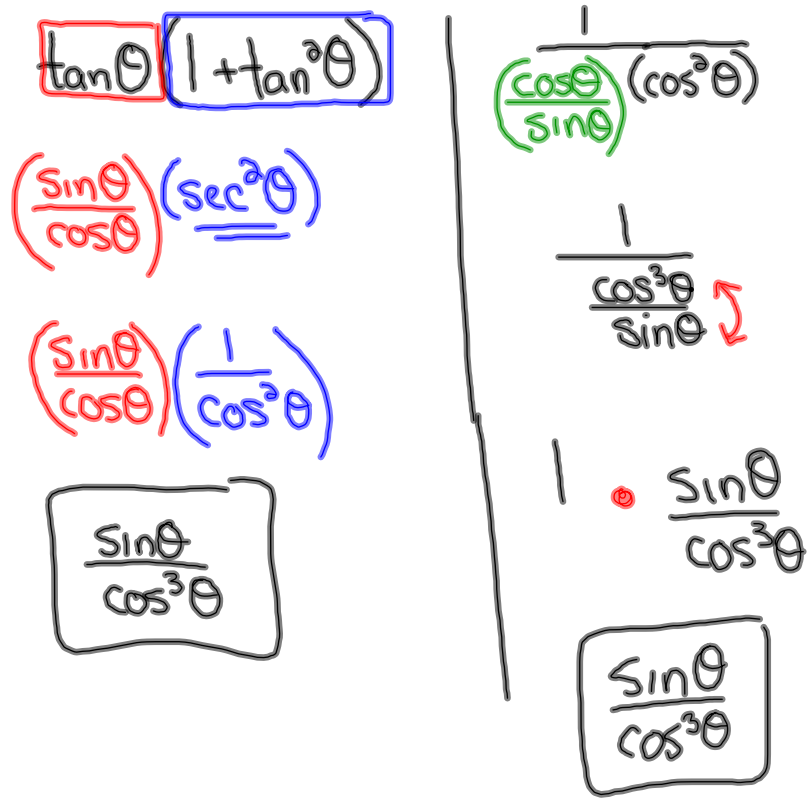
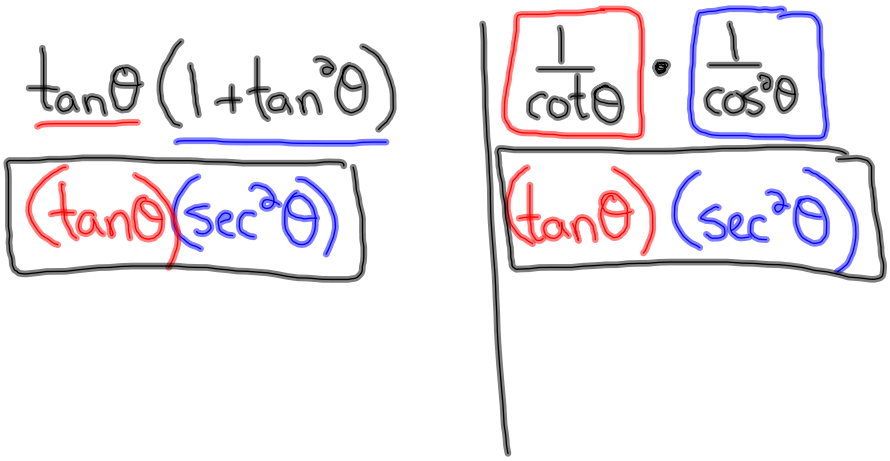
Warm Up

Prove the following identities:

$$\tan\theta + \tan^3\theta = \frac{1}{\cot\theta \cos^2\theta}$$



$$\tan\theta + \tan^3\theta = \frac{1}{\cot\theta \cos^2\theta}$$



Questions from homework

i) $(1-\cos^2\theta)(\csc^2\theta) = 1$

$(\sin^2\theta)\left(\frac{1}{\sin^2\theta}\right)$

1

j) $\tan\theta + \cot\theta = \frac{1}{\sin\theta\cos\theta}$

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

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

Pythagorean $\frac{\sin^2\theta+\cos^2\theta}{\sin\theta\cos\theta}$

$\frac{1}{\sin\theta\cos\theta}$.

k) $\tan^2\theta = \frac{1-\cos^2\theta}{1-\sin^2\theta}$

$\frac{\sin^2\theta}{\cos^2\theta}$ $\qquad$ $\frac{\sin^2\theta}{\cos^2\theta}$

$$\frac{1}{\sec^2\theta\cot\theta} = \frac{\sin\theta - \sin^3\theta}{\cos\theta}$$

$\frac{1}{\sec^2\theta} \cdot \frac{1}{\cot\theta}$

$(\cos^2\theta)(\tan\theta)$

$(\cos^2\theta)\left(\frac{\sin\theta}{\cos\theta}\right)$

$\sin\theta\cos\theta$

$\frac{\sin\theta(1-\sin^2\theta)}{\cos\theta}$

$\frac{\sin\theta(\cos^2\theta)}{\cos\theta}$

$\sin\theta\cos\theta$

Homework