

Warm-up: (not in notes, add to notes)

Simplify: $\cos x + \tan x \sin x$

Simplify: $\frac{1 + \sec x}{\csc x}$

Jan 23-7:27 AM

WS 7.1

21. $\frac{\pi}{2} < \theta < \frac{3\pi}{4}$ II

(c) $\cos\left(\frac{\theta}{2}\right) =$

$$\pm \sqrt{\frac{1 + \cos\theta}{2}}$$

$$= -\sqrt{\frac{1 + \frac{-4}{5}}{2}}$$

$$= -\sqrt{\frac{\frac{1}{5}}{2}} = -\sqrt{\frac{1}{5} \cdot \frac{1}{2}}$$

$$= -\sqrt{\frac{1}{10}} = -\frac{\sqrt{10}}{10}$$

$$= -\frac{1}{\sqrt{10}} = -\frac{\sqrt{10}}{10}$$

a. $\frac{7}{25}$

b. $\frac{24}{25}$

c. $-\frac{\sqrt{10}}{10}$

d. $\frac{3\sqrt{10}}{10}$

HW 7-6

2(a) $\sin\theta = -\frac{3}{5}$, $\pi < \theta < \frac{3\pi}{2}$ III

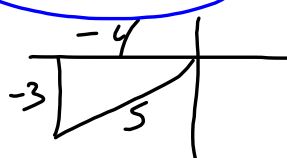
$\cos 2\theta = 1 - 2\sin^2\theta$

$$= 1 - 2\left(-\frac{3}{5}\right)^2$$

$$= 1 - 2\left(\frac{9}{25}\right)$$

$$= 1 - \frac{18}{25} = \frac{25}{25} - \frac{18}{25} = \frac{7}{25}$$

(b) $\sin 2\theta = 2\sin\theta \cos\theta$

$$= 2\left(-\frac{3}{5}\right)\left(-\frac{4}{5}\right) = \frac{24}{25}$$


Jan 17-7:16 PM

WS 7.1

21. a. $\frac{7}{25}$

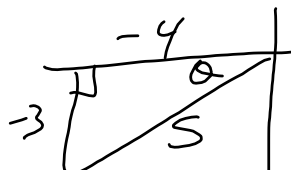
b. $\frac{24}{25}$

c. $-\frac{\sqrt{10}}{10}$

d. $\frac{3\sqrt{10}}{10}$

21) $\pi < \theta < \frac{3\pi}{2}$

$\rightarrow \sin \theta = -\frac{3}{5}$



$$\begin{aligned} \text{a) } \cos 2\theta &= 1 - 2\sin^2 \theta \\ &= 1 - 2\left(-\frac{3}{5}\right)^2 = 1 - 2\left(\frac{9}{25}\right) \end{aligned}$$

$$\begin{aligned} &= \frac{25}{25} - \frac{18}{25} = \frac{7}{25} \end{aligned}$$

$$\begin{aligned} \text{b) } \sin 2\theta &= 2\sin \theta \cos \theta = 2\left(-\frac{3}{5}\right)\left(-\frac{4}{5}\right) \\ &= \frac{24}{25} \end{aligned}$$

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7.3 HW Questions: #s1 - 10

Jan 4-12:20 PM

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

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

$$\cos x = \cos x$$

Jan 26-9:08 AM

$$(5) (\csc x - 1)(\csc x + 1) = \cot^2 x$$

$$\csc^2 x + \csc x - \csc x - 1 =$$

$$\csc^2 x - 1 =$$

$$\cot^2 x = \cot^2 x$$

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

$$1 + \cot^2 x = \csc^2 x$$

Jan 30-11:33 AM

WS 7.3

$$\begin{aligned}
 \textcircled{7} \quad & \sec^4 x - \tan^4 x = 1 + 2\tan^2 x \\
 & (\sec^2 x + \tan^2 x)(\sec^2 x - \tan^2 x) \\
 & \quad \sec^2 x + \tan^2 x \\
 & \quad \tan^2 x + 1 + \tan^2 x \\
 & \quad 2\tan^2 x + 1
 \end{aligned}$$

Jan 8-9:47 AM

$$\begin{aligned}
 \textcircled{8} \quad & \sec^2 x + \csc^2 x = \sec^2 x \csc^2 x \\
 & \frac{\sin^2 x}{\sin^2 x} \cdot \frac{1}{\cos^2 x} + \frac{1}{\sin^2 x} \cdot \frac{\cos^2 x}{\cos^2 x} \\
 & \frac{\sin^2 x + \cos^2 x}{\sin^2 x \cos^2 x} \\
 & \frac{1}{\sin^2 x \cos^2 x} \\
 & \frac{1}{\sin^2 x} \cdot \frac{1}{\cos^2 x} \\
 & \sec^2 x \cdot \csc^2 x
 \end{aligned}$$

Jan 8-9:51 AM

$$\begin{aligned}
 & \textcircled{9} \cos^2 x (\sec x + 1)^2 : (1 + \cos x)^2 \\
 & \cos^2 x (\sec x + 1)(\sec x + 1) : \\
 & \cos^2 x (\sec^2 x + 2\sec x + 1) : \\
 & \cos^2 x \sec^2 x + 2\cos^2 x \sec x + \cos^2 x : \\
 & 1 + 2\cos x + \cos^2 x : \\
 & (1 + \cos x)^2
 \end{aligned}$$

Jan 8-9:53 AM

$$\begin{aligned}
 10. (1 - \cos^2 x) \csc x &= \sin x \\
 \sin^2 x \csc x &= \\
 \frac{\sin^2 x}{1} \left(\frac{1}{\sin x} \right) &= \\
 \sin x &= \sin x
 \end{aligned}$$

$$\begin{aligned}
 \sin^2 x + \cos^2 x &= 1 \\
 \sin^2 x &= 1 - \cos^2 x
 \end{aligned}$$

Jan 7-9:15 AM



Dec 19 - 6:30 PM

Warm-up not in notes:

Simplify: $\cos x + \tan x \sin x$

$$\begin{aligned}
 &= \cos x + \frac{\sin x}{\cos x} \cdot \frac{\sin x}{1} \\
 &= \cos x \left(\frac{\cos x}{1} \right) + \frac{\sin^2 x}{\cos x} \quad \frac{1 + \sec x}{\csc x} \\
 &= \frac{\cos^2 x}{\cos x} + \frac{\sin^2 x}{\cos x} = \frac{\cos^2 x + \sin^2 x}{\cos x} \\
 &= \frac{1}{\cos x} = \sec x
 \end{aligned}$$

Jan 23-7:27 AM

Warm-up not in notes:

$$\begin{aligned} &\text{Simplify: } \frac{1 + \sec x}{\csc x} \\ &= \frac{\left(1 + \frac{1}{\cancel{\cos x}}\right)}{\left(\frac{1}{\cancel{\sin x}}\right)} \rightarrow \left(1 + \frac{1}{\cos x}\right) \cdot \frac{\sin x}{1} \\ &= \sin x + \tan x \end{aligned}$$

Jan 23-7:27 AM

1. $\tan x + \cot x = \sec x \csc x$

$$\begin{aligned} &\frac{\sin x \left(\frac{\sin x}{\cos x}\right) + \left(\frac{\cos x}{\sin x}\right) \cos x}{\sin x \cos x} = \\ &\frac{\sin^2 x + \cos^2 x}{\sin x \cos x} = \\ &\frac{1}{\sin x \cos x} = \\ &\frac{1}{\sin x} \cdot \frac{1}{\cos x} = \\ &\sec x \csc x \quad \checkmark \end{aligned}$$

Jan 4 - 7:29 AM

2. $\sec x - \tan x \sin x = \cos x$

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

$$\frac{1}{\cos x} - \frac{\sin^2 x}{\cos x}$$

$$\frac{1 - \sin^2 x}{\cos x}$$

$$\frac{\cos^2 x}{\cos x}$$

$$\cos x$$

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3. $\frac{1 + \csc x}{\sec x} = \cos x + \cot x$

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

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

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

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

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

$$\cos x + \cot x = \cos x + \cot x$$

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4. $\tan^2 x (1 + \cot^2 x) = \sec^2 x$

$$\tan^2 x \cdot \csc^2 x$$

$$\frac{\sin^2 x}{\cos^2 x} \cdot \frac{1}{\sin^2 x}$$

$$\frac{1}{\cos^2 x}$$

$$\sec^2 x$$

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

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

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

$$\frac{\sin x}{\cos^2 x + \sin^2 x}$$

$$\sin x$$

$$\sin x$$

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6. $\frac{\sin x + 1}{\sin x - 1} - \frac{\sin x - 1}{\sin x + 1} = -2 \sec^2 x$

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

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

$$\frac{\cancel{\sin x} + 1 - \cancel{\sin x} + 1}{\sin^2 x - 1} =$$

$$\frac{2}{\sin^2 x - 1} =$$

$$\frac{2}{-\cos^2 x} = -2 \sec^2 x$$

$$\cancel{\frac{2}{-\cos^2 x}} \cdot \frac{1}{\cos^2 x} = -2 \sec^2 x$$

$$\checkmark -2 \sec^2 x = -2 \sec^2 x$$

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7. $\cos^2 x - \sin^2 x = 2 \cos^2 x - 1$

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

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

$2 \cos^2 x - 1 = 2 \cos^2 x - 1$

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

Dec 28-7:57 PM

$$\begin{aligned}
 8. \quad \frac{\cot^2 x}{\csc x - 1} &= \frac{1 + \sin x}{\sin x} \\
 \frac{\frac{\cos^2 x}{\sin^2 x}}{\frac{1}{\sin x} - 1} &= \\
 \frac{\cos^2 x}{\sin x - \sin^2 x} &= \\
 \frac{1 - \sin^2 x}{\sin x (1 - \sin x)} &= \\
 \frac{(1 - \sin x)(1 + \sin x)}{\sin x (1 - \sin x)} &= \\
 \frac{1 + \sin x}{\sin x} &= \frac{1 + \sin x}{\sin x}
 \end{aligned}$$

Dec 28-7:57 PM

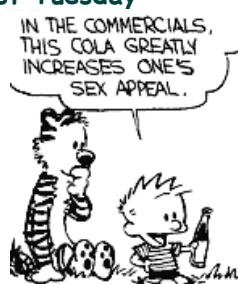
Homework 7-7: Worksheet 7.1 #22

Worksheet 7.3 #11-14

Do all homework on a separate sheet of graph paper

Graded #12 due Wednesday

Test Tuesday



Jan 4-12:21 PM

