Math 1316: 4-12 Worksheet

April 12, 2022

For this in-class exercise we're going to use the Desmos online graphing calculator to look at graphs of the less important four trig functions. https://desmos.com/calculator.

1. Let's start with tangent. First graph $\tan(x)$. Also graph $\cot(x)$, and compare the two graphs.
2. Next, let's look at how parameters affect these graphs. Graph $A\tan(Bx+D)+C$. When you change the values of the various parameters, how does the affect the shape of the graph. In particular, what happens when A is negative?
3. Do the same thing with cotangent. Graph $A\cot(Bx+D)+C$, and observe how changing the parameters affects the shape of the graph.
4. Now let's look at secant and cosecant. First, graph $\sec(x)$ and $\cos(x)$. Compare the two graphs. How does the shape of the $\cos(x)$ graph determine the shape of the $\sec(x)$ graph?
5. Do the same for $\csc(x)$ and $\sin(x)$.
6. Next, let's look at how parameters affect these. Graph $A\sec(Bx+C)+D$. How does changing the parameters affect the shape of the graph.
7. Do the same with $A\csc(Bx+C)+D$.
8. Compare secant with parameters to cosine with parameters (or cosecant with parameters to sine with parameters). Do they continue to be reciprocals of each other when you introduce parameters?