Instructions: Show Your Work!

(6 pts) 1. Let 

\[ f(x) = \frac{x^2 - x + 2}{x^3 - 1}. \]

(a) Find constants \( A, B \) and \( C \) such that

\[ f(x) = \frac{A}{x - 1} + \frac{Bx + C}{x^2 + x + 1}. \]

(b) Evaluate the integral

\[ \int f(x) \, dx. \]

(4 pts) 2. Evaluate the integral

\[ \int_{0}^{\infty} \frac{16 \tan^{-1}(x)}{1 + x^2} \, dx. \]