Section 4.6	Graph of Tangent and Cotangent
Objective:	Given an equation of a tangent and cotangent function students will be able to graph tan x and cot x function on a coordinate plane.

Study Problems

Page 341 #1-8, 10, 21, 37-38

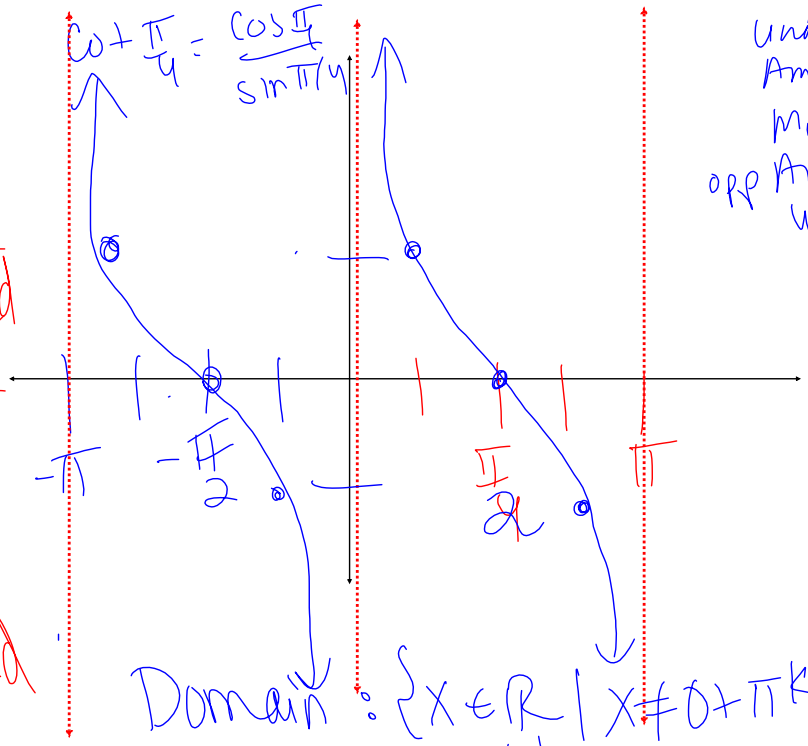
Assess: Wed 3/14
Due 3/13 Quiz Correc

Graph

$y = \cot x$

x	y
0	und
$\pi/4$	1
$\pi/2$	0
$\frac{3}{4}\pi$	-1
π	und

$\cot\frac{\pi}{4} = \frac{\cos\pi}{\sin\pi/4}$

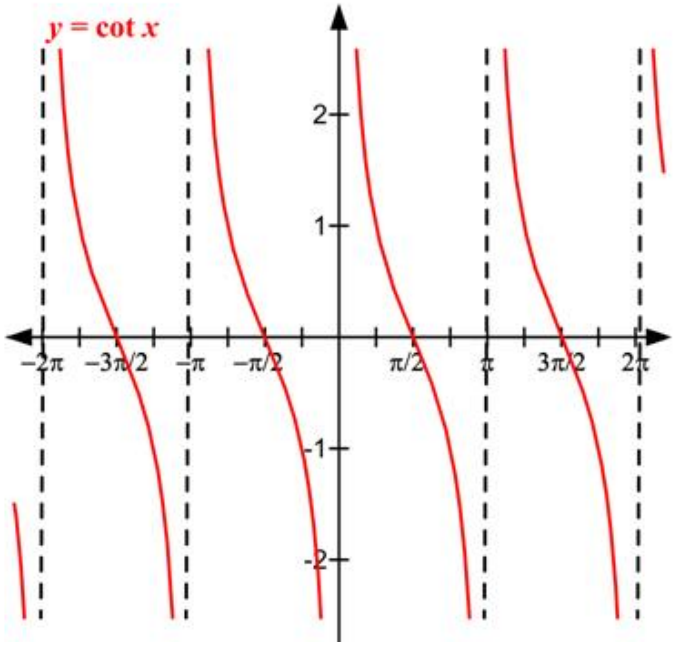


und
Amp
Mid
opp Amp
und

Domain: $\{x \in \mathbb{R} \mid x \neq 0 + \pi k$ where k is an integer$\}$

Range: $\{y \in \mathbb{R}\}$

The Graph of $y = \cot x$



Characteristics of the Cotangent Function

1. Domain:
2. Range:
3. Period:
4. Odd Function

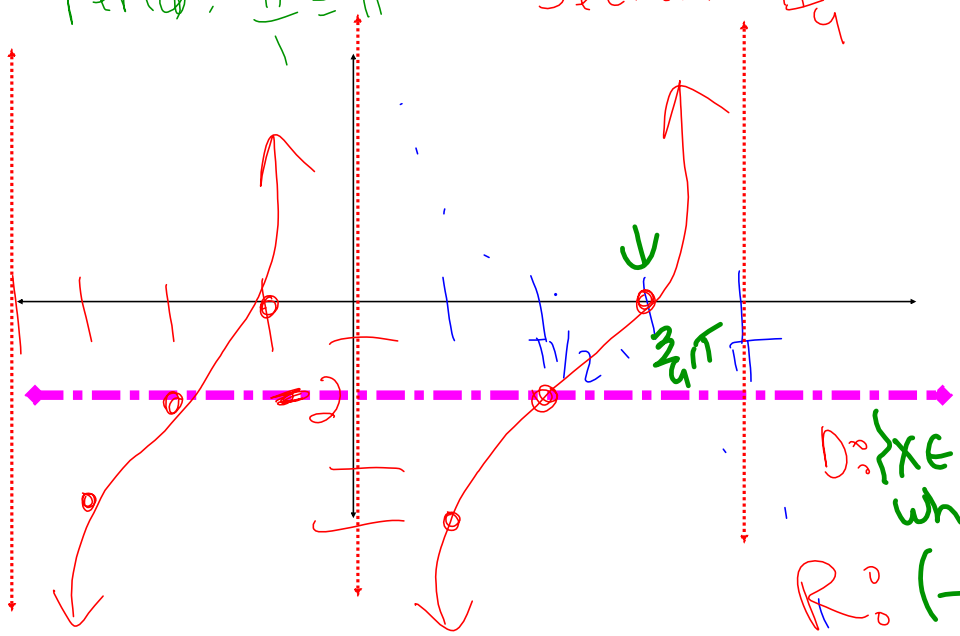
Example

Graph $y = -2 - 2\cot x = -2\cot x - 2$

Amp: 2 Midline: -2 Freq: 1 cycle in π

Period: $\frac{\pi}{1} = \pi$ Section: $\frac{\pi}{4}$

x	y
0	Und
$\pi/4$	~~0~~ -4
$\pi/2$	-2
$3\pi/4$	0
π	Und



D: $\{x \in \mathbb{R} \mid x \neq 0 + \pi k$ where k is an int$\}$

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

Graph

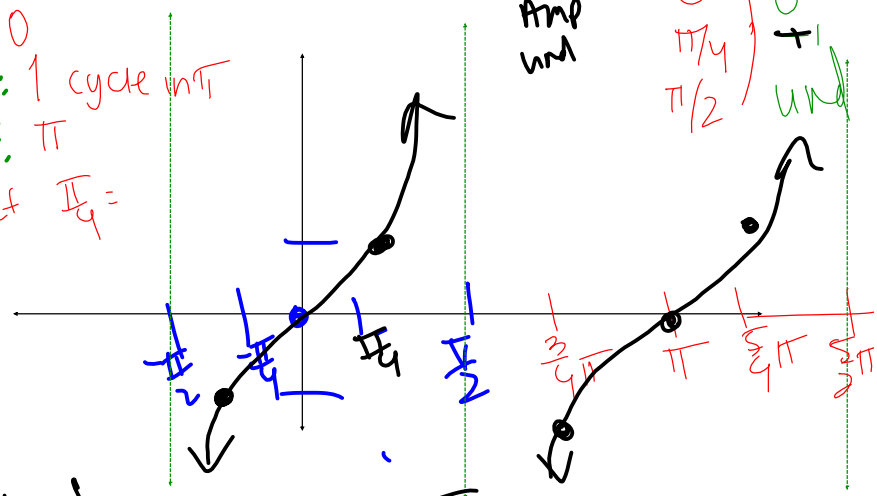
$y = \tan x$

$\tan \pi/2 = \frac{\sin \pi/2}{\cos \pi/2} = \frac{1}{0}$

Amp: 1
Mid: 0
Freq: 1 cycle in π
Per: π
Sect $\pi/4$ =

x	y
$-\pi/2$	und
$-\pi/4$	-1
0	0
$\pi/4$	$+1$
$\pi/2$	und

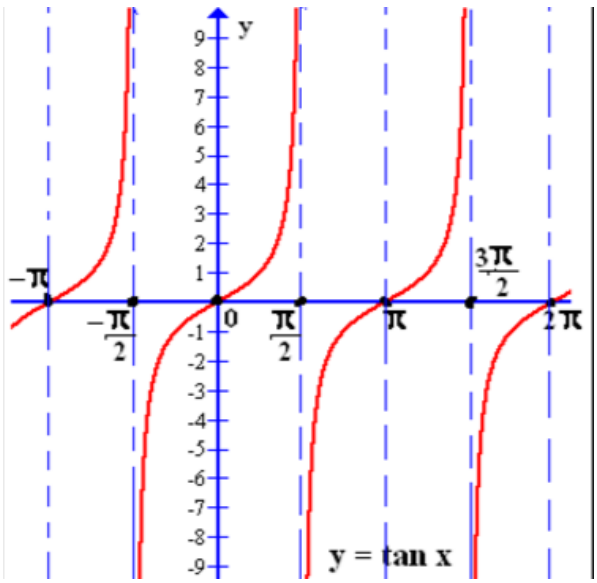
und
opp Amp
mid
Amp
und



D: $\{x \in \mathbb{R} \mid x \neq \frac{\pi}{2} + \pi k$ where k is an int.$\}$

R: $\{y \in \mathbb{R}\}$

The Graph of
y = tan x



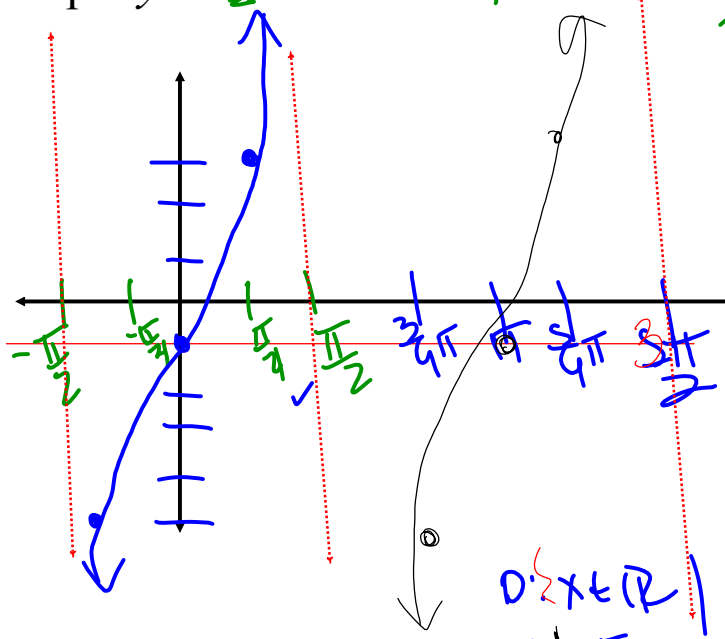
Characteristics of the Tangent Function

1. Domain:
2. Range:
3. Period:
4. Odd Function

Example

Graph $y = \cancel{-2} + 4\tan x - 1$

Amp: 4
Mid −1
freq 1 cycle in π
Per: π
Sect: π/4



x	y
−π/2	und
−π/4	−5
0	−1
π/4	3
π/2	und

D: $\{x \in \mathbb{R} \mid x \neq \frac{\pi}{2} + \pi k$ where k is an int$\}$

R: $\{y \in \mathbb{R}\}$

Example

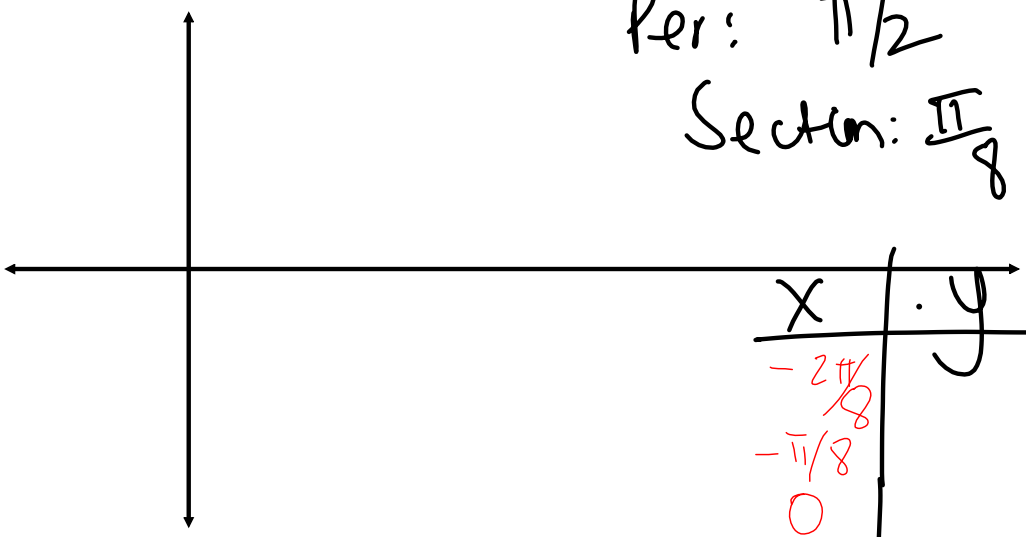
Graph $y = \tan 2x$

List x values

freq: 2 cycles in π

Per: π/2

Section: π/8



x	y
−2π/8	
−π/8	
0	
π/8	
2π/8	