

Name:

Student ID:

Q1) If $y = \ln \cosh x - \frac{1}{2} \tanh^2 x$, then find $\frac{dy}{dx}$ and write your answer in terms of $\tanh x$.

Q2) Evaluate the integrals:

a) $\int \frac{dx}{x \log_{10} x}$

b) $\int \frac{\operatorname{sech} \sqrt{t} \tanh \sqrt{t}}{\sqrt{t}} dt$