

Answer the following problems and simplify your answers.

1. Evaluate  $\int_0^1 x^3 \ln x \, dx$  and  $\int_0^1 \frac{x^2}{x^2 + 1} \, dx$ . Show all work!

$$\int_0^1 x^3 \ln x \, dx \quad \int_0^1 \frac{x^2}{x^2 + 1} \, dx$$