

11. [12 points] Determine whether the following integrals converge or diverge. If an integral converges, find its exact value (i.e., no decimal approximations) and write it in the blank provided. If it diverges, circle “DIVERGES” and explain why. In any case, **show all your work, indicating any theorems you use, and using proper syntax and notation.**

a. [6 points] $\int_0^{\infty} 2xe^{-cx} dx$, where $c > 0$ is a constant

DIVERGES

CONVERGES TO _____

b. [6 points] $\int_0^1 \frac{x}{\sqrt{x^5 + x^7}} dx$

DIVERGES

CONVERGES TO _____