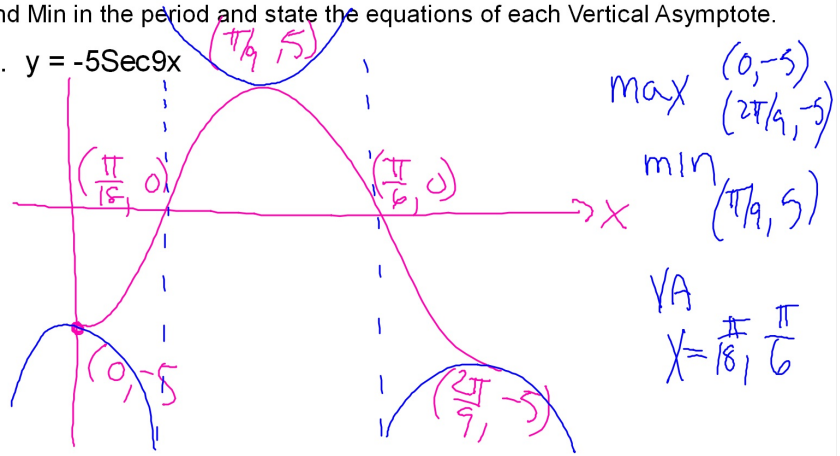
Bellwork Monday, April 28, 2014

Graph one period of this function and give the coordinates of each Max and Min in the period and state the equations of each Vertical Asymptote.

1. y = -5Sec9x



Reciprocal identities

$$\csc\theta = \frac{1}{\sin\theta} \qquad \sec\theta = \frac{1}{\cos\theta} \qquad \cot\theta = \frac{1}{\tan\theta}$$

Tangent and cotangent identities

$$\tan\theta = \frac{\sin\theta}{\cos\theta} \qquad \cot\theta = \frac{\cos\theta}{\sin\theta}$$

Pythagorean Identities

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

$1 + \cot^2\theta = \csc^2\theta$ $\quad \csc^2\theta - 1 = \cot^2\theta$ $\quad \csc^2\theta - \cot^2\theta = 1$

$1 + \tan^2\theta = \sec^2\theta$ $\quad \sec^2\theta - 1 = \tan^2\theta$ $\quad \sec^2\theta - \tan^2\theta = 1$

For 2 to 5, simplify each trigonometric expression down to a single trig function or an number.

2. $\tan\theta \cdot \sin\theta + \cos\theta = \sec\theta$

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

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

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

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

$= 1$

4. $\sec\theta \cdot \csc\theta - \cot\theta = \tan\theta$

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

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

$= \frac{\sin^{\times}}{\cos\cdot\sin} = \frac{\sin}{\cos}$

$= \tan\theta$

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

$\frac{\left(\frac{\cos}{\sin} + \frac{\sin}{\cos}\right)\cos}{\frac{1}{\cos}}$

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

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