

Warm - Up

Without a calculator.....add these fractions. Show all work :)

$$1.) \frac{8 \cdot 2}{8 \cdot 3} + \frac{5 \cdot 3}{8 \cdot 3}$$

$$\frac{16}{24} + \frac{15}{24} = \boxed{\frac{31}{24}}$$

$$2.) \frac{1}{\cos x} + \frac{\sin x \cdot \cos x}{1 \cdot \cos x}$$

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

$$\frac{1}{4} + 5$$

Chapter 7

Learning Target 4

I can verify trig proofs with
fractions/conjugates

1.)

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

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

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

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

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

$$= \sec x - \cos x$$

✓ $\frac{x}{x}$

$$2.) \frac{(1 - \cos x) \cdot 1}{(1 - \cos x)(1 + \cos x)} + \frac{1 \cdot (1 + \cos x)}{(1 - \cos x)(1 + \cos x)} = 2 \csc^2 x$$

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

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

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

$$2 \left(\frac{1}{\sin^2 x} \right) \rightarrow 2 \csc^2 x \quad \checkmark$$

3.)

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

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

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

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

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