Bellwork Alg 2 Monday, May 13, 2019

Simplify each trigonometric expression into a single trigonometic function or constant.

1. $\dfrac{\text{Sec}x - \text{Cos}x}{\text{Sec}x}$

2. $\text{Tan}\theta\text{Sin}\theta + \dfrac{1}{\text{Sec}\theta}$

3. $\dfrac{\text{Sin}^2\theta(\text{Tan}\theta + \text{Cot}\theta)}{\text{Sec}\theta}$

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ANSWERS

Simplify each trigonometric expression into a single trigonometic function or constant.

1. $\dfrac{\text{Sec}x - \text{Cos}x}{\text{Sec}x}$

$= \dfrac{\left(\frac{1}{\cos} - \cos\right)}{\frac{1}{\cos}} \cdot \dfrac{\cos}{\cos}$

$= \dfrac{1 - \cos^2}{1}$

$= \boxed{\sin^2 x}$

2. $\text{Tan}\theta\text{Sin}\theta + \dfrac{1}{\text{Sec}\theta}$

$= \dfrac{\sin}{\cos} \cdot \sin + \dfrac{1}{\frac{1}{\cos}}$

$= \dfrac{\sin^2}{\cos} + \cos \cdot \dfrac{\cos}{\cos}$

$= \dfrac{\sin^2}{\cos} + \dfrac{\cos^2}{\cos}$

$= \dfrac{\sin^2 + \cos^2}{\cos} = \dfrac{1}{\cos}$

$= \boxed{\sec\theta}$

3. $\dfrac{\text{Sin}^2\theta(\text{Tan}\theta + \text{Cot}\theta)}{\text{Sec}\theta}$

$= \dfrac{\sin^2\left(\frac{\sin}{\cos} + \frac{\cos}{\sin}\right)}{\frac{1}{\cos}} \cdot \dfrac{\cos}{\cos}$

$= \sin^2\cos\left(\dfrac{\sin}{\cos} + \dfrac{\cos}{\sin}\right)$

$= \sin^3 + \sin\cos^2$

$= \sin\left(\sin^2 + \cos^2\right)$

$= \sin(1)$

$= \boxed{\sin\theta}$