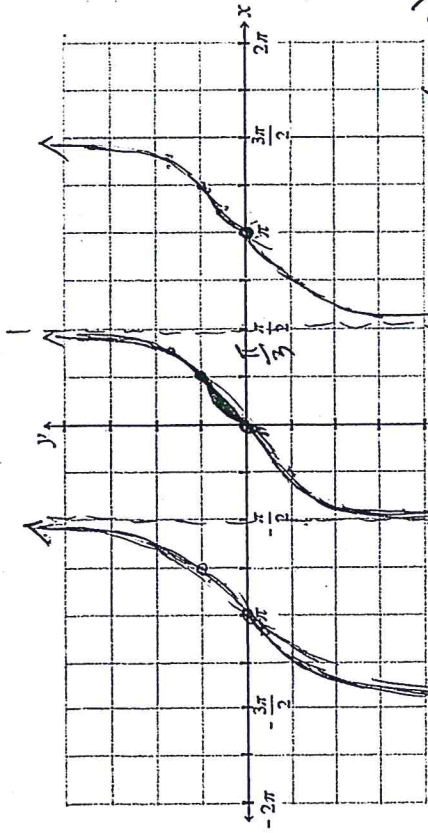


Section 4.6 Precalculus/Trig

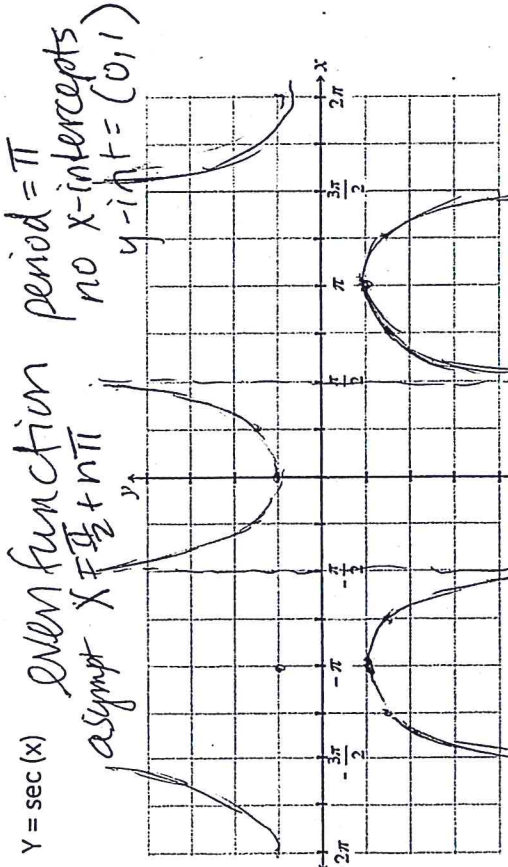
Graphs trig functions that are not continuous. Notice location of the vertical asymptotes. Name _____

1. $Y = \tan(x)$



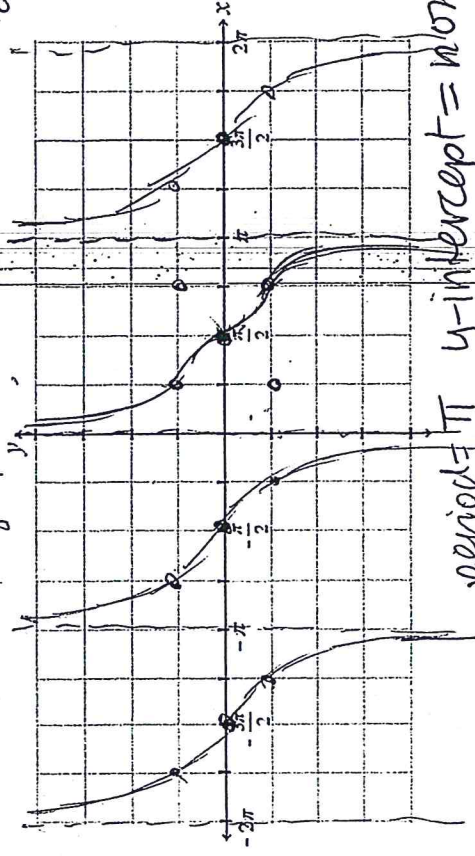
odd function
 180° point symmetric
 around origin y -int = 0
 period = π
 x -int = $(n\pi, 0)$
 asymptotes $(\frac{\pi}{2} + n\pi = x)$

2. $Y = \sec(x)$



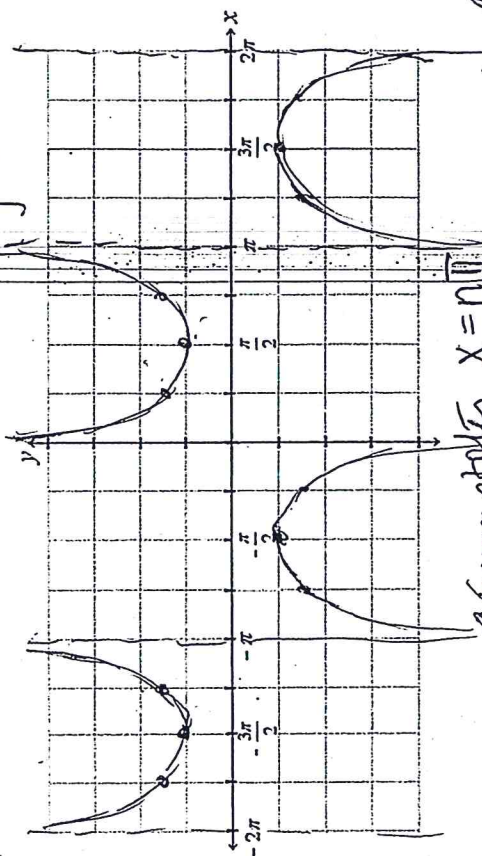
even function
 asympt $x = \frac{\pi}{2} + n\pi$
 period = π
 no x-intercepts
 y -int = $(0, 1)$
 domain all real #s except $\frac{\pi}{2} + n\pi$
 range $(-\infty, -1] \cup [1, \infty)$

3. $Y = \cot(x)$



neither odd nor even
 zeroes $(\frac{\pi}{2} + n\pi, 0)$
 asymptotes $x = n\pi$
 period = π
 y -intercept = none

4. $Y = \csc(x)$



odd function
 zeroes - none
 y -int - none
 asymptotes $x = n\pi$
 period = π
 domain - all real #s except $n\pi$
 range $(-\infty, -1] \cup [1, \infty)$

FUNCTION	GRAPH	LOCATION OF ASYMPTOTES	DOMAIN	RANGE	TYPE OF SYMMETRY	EVEN or ODD	PERIOD	CONTINUOUS/ DISCONTINUOUS
$y = \sin x$ $= \cos(x - \frac{\pi}{2})$		none	$(-\infty, \infty)$	$[-1, 1]$	180° rotational symmetry (point around origin)	odd	2π	continuous
$y = \cos x$ $= \sin(x + \frac{\pi}{2})$		none	$(-\infty, \infty)$	$[-1, 1]$	reflects across y-axis	even	2π	continuous
$y = \tan x$		$x = \frac{\pi}{2} + n\pi$	all real #s except $\frac{\pi}{2} + n\pi$	$(-\infty, \infty)$	neither	even odd	π	discontinuous
$y = \csc x$		$x = n\pi$	all real #s except $n\pi$	$(-\infty, -1] \cup [1, \infty)$	odd 180° rotational around (0,0)	odd	π	
$y = \sec x$		$x = \frac{\pi}{2} + n\pi$	all real #s except $\frac{\pi}{2} + n\pi$	$(-\infty, -1] \cup [1, \infty)$	even y-axis is line of symmetry	even	π	
$y = \cot x$		$x = n\pi$	all real #s except $n\pi$	$(-\infty, \infty)$	neither	even odd	π	