7-5 Additional Practice

Graphing Other Trigonometric Functions

Sketch the graph over the region -2π to 2π. Describe the domain, range, period, zeros and asymptotes of the function.

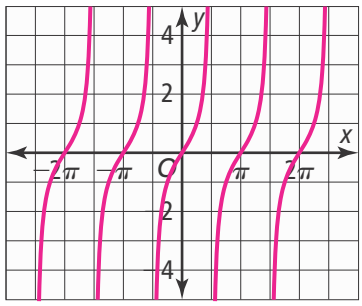
1. $y = \tan x$

Domain: $\{x : x \neq \frac{\pi}{2} + n\pi$, where n is an integer$\}$

Range: $-\infty, \infty$

Period: π

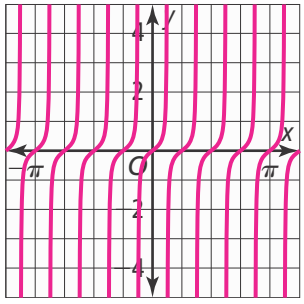
Asymptotes: any multiple of $\frac{\pi}{2}$



For Items 2 and 3, sketch the graphs of the functions. Then describe how the graph of each function compares to the graph of the parent function.

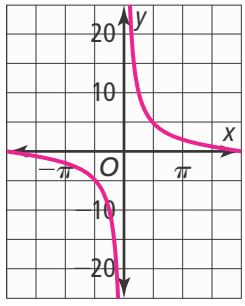
2. $y = \frac{1}{4}\tan 4x$

Vertical compression makes the graph look more bent than the parent function $y = \tan x$. Horizontal compression changes the period of the function to $\frac{\pi}{4}$.



3. $y = 2\cot 0.25x$

Vertical stretch makes the graph look straighter than the parent function $y = \cot x$. The horizontal stretch changes the period of the function from $\frac{\pi}{2}$ to 2π.



4. Benjamin is observing a hotel's entrance from a bench 30 ft away.

a. Write a function to model the height h of the hotel as a function of the angle of inclination x from his position to the entrance of the hotel. $y = 30 \tan x$

b. Identify an appropriate domain.
Answers may vary. Sample: $-\pi < x < \pi$

5. Write a csc function that has a period of $\frac{\pi}{4}$. $y = \csc 8x$

6. Graph the function $y = \sec x$. Describe how the graph of $y = \sec x$ is related to the graph of $y = \cos x$.

$y = \sec x$ is the reciprocal of $y = \cos x$.