1. Find the partial fraction decomposition of the function \[ \frac{x + 1}{x^2(x^2 + 1)}. \]

2. Evaluate \[ \int x^{-3}e^{\frac{1}{x}}dx. \]

3. Determine whether the integral is convergent or divergent. Evaluate it if it is convergent. \[ \int_{e}^{\infty} \frac{dx}{x(\ln x)^2}. \]

4. Evaluate the integral \[ \int (\cos^4 x - \sin^4 x)dx. \]

5. Find the surface area of the surface of revolution about x-axis for \( y = \sin x, \ 0 \leq x \leq \pi. \)