

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

DIVERGES

b. [5 points]  $\int_2^\infty \frac{x + \sin x}{x^2 - x} dx$

CONVERGES

DIVERGES