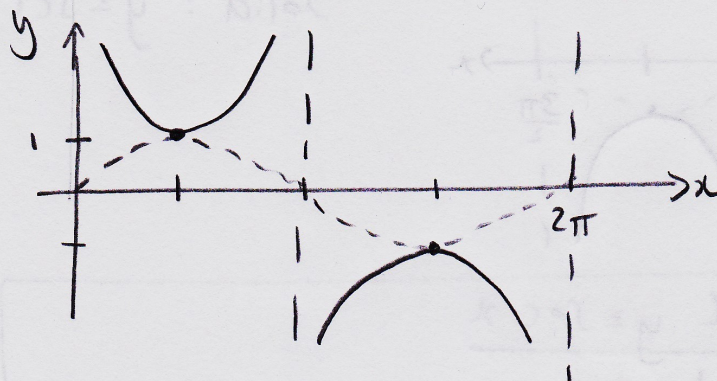


7.7 Graphs of other Trig Function

P.1

$$\csc x = \frac{1}{\sin x}$$



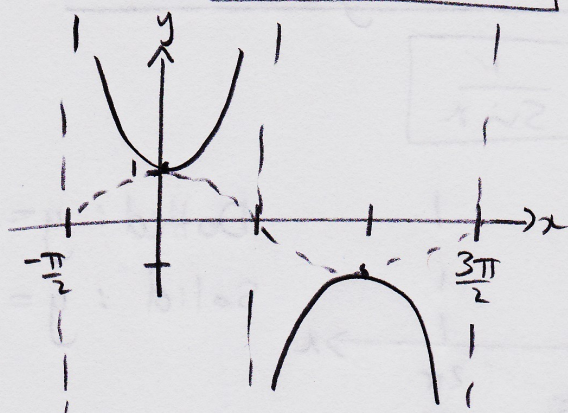
Dotted: $y = \sin x$

Solid: $y = \csc x$

Properties of $y = \csc x$

- 1) Period = 2π
- 2) V.A. at $x = \dots, -\pi, 0, \pi, \dots$
- 3) Range: $y \leq -1$ and $y \geq 1$
 $|y| \geq 1$

$$\sec x = \frac{1}{\cos x}$$



Dotted : $y = \cos x$

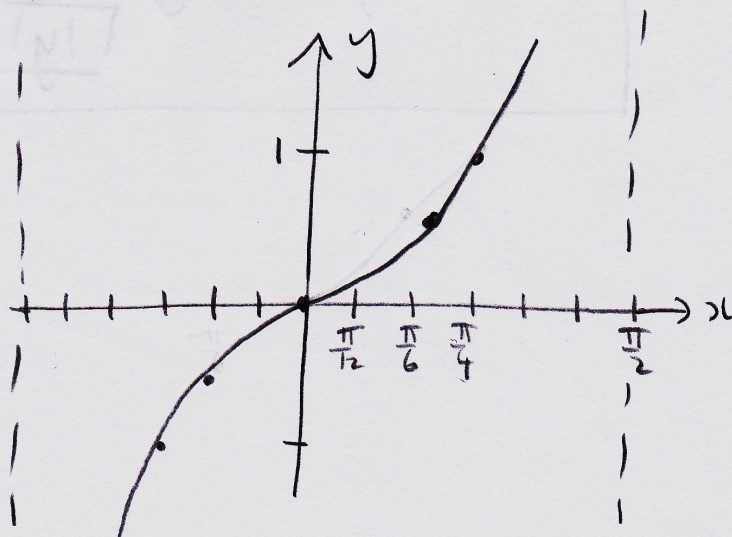
Solid : $y = \sec x$

Properties of $y = \sec x$

- 1) Period = 2π
- 2) V.A. at $x = \dots, -\frac{\pi}{2}, \frac{\pi}{2}, \frac{3\pi}{2}, \dots$
- 3) Range $|y| \geq 1$

Ex: Graph $y = \tan x$

x	y
$-\pi/2$	undefined
$-\pi/4$	-1
$-\pi/6$	$-\frac{1}{\sqrt{3}} \approx -0.6$
0	0
$\pi/6$	$\frac{1}{\sqrt{3}} \approx 0.6$
$\pi/4$	1
$\pi/2$	undefined



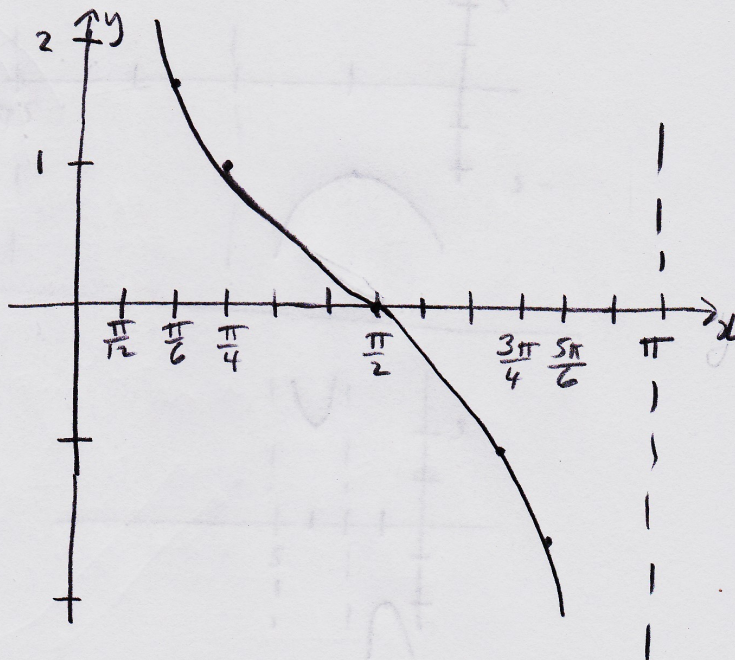
Properties of $y = \tan x$

p.3

- 1) Period = π
- 2) V.A. at $x = \dots, -\frac{\pi}{2}, \frac{\pi}{2}, \dots$
- 3) Range: $-\infty < y < \infty$

Ex: Graph $y = \cot x$

x	y
0	undefined
$\pi/6$	$\sqrt{3} \approx 1.7$
$\pi/4$	1
$\pi/2$	0
$3\pi/4$	-1
$5\pi/6$	$-\sqrt{3} \approx -1.7$
π	undefined

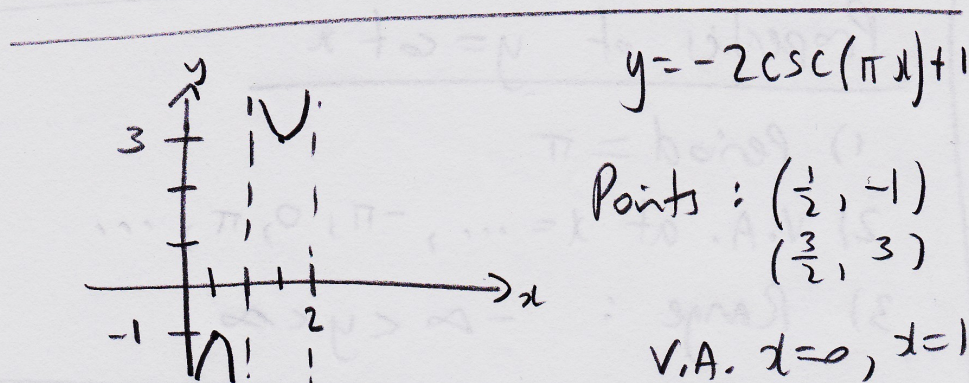
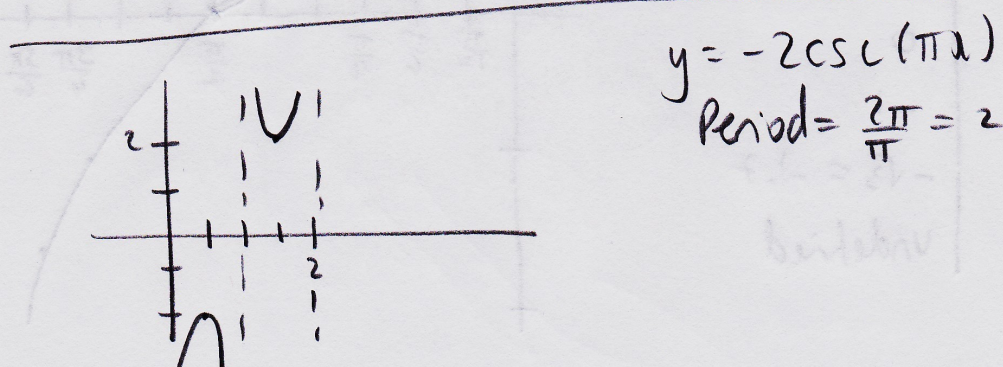
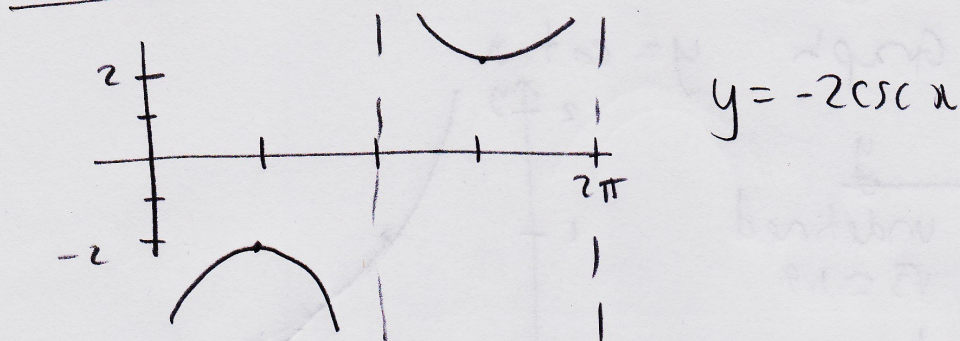
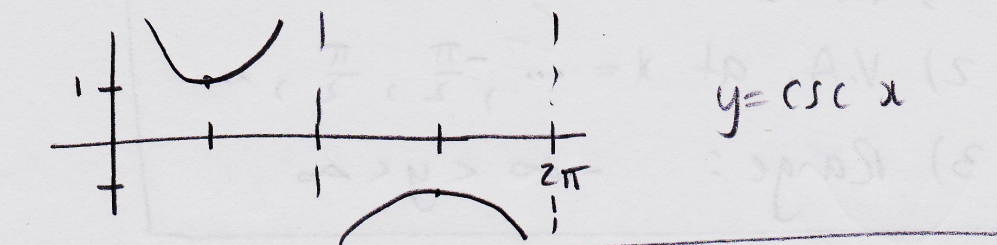


Properties of $y = \cot x$

- 1) Period = π
- 2) V.A. at $x = \dots, -\pi, 0, \pi, \dots$
- 3) Range: $-\infty < y < \infty$

Ex: Graph $y = -2\csc(\pi x) + 1$
 Label 2 points and 2 V.A.

P. 4



$$y = -2\csc(\pi x) + 1$$

Points : $(\frac{1}{2}, -1)$
 $(\frac{3}{2}, 3)$

V.A. $x = 1, x = 2$