

Adv. Alg.-Trig.
Homework #8.5

HW: Finish Ditto III

Test Monday

$$1) \tan x \cos x = \frac{1}{\csc x}$$

$$\frac{\sin x}{\cos x} \cdot \frac{\cos x}{1}$$

$$\sin x$$

$$2) \sin x \cot x = \frac{1}{\sec x}$$

$$\frac{\sin x}{1} \cdot \frac{\cos x}{\sin x}$$

$$\cos x$$

$$3) \sin \theta \sec \theta = \frac{1}{\cot \theta}$$

$$\frac{\sin x}{1} \cdot \frac{1}{\cos x}$$

$$\frac{\sin x}{\cos x}$$

$$\tan x$$

$$\frac{\sin x}{\cos x}$$

$$4) \cos x = \frac{\cot x}{\csc x}$$

$$\frac{\cos x}{\frac{\sin x}{1}}$$

$$\cos x$$

$$5) \cot x = \frac{\csc x}{\sec x}$$

$$\frac{\cos x}{\sin x}$$

$$\frac{1}{\frac{\sin x}{1}}$$

$$\frac{1}{\cos x}$$

$$\checkmark = \frac{1}{\sin x} \cdot \frac{\cos x}{1}$$

$$= \frac{\cos x}{\sin x}$$

$$\begin{array}{rcl}
 6) \frac{\sec x}{\tan x} & = & \frac{\cot x}{\cos x} \\
 \frac{\frac{1}{\cos x}}{\frac{\sin x}{\cos x}} & & \frac{\frac{\cos x}{\sin x}}{\frac{\cos x}{1}} \\
 \frac{1}{\sin x} & & \frac{1}{\sin x} \\
 \bullet & &
 \end{array}$$

$$\begin{array}{rcl}
 7) \frac{\sin x \csc x}{\tan x} & = & \cot x \\
 & & \frac{1}{\tan x} \\
 & & \frac{1}{\tan x}
 \end{array}$$

$$\begin{array}{rcl}
 8) \frac{\tan x}{\sec x} & = & \frac{\cos x}{\cot x} \\
 \frac{\frac{\sin x}{\cos x}}{\frac{1}{\cos x}} & & \frac{\cos x}{\frac{1}{\cos x}} \\
 \sin x & & \sin x
 \end{array}$$

$$\begin{array}{rcl}
 9) \frac{\sin x \csc x}{\cos x} & = & \sec x \\
 \frac{1}{\cos x} & & \frac{1}{\cos x}
 \end{array}$$

$$\begin{aligned}
 & \textcircled{1.} \frac{\sec A}{\cot A + \tan A} = \sin A \\
 & \frac{\frac{1}{\cos A}}{\frac{\cos A}{\sin A} + \frac{\sin A}{\cos A}} \\
 & \frac{\cos A \cdot \cos A}{\cos A \cdot \sin A} + \frac{\sin A \cdot \sin A}{\cos A \cdot \sin A} \\
 & \frac{\frac{1}{\cos A}}{\frac{\cos^2 A + \sin^2 A}{\sin A \cos A}} = 1 \\
 & \frac{\frac{1}{\cos A} \cdot \sin A \cos A}{\cancel{\cos^2 A} + \cancel{\sin^2 A}} = 1 \\
 & \frac{\sin A \cancel{\cos A}}{\cancel{\cos A}} = \sin A \\
 & \sin A = \sin A \quad \checkmark
 \end{aligned}$$

Ditto III

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

$$2. \frac{1 + \sin A}{\sin A} = 1 + \csc A$$

$$3. \frac{\sin A - 1}{\cos A} = \tan A - \sec A$$

$$4. 1 - \sin B \cos B \tan B = \cos^2 B$$

$$5. \frac{1 + \sec x}{\csc x} = \sin x + \tan x$$

$$6. \frac{\sin x}{1 + \cos x} + \cot x = \csc x$$

$$7. \frac{\cot^2 x}{\csc x - 1} = \frac{1 + \sin x}{\sin x}$$

$$\begin{aligned}
 & \frac{\cos^2 x}{\sin^2 x} \\
 & \frac{1}{\sin x} - \frac{1}{1} \cdot \sin x \\
 & \frac{\cos^2 x}{\sin^2 x} \\
 & \frac{1 - \sin x}{\sin x} \\
 & \frac{\cos^2 x}{\sin^2 x} \cdot \frac{\sin x}{1 - \sin x} \\
 & \frac{\cos^2 x}{\sin x(1 - \sin x)} \cdot (1 + \sin x) \\
 & \frac{\cos^2 x + \sin x \cos^2 x}{\sin x(1 - \sin^2 x)} \\
 & \frac{\cos^2 x(1 + \sin x)}{\sin x \cos^2 x} \\
 & \frac{1 + \sin x}{\sin x} = \checkmark
 \end{aligned}$$

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

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

$$8. \frac{(\sin \theta + \cos \theta)^2}{\sin \theta} = \csc \theta + 2 \cos \theta$$

HW: Ditto 3
Test on Tuesday!!

