

Name: _____

Evaluate $\int_0^{\frac{\pi}{2}} \frac{\cos x}{1+\sin x} dx$

$$\begin{aligned} u &= 1 + \sin x \\ du &= \cos x dx \end{aligned}$$

when $x=0$, $u=1$
 $x=\frac{\pi}{2}$, $u=2$

$$= \int_1^2 \frac{du}{u}$$

$$= [\ln|u|]_1^2$$

$$= \ln|2| - \ln|1|$$

$$= \ln 2 - \ln 1$$

$$= \ln 2$$