

2.56
E4

$$\textcircled{E} \int_0^{\frac{\pi}{2}} \frac{\sin^3 x}{1+\cos x} dx = \int_0^{\frac{\pi}{2}} \frac{\sin x(1-\cos^2 x)}{1+\cos x} dx =$$

$$\int_0^{\frac{\pi}{2}} \sin x(1-\cos x) dx =$$

$$\int_0^{\frac{\pi}{2}} t dt = \frac{t^2}{2} \Big|_0^{\frac{\pi}{2}} = \frac{(1-\cos x)^2}{2} \Big|_0^{\frac{\pi}{2}}$$

$$\begin{aligned} 1-\cos x &= t \quad \text{so} \\ \sin x dx &= dt \end{aligned}$$

$$= \frac{1}{2} - 0 = \frac{1}{2}$$