Math 375, Spring 2026, Quiz 16, 3/15/26 **Name:**

Prove this identity:

$$\frac{\csc(x)-1}{\csc(x)+1} = \frac{1-\sin(x)}{1+\sin(x)}$$

Ans:
LHS

$$= \frac{\frac{1}{\sin(x)}-1}{\frac{1}{\sin(x)}+1}$$

Multiply top and bottom by sin(x)

$$= \frac{\frac{1}{\sin(x)}-1}{\frac{1}{\sin(x)}+1} * \frac{\sin(x)}{\sin(x)}$$

$$= \frac{1-\sin(x)}{1+\sin(x)}$$