Instructions. Put your first and last name at the top of your paper. Everyone is to do their own worksheet but only one from each group is graded with the score shared. Be sure to show your work and explain your reasoning. All worksheets from each group will be collected. This worksheet has two pages, and four problems.

1. Evaluate the indefinite integral

\[ \int \frac{z^2}{z^3 + 1} \, dz \]

Answer: \( \frac{1}{3} \ln |z^3 + 1| + C \)

2. Evaluate the indefinite integral

\[ \int \frac{\arctan x}{1 + x^2} \, dx \]

Answer: \( \frac{(\arctan x)^2}{2} + C \)

3. Evaluate the definite integral

\[ \int_0^1 xe^{-x^2} \, dx \]

Answer: \( \frac{1}{2} \left( 1 - \frac{1}{e} \right) \)
4. Evaluate the definite integral

\[ \int_{1}^{2} x\sqrt{x-1} \, dx \]

Answer: \( \frac{16}{15} \)