

Section 2.6

Graphing Tangent and Cotangent Functions

Graphing Secant and Cosecant Functions

Identify the **period** and **asymptotes** of an equation.

$y = a \tan bx$

period = $\frac{\pi}{b}$

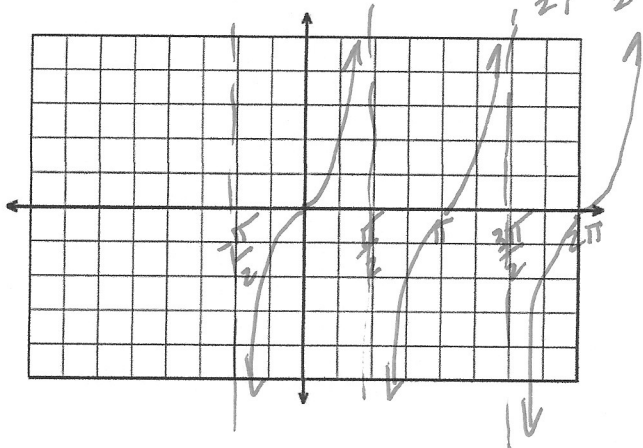
$\tan(x) = \frac{\sin(x)}{\cos(x)}$

$y = \tan x$

Zeros: $0, \pi, 2\pi$

Period: π

Asymptotes: $\frac{\pi}{2}, \frac{3\pi}{2}$

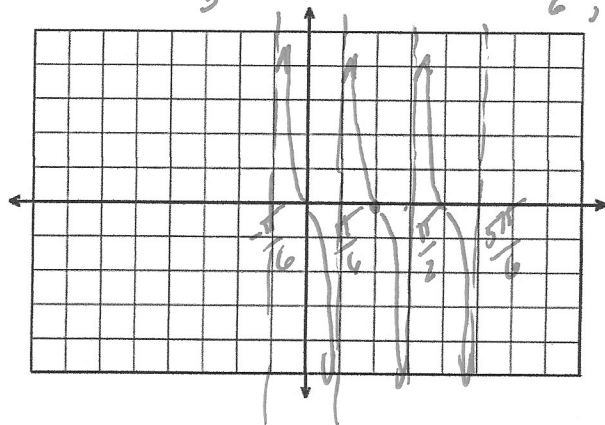


30. $y = -3 \tan 3x$

Zeros: $0, \frac{\pi}{3}, \frac{2\pi}{3}$

Period: $\frac{\pi}{3}$

Asymptotes: $\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}$



$y = a \cot bx$

period = $\frac{\pi}{b}$

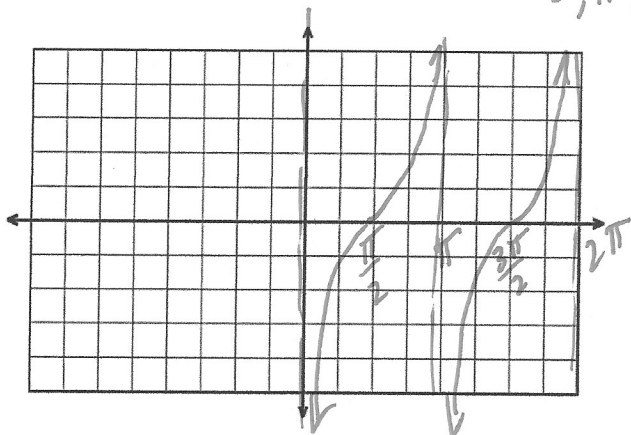
$\cot(x) = \frac{\cos(x)}{\sin(x)}$

$y = \cot x$

Zeros: $\frac{\pi}{2}, \frac{3\pi}{2}$

Period: π

Asymptotes: $0, \pi, 2\pi$

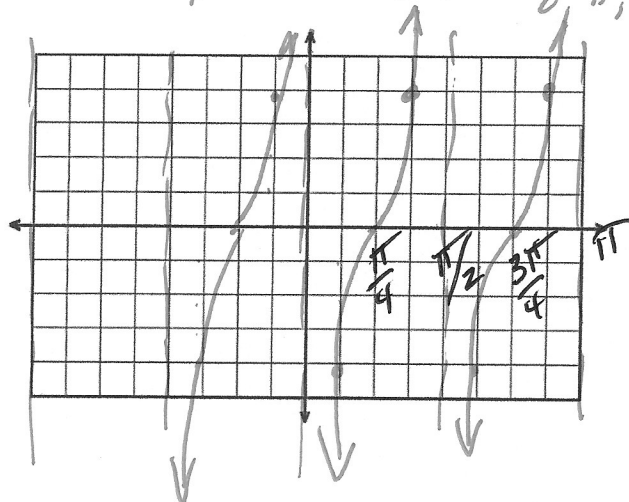


24. $y = 4 \cot x$

Zeros: $\frac{\pi}{2}, \frac{3\pi}{2}$

Period: π

Asymptotes: $0, \pi, 2\pi$



$$y = a \sec bx$$

$$\text{period} = \frac{2\pi}{b}$$

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

$$y = \sec x$$

Max or Min: $0, \pi, 2\pi$ 26.

$$y = \frac{3}{4} \sec x$$

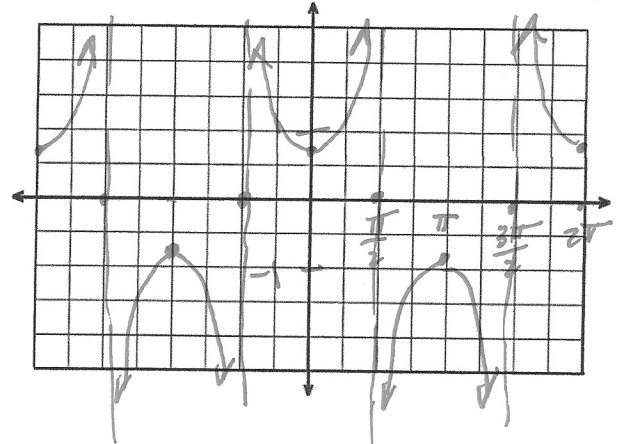
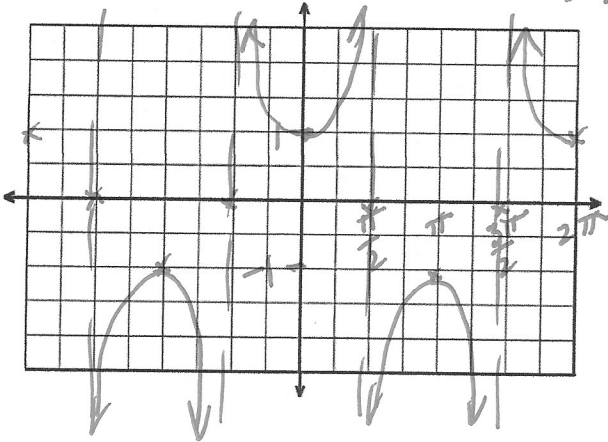
Max or Min: $0, \pi, 2\pi$

Period: 2π

Asymptotes: $\frac{\pi}{2}, \frac{3\pi}{2}$

Period: 2π

Asymptotes: $\frac{\pi}{2}, \frac{3\pi}{2}$



$$y = a \csc bx$$

$$\text{period} = \frac{\pi}{b}$$

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

$$y = \csc x$$

Max or Min: $\frac{\pi}{2}, \frac{3\pi}{2}$

28. $y = 2 \csc x$

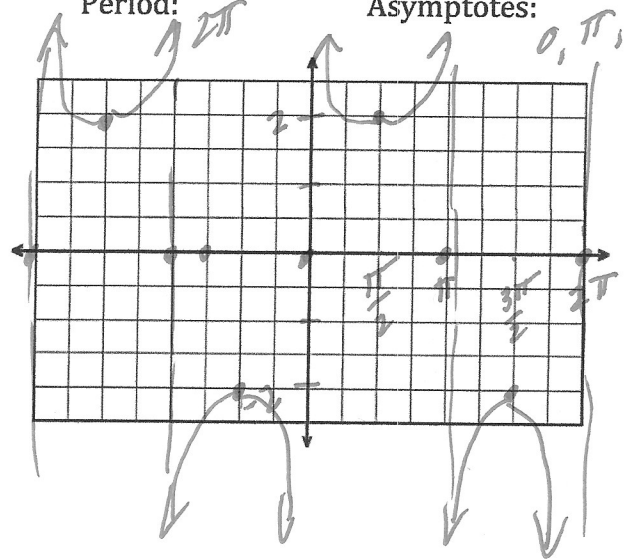
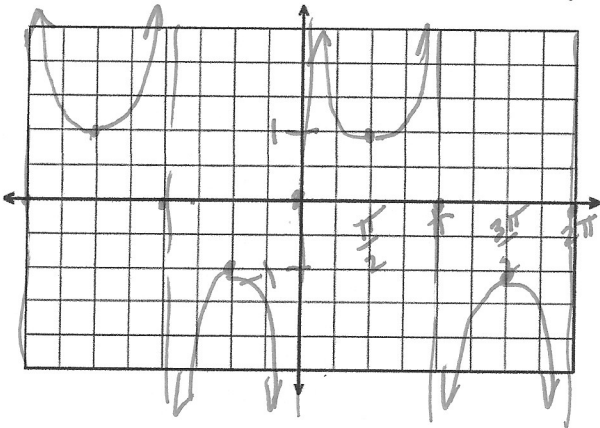
Max or Min: $\frac{\pi}{2}, \frac{3\pi}{2}$

Period: 2π

Asymptotes: $0, \pi, 2\pi$

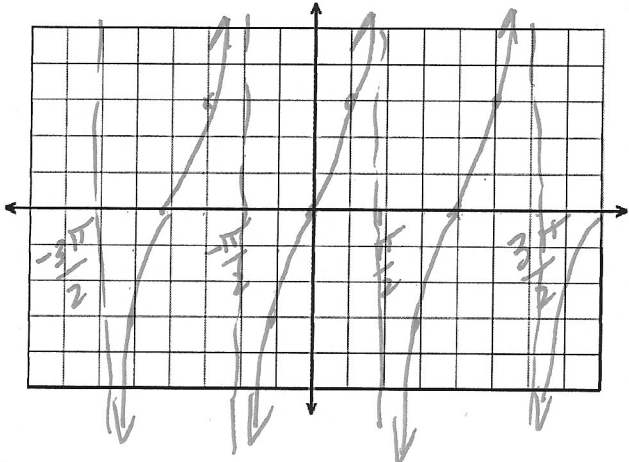
Period: 2π

Asymptotes: $0, \pi, 2\pi$



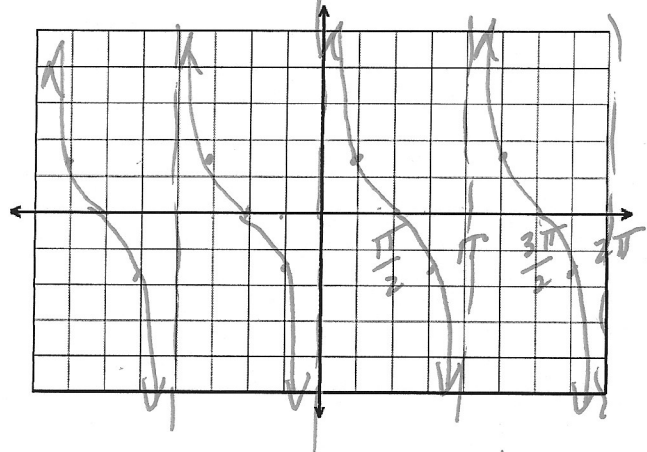
21. $y = 3 \tan x$

$\rho = \pi$



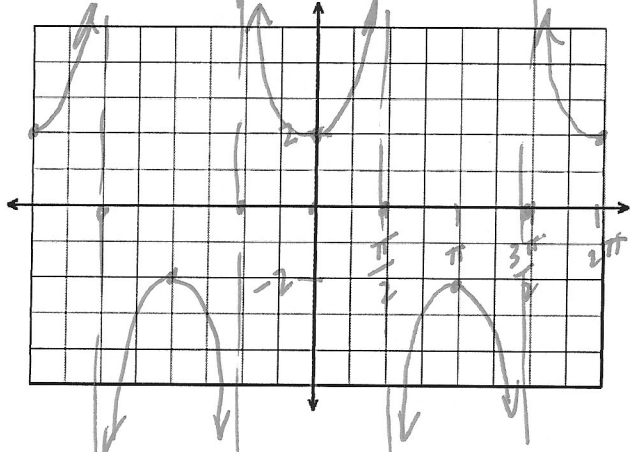
23. $y = \frac{3}{2} \cot x$

$\rho = \pi$



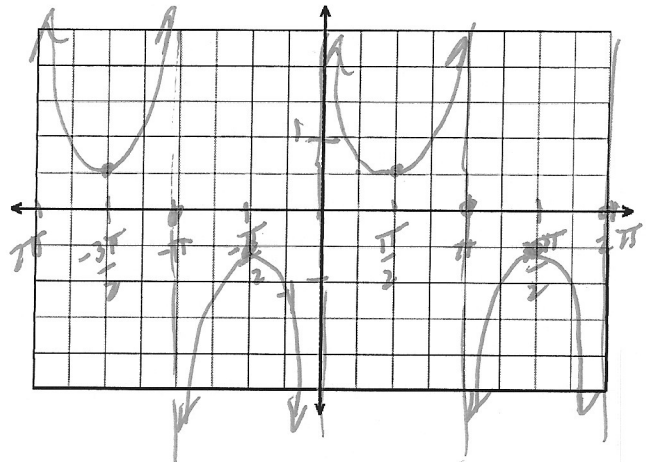
25. $y = 2 \sec x$

$\rho = 2\pi$



27. $y = \frac{1}{2} \csc x$

$\rho = 2\pi$



39. $3 \tan 2\pi x$

$\rho = \frac{\pi}{2\pi} = \frac{1}{2}$

