Pre Calculus: Trig. Identities

Name _____

Date _____ Period _____

Reciprocal Identities:

$\sin(u) = \frac{1}{\csc}$ $\quad \csc(u) = \frac{1}{\sin}$

$\cos(u) = \frac{1}{\sec}$ $\quad \sec(u) = \frac{1}{\cos}$

$\tan(u) = \frac{1}{\cot}$ $\quad \cot(u) = \frac{1}{\tan}$

Quotient Identities:

$\tan(u) = \frac{\sin}{\cos}$ $\quad \cot(u) = \frac{\cos}{\sin}$

Pythagorean Identities:

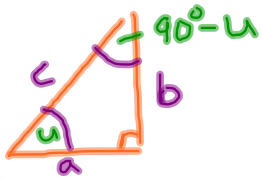
$\sin^2(u) + \cos^2(u) = 1$ $\quad 1 + \tan^2(u) = \sec^2$ $\quad 1 + \cot^2(u) = \csc^2$

or

$\sin^2(u) = 1 - \cos^2$ $\quad \tan^2(u) = \sec^2 - 1$ $\quad \cot^2(u) = \csc^2 - 1$

or

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



Cofunction Identities:

$\sin(\pi/2 - u) = \cos(u)$ $\quad \cos(\pi/2 - u) = \sin(u)$

$\csc(\pi/2 - u) = \sec(u)$ $\quad \sec(\pi/2 - u) = \csc(u)$

$\tan(\pi/2 - u) = \cot(u)$ $\quad \cot(\pi/2 - u) = \tan(u)$

Even Identities:

$\cos(-u) = \cos(u)$ $\quad \sec(-u) = \sec(u)$

Odd Identities:

$\sin(-u) = -\sin(u)$ $\quad \csc(-u) = -\csc(u)$

$\tan(-u) = -\tan(u)$ $\quad \cot(-u) = -\cot(u)$

÷ by $\cos^2$

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

$$\tan^2 + 1 = \sec^2$$

÷ by $\sin^2$

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

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