

Graph

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

vertical shift: \emptyset

Int/Inc: $\frac{2\pi}{4}$

amplitude: 1

Max: 1

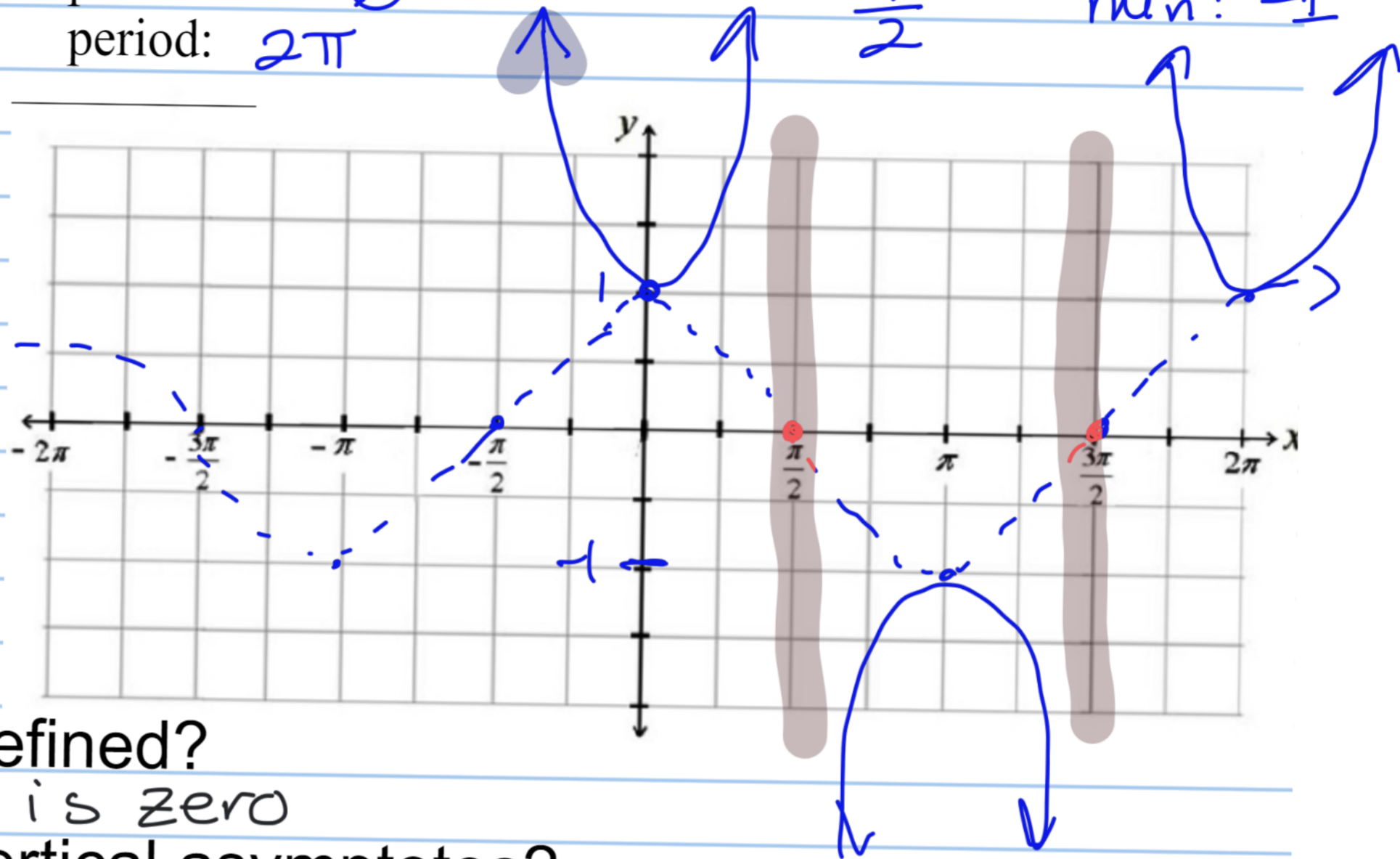
phase shift: \emptyset

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

min: -1

period: 2π

x	
0	1
$\pi/2$	\emptyset
π	-1
$3\pi/2$	\emptyset
2π	1



Where will it be undefined?

where $\cos x$ is zero

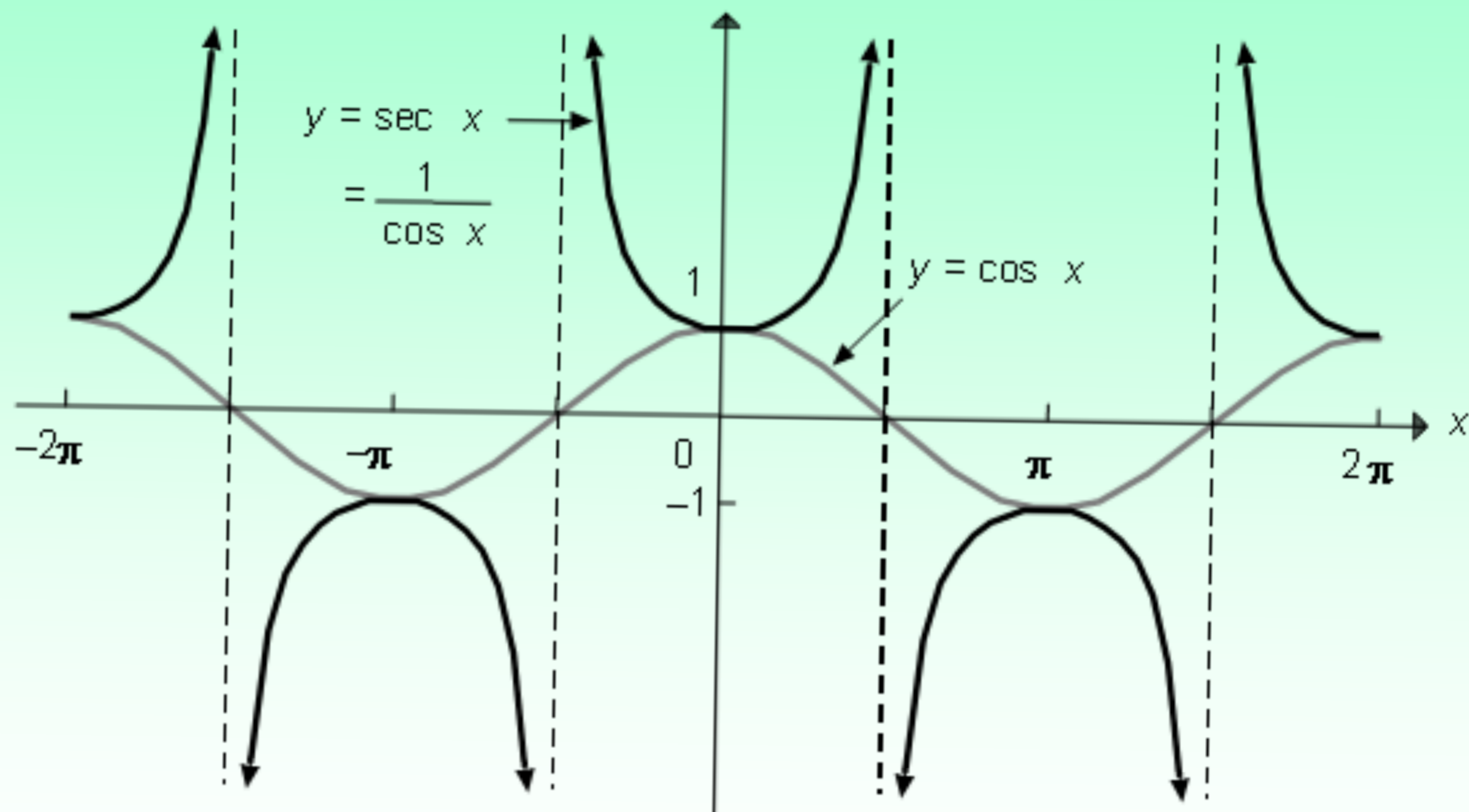
Where will it have vertical asymptotes?

Domain $x = \frac{k\pi}{2}$ where k is an odd integer-

Range $\{x \in \mathbb{R} \mid x \neq \frac{k\pi}{2} \text{ where } k \text{ is odd integer}\}$

$\{y \in \mathbb{R} \mid y \geq 1, y \leq -1\}$

Graph of $y = \sec x$



Period: 2π

Domain: All real numbers except $\pi/2 + k\pi$, k an integer

Symmetric with respect to the y axis

Discontinuous at $x = \pi/2 + k\pi$, k an integer

Range: All real numbers y such that $y \leq -1$ or $y \geq 1$

Example Graph

$$y = 4 \sec\left(x + \frac{\pi}{4}\right)$$

cos x

vertical shift: 0

amplitude: 4

phase shift: $\frac{\pi}{4}$

period: 2π

Inc: $\frac{2\pi}{4} = \frac{\pi}{2}$

x	New	
0	$-\frac{\pi}{4}$	4
$\frac{2\pi}{4} = \frac{\pi}{2}$	$\frac{\pi}{4}$	0
$\frac{4\pi}{4} = \pi$	$\frac{3\pi}{4}$	-4
$\frac{6\pi}{4} = \frac{3\pi}{2}$	$\frac{5\pi}{4}$	0
$\frac{8\pi}{4} = 2\pi$	$\frac{7\pi}{4}$	4

