

7. [7 points] Determine whether the following improper integral converges or diverges. Circle your final answer choice. Fully justify your answer including using proper notation and showing mechanics of any tests you use.

$$\int_1^{\infty} \frac{t^2 - \ln(t)}{t^4 + 8t + 10} dt.$$

Circle one:

**Converges**

**Diverges**

8. [5 points] Fully evaluate the following integral:

$$\int x \ln x dx$$

You do not need to simplify your answer.