

GRAPHING OTHER TRIG FUNCTIONS

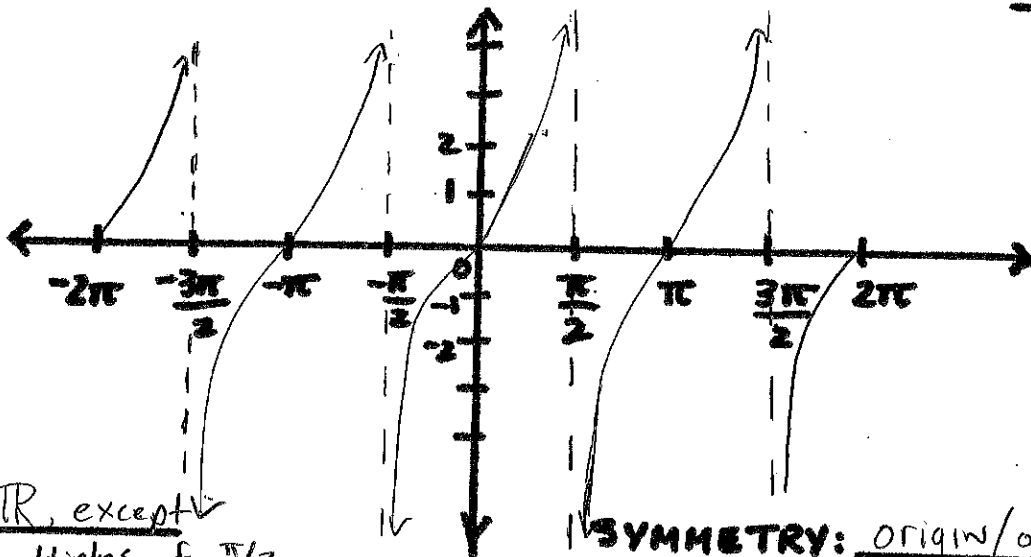
① THE TANGENT FUNCTION

$y = \tan x$

NAME: _____

MOD: _____

* increasing from left to right



DOMAIN: \mathbb{R} , except odd multiples of $\pi/2$

RANGE: \mathbb{R}

PERIOD: π

ASYMPTOTES: $-\frac{3\pi}{2}, -\frac{\pi}{2}, \frac{\pi}{2}, \frac{3\pi}{2}, \dots$
 $\frac{\pi}{2} + k\pi$

SYMMETRY: origin/odd function

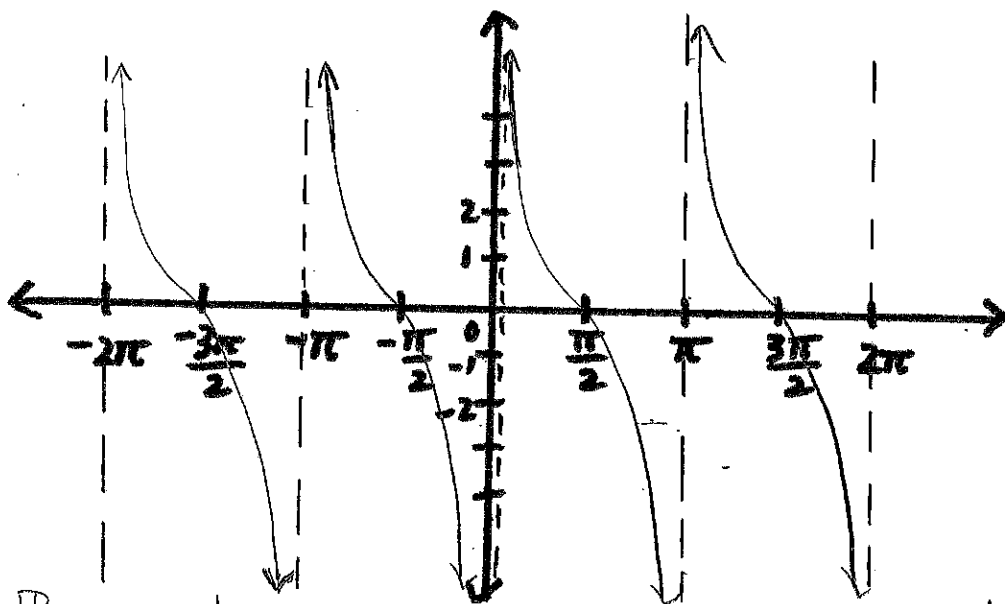
X INTERCEPTS: $-2\pi, -\pi, 0, \pi, 2\pi, \dots$
 $x = k\pi$

Y INTERCEPT: 0

② THE COTANGENT FUNCTION

$y = \cot x$

* decreasing from left to right



DOMAIN: \mathbb{R} , except multiples of π (including '0')

RANGE: \mathbb{R}

PERIOD: π

ASYMPTOTES: $-2\pi, -\pi, 0, \pi, 2\pi, \dots, k\pi$

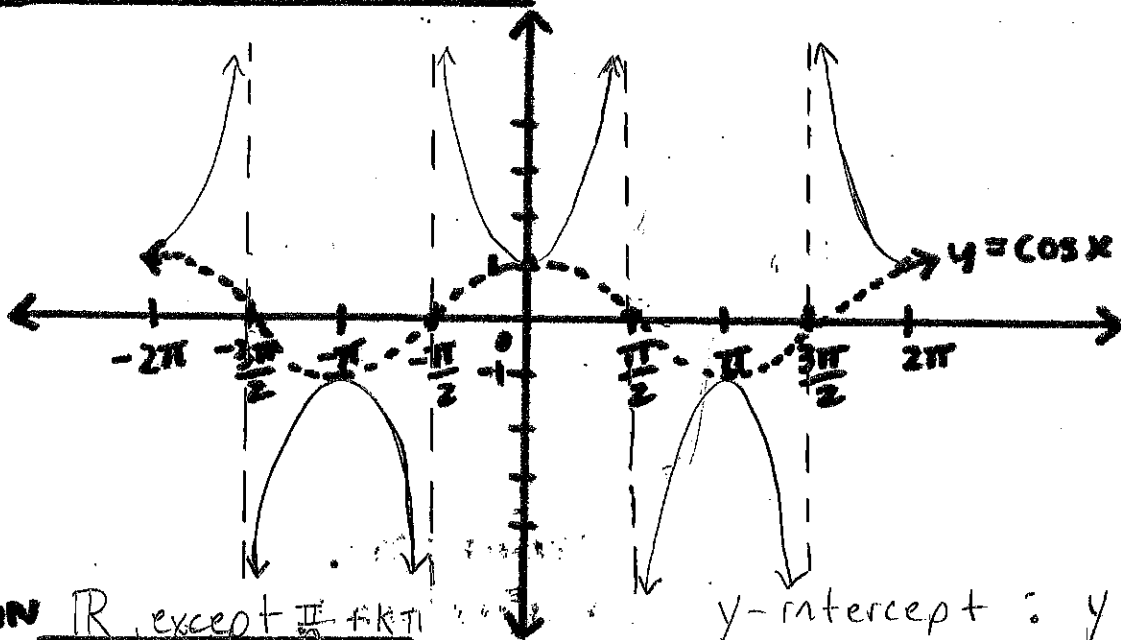
SYMMETRY: origin/odd function

X INTERCEPTS: $-\frac{3\pi}{2}, -\frac{\pi}{2}, \frac{\pi}{2}, \frac{3\pi}{2}, \dots$
 $\frac{\pi}{2} + k\pi$

Y INTERCEPT: NONE
(unless there is a horizontal shift)

SEC 5-5 GRAPHING OTHER TRIG FUNCTIONS

③ THE SECANT FUNCTION $y = \sec x$



DOMAIN \mathbb{R} , except $\frac{\pi}{2} + k\pi$

RANGE $(-\infty, -1] \cup [1, \infty)$

PERIOD 2π

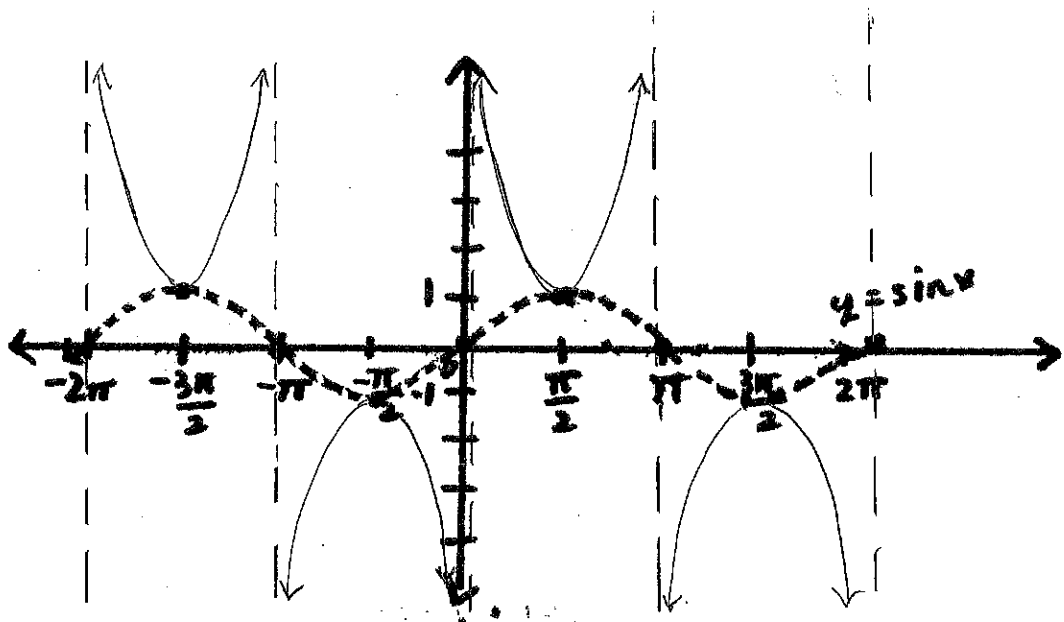
ASYMPTOTES vertical $[x = \frac{\pi}{2} + k\pi]$

y-intercept : $y = 1$

x-intercept : NONE, unless there is a vertical shift

Symmetry : y-axis / even function

④ THE COSECANT FUNCTION $y = \csc x$



DOMAIN \mathbb{R} , except $k\pi$

RANGE $(-\infty, -1] \cup [1, \infty)$

PERIOD 2π

ASYMPTOTES $-2\pi, -\pi, 0, \pi, 2\pi, \dots$
 $x = k\pi$

y-intercept : NONE (unless horizontal shift)

x-intercept : NONE (unless vertical shift)

Symmetry : origin / ODD