

$\theta$ Deg	$\theta$ Rad	$W(\theta)$	$\sin(\theta)$	$\cos(\theta)$	$\tan(\theta)$
$0^\circ$	0	(1,0)	0	1	0
$30^\circ$	$\frac{\pi}{6}$	$\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$
$45^\circ$	$\frac{\pi}{4}$	$\left(\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1
$60^\circ$	$\frac{\pi}{3}$	$\left(\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$
$90^\circ$	$\frac{\pi}{2}$	(0,1)	1	0	$\infty$

Right Triangle Definitions	Complement Relationships
1. $\sin(\theta) = \frac{opp}{hyp}$	1. $\sin\left(\frac{\pi}{2} - \theta\right) = \cos(\theta)$
2. $\cos(\theta) = \frac{adj}{hyp}$	2. $\cos\left(\frac{\pi}{2} - \theta\right) = \sin(\theta)$
3. $\tan(\theta) = \frac{opp}{adj}$	3. $\tan\left(\frac{\pi}{2} - \theta\right) = \cot(\theta)$
4. $\cot(\theta) = \frac{adj}{opp}$	4. $\cot\left(\frac{\pi}{2} - \theta\right) = \tan(\theta)$
5. $\sec(\theta) = \frac{hyp}{adj}$	5. $\sec\left(\frac{\pi}{2} - \theta\right) = \csc(\theta)$
6. $\csc(\theta) = \frac{hyp}{opp}$	6. $\csc\left(\frac{\pi}{2} - \theta\right) = \sec(\theta)$

Reciprocal Identities	Quotient Identities	Pythagorean Identities
1. $\sin(\theta) = \frac{1}{\csc(\theta)}$	1. $\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)}$	1. $\sin^2(\theta) + \cos^2(\theta) = 1$
2. $\cos(\theta) = \frac{1}{\sec(\theta)}$	2. $\cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)}$	2. $1 + \tan^2(\theta) = \sec^2(\theta)$
3. $\tan(\theta) = \frac{1}{\cot(\theta)}$		3. $1 + \cot^2(\theta) = \csc^2(\theta)$
4. $\cot(\theta) = \frac{1}{\tan(\theta)}$		
5. $\sec(\theta) = \frac{1}{\cos(\theta)}$		
6. $\csc(\theta) = \frac{1}{\sin(\theta)}$		

To confirm a proposed Trigonometric Identity, we work with only one side of the equation and make it look like the other side:

Prove:  $\sec x \cot x = \csc x$

Work on the left side:

$$\frac{1}{\cos x} \cdot \frac{\cos x}{\sin x} = \frac{1}{\sin x} = \csc x \quad \text{QED}$$

Assignment 139 – Page 284, #'s 6, 36, 38, 45, 50, 56, 79, 80, 81, 82, 83