1) Evaluate the following integral

\[ \int \frac{x\,dx}{x^2 + 2x + 2} \quad (1) \]

hint: When the integral has an irreducible term, it is a good idea to use complete square method and appropriate trigonometric functions in order to find the solution.
2) Evaluate the following integral.

\[
\int \frac{dx}{x} \frac{1}{(\ln(x)^2 + 5\ln(x) + 4)}
\]  

(2)

3) Evaluate the following limit by using squeeze theorem

\[
\lim_{x \to \infty} e^{-x} \sin^2(x)
\]  

(3)

Hint: The solution is zero. What I need is to see how you apply that theorem in order to find the answer.