Bellwork Alg 2 Friday, May 10, 2019

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

1. $\text{Csc}x(1 - \text{Cos}^2 x)$

2. $(\text{Sec}^2 y)(\text{Cot}^2 y)(\text{Sin}y)$

3. $\text{Cot}\theta(\text{Tan}\theta + \text{Cot}\theta)$

4. $\dfrac{\text{Sin}\theta \cdot \text{Cos}\theta}{\text{Cot}\theta}$

SHOWN BELOW IS JUST ONE OF NUMEROUS WAYS TO SIMPLIFY EACH EXPRESSION.

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ANSWERS

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

1. $\text{Csc}x(1 - \text{Cos}^2 x)$

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

$= \boxed{\sin x}$

2. $(\text{Sec}^2 y)(\text{Cot}^2 y)(\text{Sin}y)$

$= \frac{1}{\cos^2 y} \cdot \frac{\cos^2 y}{\sin^2 y} \cdot \sin y$

$= \frac{1}{\sin^2 y} \cdot \sin y$

$= \frac{1}{\sin y} = \boxed{\csc y}$

3. $\text{Cot}\theta(\text{Tan}\theta + \text{Cot}\theta)$

$= \cot\theta \cdot \tan\theta + \cot^2\theta$

$= \frac{\cos\theta}{\sin\theta} \cdot \frac{\sin\theta}{\cos\theta} + \cot^2\theta$

$= 1 + \cot^2\theta$

$= \boxed{\csc^2\theta}$

4. $\frac{\text{Sin}\theta \cdot \text{Cos}\theta}{\text{Cot}\theta}$

$= \frac{\sin\theta \cdot \cos\theta}{\frac{\cos\theta}{\sin\theta}}$

$= \sin\theta \cdot \cos\theta \cdot \frac{\sin\theta}{\cos\theta}$

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