



## Trigonometry Identities - Pythagorean Problem Sec to Tan (with Identity, Quadrant as Radians)



1 Using:  
 $\sec^2(\beta) = \tan^2(\beta) + 1$  Solve for tangent from secant using trig identities  
 $\pi < \beta < \frac{3\pi}{2}$

A	B
$\tan(\beta) = -4\sqrt{5}$	$\tan(\beta) = 4\sqrt{5}$

Solve:  
 $\sec(\beta) = -9$   
 $\tan(\beta) = ?$

2 Using:  
 $\sec^2(\gamma) = \tan^2(\gamma) + 1$  Solve for tangent from secant using trig identities  
 $\frac{3\pi}{2} < \gamma < 2\pi$

A	B
$\tan(\gamma) = -2\sqrt{6}$	$\tan(\gamma) = -\sqrt{34}$

Solve:  
 $\sec(\gamma) = 5$   
 $\tan(\gamma) = ?$

3 Using:  
 $\sec^2(\alpha) = \tan^2(\alpha) + 1$  Solve for tangent from secant using trig identities  
 $\frac{\pi}{2} < \alpha < \pi$

A	B
$\tan(\alpha) = \sqrt{35}$	$\tan(\alpha) = -\sqrt{35}$

Solve:  
 $\sec(\alpha) = -6$   
 $\tan(\alpha) = ?$

4 Using:  
 $\sec^2(\alpha) = \tan^2(\alpha) + 1$  Solve for tangent from secant using trig identities  
 $\frac{\pi}{2} < \alpha < \pi$

A	B
$\tan(\alpha) = -\sqrt{15}$	$\tan(\alpha) = \sqrt{15}$

Solve:  
 $\sec(\alpha) = -4$   
 $\tan(\alpha) = ?$

5 Using:  
 $\sec^2(\theta) = \tan^2(\theta) + 1$  Solve for tangent from secant using trig identities  
 $\pi < \theta < \frac{3\pi}{2}$

A	B
$\tan(\theta) = \frac{2\sqrt{6}}{\sqrt{2}}$	$\tan(\theta) = 2\sqrt{6}$

Solve:  
 $\sec(\theta) = -5$   
 $\tan(\theta) = ?$

6 Using:  
 $\sec^2(\gamma) = \tan^2(\gamma) + 1$  Solve for tangent from secant using trig identities  
 $\pi < \gamma < \frac{3\pi}{2}$

A	B
$\tan(\gamma) = \sqrt{79}$	$\tan(\gamma) = 3\sqrt{7}$

Solve:  
 $\sec(\gamma) = -8$   
 $\tan(\gamma) = ?$

7 Using:  
 $\sec^2(\beta) = \tan^2(\beta) + 1$  Solve for tangent from secant using trig identities  
 $\frac{\pi}{2} < \beta < \pi$

A	B
$\tan(\beta) = -2\sqrt{2}$	$\tan(\beta) = -4$

Solve:  
 $\sec(\beta) = -3$   
 $\tan(\beta) = ?$

8 Using:  
 $\sec^2(\beta) = \tan^2(\beta) + 1$  Solve for tangent from secant using trig identities  
 $0 < \beta < \frac{\pi}{2}$

A	B
$\tan(\beta) = 2\sqrt{6}$	$\tan(\beta) = -2\sqrt{6}$

Solve:  
 $\sec(\beta) = 5$   
 $\tan(\beta) = ?$