the following integrals:

$$\int \frac{e^{2x}}{e^{2x} + 1} dx$$

$$\int e^{2x} \cos 3x dx$$

$$\int (\sin^7 x) \sqrt{\cos x} dx$$

$$\int \frac{5x^3 + 2x^2 - 12x - 8}{x^4 - 8x^2 + 16} dx$$

$$\int \frac{1}{(x^2 + 4x + 13)^{3/2}} dx$$

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

$$\int_0^1 x \ln x dx$$