

MATH 1080 NOTES

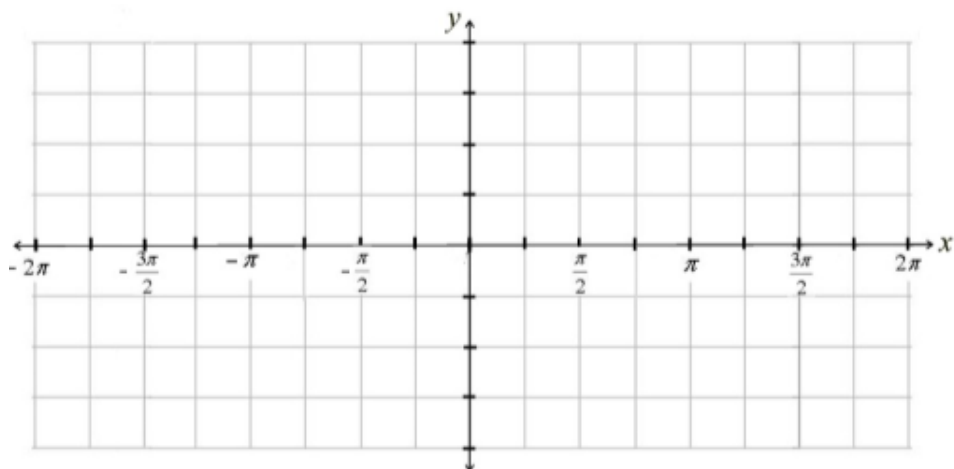
8.2 Graphing Other Trigonometric Functions

Objectives: Graph tangent, cotangent, secant, and cosecant functions.

Recall: The tangent is the ratio of the sine and cosine: $\tan x = \frac{\sin x}{\cos x}$

Example 1 Complete the table for $f(x) = \tan x$ and graph the tangent function.

x	$-\frac{\pi}{2}$	$-\frac{\pi}{4}$	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$
$f(x) = \tan x$					



Using the graph, state the:

a. period _____

b. amplitude _____

c. location of the asymptotes _____

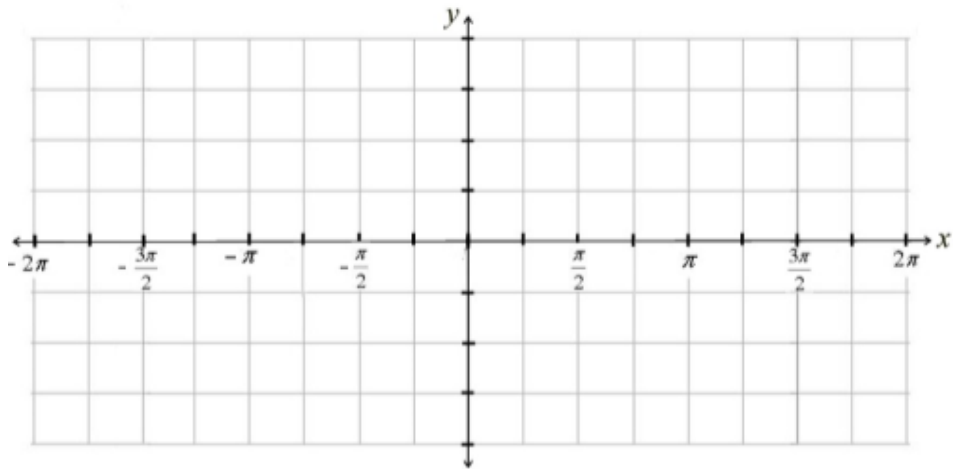
d. domain _____

e. range _____

Recall: The cotangent is the ratio of the cosine and sine: $\cot x = \frac{1}{\tan x} = \frac{\cos x}{\sin x}$

Example 2 Complete the table for $f(x) = \cot x$ and graph the cotangent function.

x	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π
$f(x) = \cot x$					



Using the graph, state the:

a. period _____

b. amplitude _____

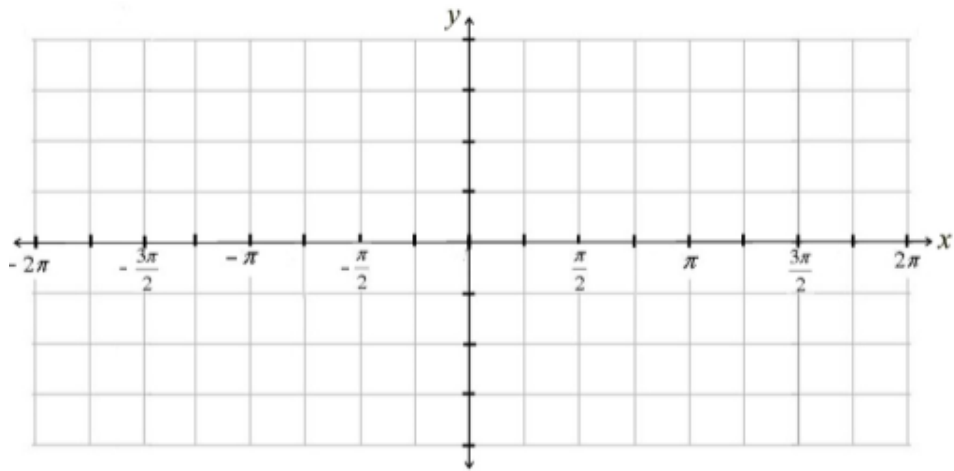
c. location of the asymptotes _____

d. domain _____

e. range _____

Recall: The cosecant is the reciprocal of the sine function: $\csc x = \frac{1}{\sin x}$

Example 3 Graph the function $f(x) = \csc x$.



Using the graph, state the:

a. period _____

b. amplitude _____

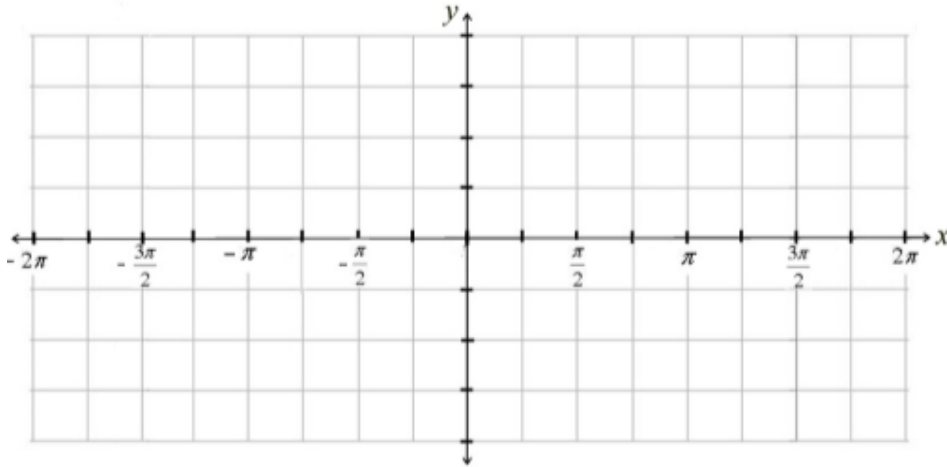
c. location of the asymptotes _____

d. domain _____

e. range _____

Recall: The secant is the reciprocal of the cosine function: $\sec x = \frac{1}{\cos x}$

Example 4 Graph the function $f(x) = \sec x$.



Using the graph, state the:

- a. period _____
- b. amplitude _____
- c. location of the asymptotes _____
- d. domain _____
- e. range _____

Example 5 Determine each value.

- a. $\tan \frac{9\pi}{2}$
- b. $\cot \frac{7\pi}{2}$
- c. $\csc (-5\pi)$
- d. $\sec (2\pi)$