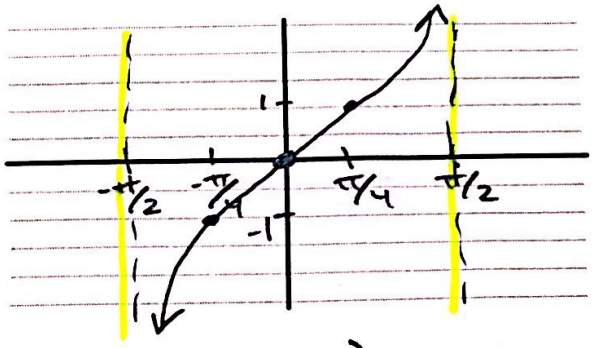
Investigating the Tangent Function

x	$y_1=\sin x$	$y_2=\cos x$	$y=\tan x$
$-\pi/2$			undef
$-\pi/4$			-1
0			0
$\pi/4$			1
$\pi/2$			undef
$3\pi/4$			
π			
$5\pi/4$			
$3\pi/2$			

Asym: $-\frac{\pi}{2}, \frac{\pi}{2}$

$-90°, 90°$



D: $(-\frac{\pi}{2}, \frac{\pi}{2})$

R: $(-\infty, \infty)$

Period: $\frac{\pi}{2} - -\frac{\pi}{2} = \frac{2\pi}{2} = \pi$

Graphing Tangent

tan, −tan

Graph 1 period and state the domain and range of that period.

$$y = -\frac{1}{2}\tan(2x)$$

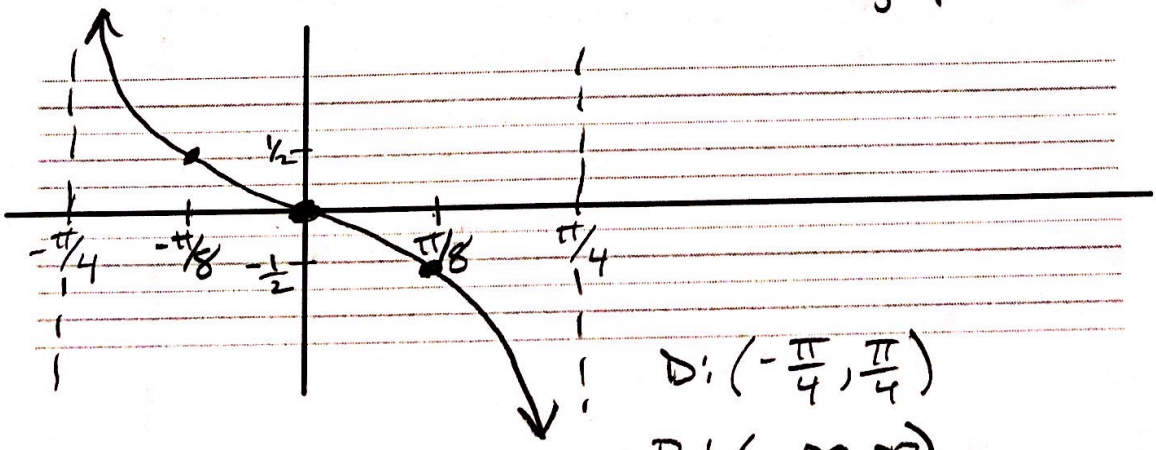
Amp $\frac{1}{2}$

VS: none

$(\frac{1}{2})2x = -\frac{\pi}{2}(\frac{1}{2})$ $(\frac{1}{2})2x = \frac{\pi}{2}(\frac{1}{2})$

$x = -\frac{\pi}{4}$ $x = \frac{\pi}{4}$

asymptotes



D: $(-\frac{\pi}{4}, \frac{\pi}{4})$

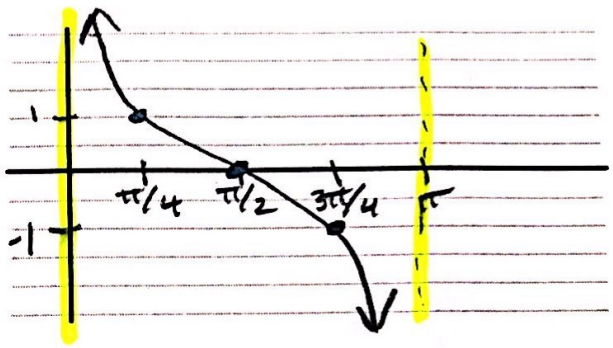
R: $(-\infty, \infty)$

Period: $\frac{\pi}{4} - -\frac{\pi}{4} = \frac{2\pi}{4} = \frac{\pi}{2}$

Investigating the Cotangent Function

x	$y_2=\cos x$	$y_1=\sin x$	$y=\cot x$
0			undef
$\pi/4$			1
$\pi/2$			0
$3\pi/4$			-1
π			undef
$5\pi/4$			
$3\pi/4$			
$7\pi/4$			
2π			

Asymptotes 0, π
0°, 180°



D: (0, π)
R: (−∞, ∞)
Period: π − 0 = π

cot −cot

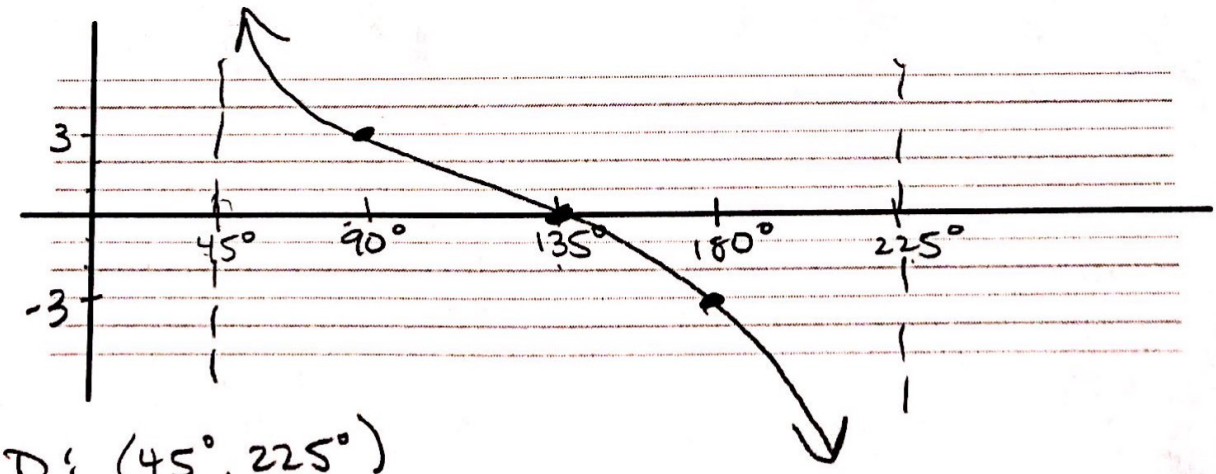
Graphing Cotangent

Graph 1 period and state the domain and range of that period.

$y=3\cot(\theta-45°)$

VS: none
amp: 3

$\theta-45°=0°$ $\theta=45°$
$\theta-45°=180°$ $\theta=225°$
asymptotes



D: (45°, 225°)
R: (−∞, ∞)
Period: 225° − 45° = 180°