# MATH 102
# QUIZ 4B

**Name:** **ST ID** **section:**

1. Evaluate the improper integral

$$\int_{-\infty}^{\infty} \frac{1}{x^2+1} dx$$

2. Evaluate the integral

$$\int \frac{1}{x\sqrt{8x+1}} dx$$

3. Determine whether the sequence

$$a_n = \frac{e^{-n} - e^n}{1 - e^{2n}}$$

is convergent or divergent. If it converges, find the limit.

4. Show that the series

$$\sum_{n=2}^{\infty} \frac{2}{n^2 - n}$$

is convergent, and find its sum.