

(b) What is the average of $f(x)$ on this interval? (1 pt)

Average of f on $[a, b]$ is $\frac{1}{b-a} \int_a^b f(x) dx.$

For $f(x) = \frac{e^x}{\sqrt{1-e^{2x}}}$, we get

$$\text{Average} = \frac{1}{[\ln(\frac{1}{2}) + 0]} \left(\frac{\pi}{2} - \frac{\pi}{6} \right)$$

$$= \frac{1}{-\ln(\frac{1}{2})} \left(\frac{\pi}{2} - \frac{\pi}{6} \right)$$

$$= \frac{\pi/3}{\ln 2}$$