9. [10 points] Determine if the following integrals converge or diverge. If the integral converges, circle the word “converges” and give the exact value (i.e. no decimal approximations). If the integral diverges, circle “diverges”. In either case, you must show all your work and indicate any theorems you use. Any direct evaluation of integrals must be done without using a calculator.

a. [5 points] \( \int_{0}^{1} \ln(x) \, dx \)

CONVERGES

b. [5 points] \( \int_{2}^{\infty} \frac{x + \sin x}{x^2 - x} \, dx \)

CONVERGES