

Notes

Pre-Calculus

Sec. 4.6

Graphs of the Other Trig. Functions

use

use $f(x) = \sin x$ (reciprocal)

The Graph of $f(x) = \csc x$ and Its Characteristics

set $\text{Domain: } \{x \neq n\pi, n \in \mathbb{Z}\}$

Amplitude: N/A

Range: N/A

set: $\{f(x) \mid f(x) \leq -1 \text{ or } f(x) \geq 1\}$

INT: $(-\infty, -1] \cup [1, \infty)$

Equation of the Asymptotes:

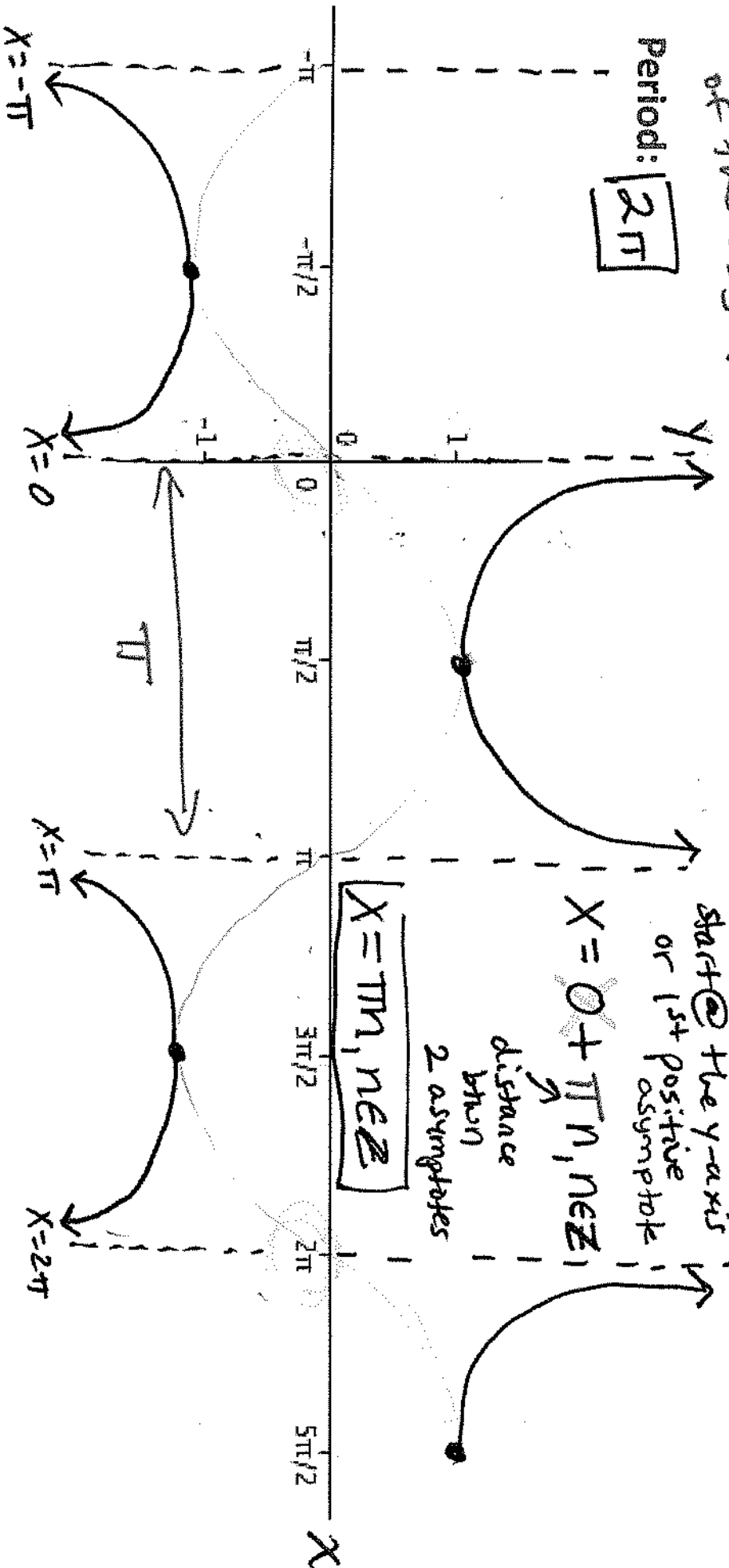
start @ the y-axis or 1st positive asymptote

$$X = 0 + \pi n, n \in \mathbb{Z}$$

distance between 2 asymptotes

$$X = \pi n, n \in \mathbb{Z}$$

Period: 2π



This graph has Origin symmetry, and is an Odd function.

$$\csc(-x) = -\csc x$$

Use $f(x) = \cos x$ (reciprocal)

The Graph of $f(x) = \sec x$ and Its Characteristics

Set: Domain:

$$\{x \mid x \neq \frac{\pi}{2} + \pi n, n \in \mathbb{Z}\}$$

Amplitude: N/A

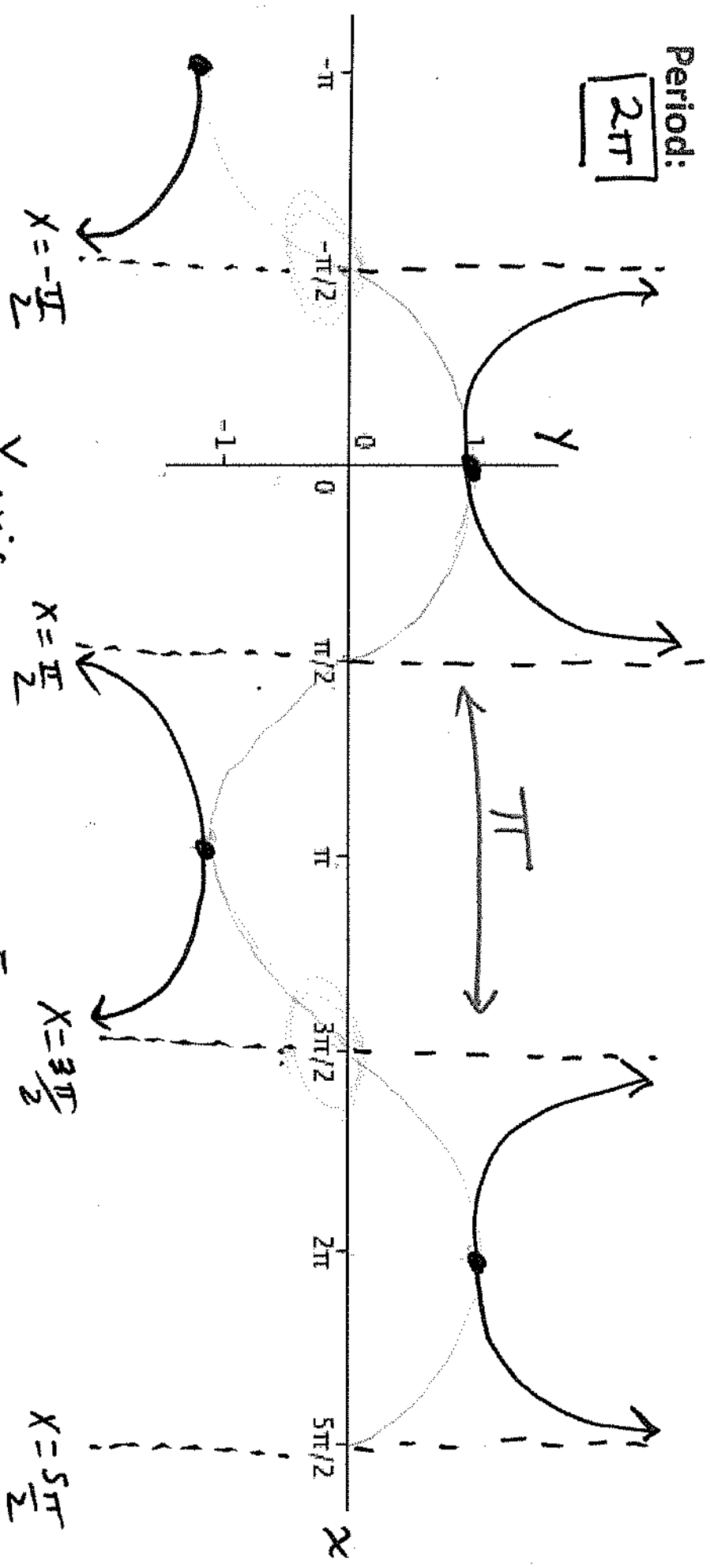
Range: $\{f(x) \mid f(x) \leq -1 \text{ or } f(x) \geq 1\}$

INT: $(-\infty, -1] \cup [1, \infty)$

Asymptotes:

$$x = \frac{\pi}{2} + \pi n, n \in \mathbb{Z}$$

Period: 2π



$$x = -\frac{\pi}{2}$$

$$x = \frac{\pi}{2}$$

$$x = \frac{3\pi}{2}$$

$$x = \frac{5\pi}{2}$$

This graph has

Y-axis

symmetry, and is an

Even function.

$$\sec(-x) = \sec x$$

set:
Domain: \mathbb{R}

$\{x \mid x \neq \frac{\pi}{2} + \pi n, n \in \mathbb{Z}\}$

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

set: $\{f(x) \mid f(x) \in \mathbb{R}\}$

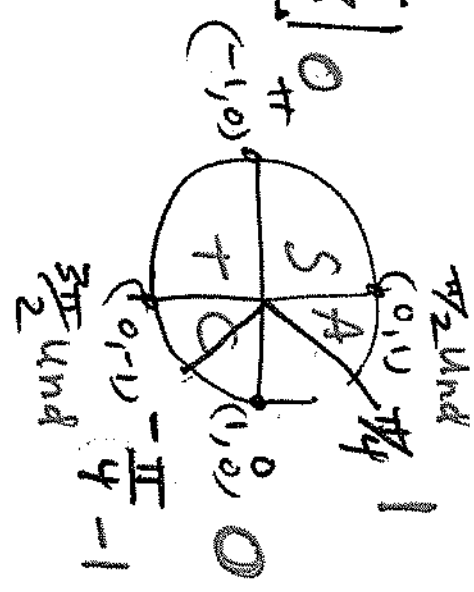
set: $(-\infty, \infty)$

Amplitude: $\frac{N/A}{N/A}$

The Graph of $f(x) = |\tan x|$

LOF

$a=1$



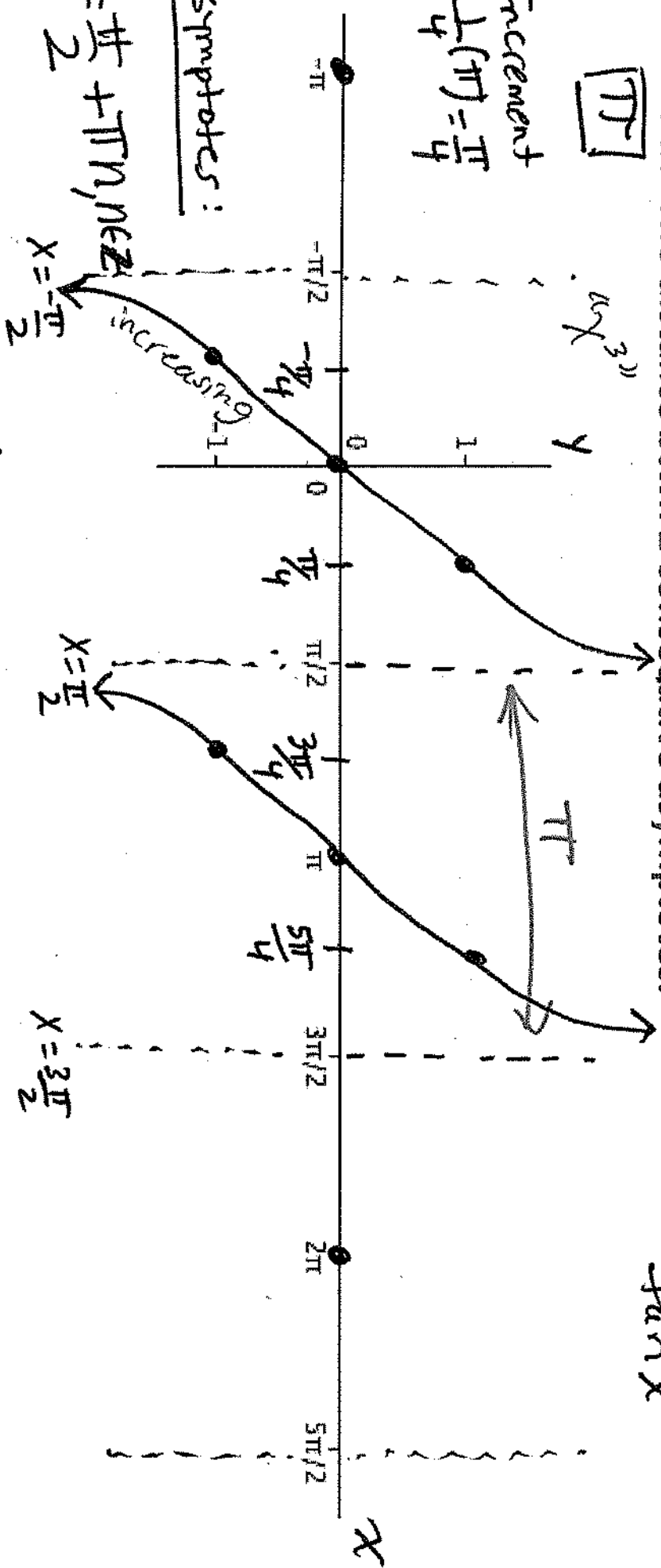
$\tan x$

Period: The distance btwn 2 consecutive asymptotes.

$\boxed{\pi}$

Increment $\frac{1}{4}(\pi) = \frac{\pi}{4}$

Asymptotes: $x = \frac{\pi}{2} + \pi n, n \in \mathbb{Z}$



This graph has Origin symmetry, and is an Odd function.

$\tan(-x) = -\tan x$

