MATH 141: Calculus II, **Midterm Exam 2** Practice Questions

Q1. Use the **comparison test** or **limit comparison test** to determine whether the following improper integral converges or diverges. **Show your work!**

$$\int_1^{\infty} \frac{x}{x^3 + 6}\, dx$$

Q2. Use the **comparison test** or **limit comparison test** to determine whether the following improper integral converges or diverges. **Show your work!**

$$\int_{-2}^{5} \frac{1}{(x+2)^2}\, dx$$

Q3. Draw the region between the two curves $y = |x|$ and $y = x^2 - 2$ and find the area of the region. You are allowed to use the fnInt() function in a TI-84 calculator to find the value of the definite integral(s).

Q4. Draw the region bounded by the curves $y = x^2 - 2,\ y = e^x, x = -1$ and $x = 1$. And find the area of the region. You are allowed to use the fnInt() function in a TI-84 calculator to find the value of the definite integral(s).