Quiz 6 MATH 1540 Fall 2018

Simplify the first expression in terms of the second.

$$\frac{\cos(x)}{1+\sin(x)} + \tan(x) \quad ; \quad \cos(x)$$

Soln:

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

Common denominator $\cos(x)(1+\sin x)$

$$= \frac{\cos^2(x) + (\sin(x)+\sin^2(x))}{\cos(x)(1+\sin(x))}$$

$$= \frac{[\cos^2(x)+\sin^2(x)] + \sin(x)}{\cos(x)(1+\sin(x))}$$

$\cos^2(x)+\sin^2(x)=1$

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