Math 1AA3/1ZB3: Week 2 Tutorial Problems

January 11, 2019

1. Evaluate the following indefinite integral.

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

2. Determine whether the following integrals converge. For each that does, compute its value. For each that does not, show why it diverges.

   (a)
   $$\int_2^\infty 2xe^{-x} dx$$

   (b)
   $$\int_0^1 \frac{\ln(x^2)}{x} dx$$

3. Use the Comparison Theorem to determine whether the following integral converges.

$$\int_0^\infty \frac{x}{e^x} dx$$